Natural Resources Wales permitting decisions

Variation and Consolidation of a bespoke Permit – The First Milk Cheese Company Limited

We have decided to issue a Natural Resources Wales initiated variation and consolidated permit for Haverfordwest Creamery in Merlins Bridge, Haverfordwest operated by The First Milk Cheese Company Limited.

The permit number is EPR/XP3830UR.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

The permit has been varied following the publication of the revised Best Available Techniques (BAT) Reference Documents (BREF) for Food, Drink and Milk Industries. The associated BAT conclusions to this document were published on 4 December 2019 in the Official Journal of the European Union.

This variation incorporates the changes required by the Industrial Emissions Directive following a statutory review of permits in the Food, Drink and Milk sector. These include the amendment of the wording of several permit conditions relating to notifications, changes to emissions limits and monitoring requirements.

We are satisfied that the operator will be compliant with the published BAT conclusions which will apply from 4 December 2023.

Purpose of this document

This decision document:

- explains how we have carried out our statutory review of the Operator's Permit;
- why we have decided to vary the Permit as a result of that review; and
- why we have included the specific conditions in the revised Permit through the variation notice we are issuing.

It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position.

Structure of this document

- Assessment of Haverfordwest Creamery against the published BAT conclusions for Food, Drink and Milk Industries.
- Annex 1 – Decision Checklist regarding relevant BAT Conclusions for Food, Drink and Milk Industries

Assessment of Haverfordwest Creamery against the published BAT conclusions for Food, Drink and Milk Industries

1. Our decision

We have issued a variation, which will allow the Operator to operate the installation, subject to the conditions in the varied permit.

The variation does three things:

- it consolidates the original permit to reflect changes made through earlier variations;
- it brings the permit into line with our modern regulatory template; and
- it varies the permit where appropriate to reflect the outcome of our statutory review and incorporate Best Available Techniques (BAT) and Associated Emission Limit Values (BAT-AELs).

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

The original permit, issued on the 12/10/2005 ensured that the installation, employed Best Available Techniques and ensured a high level of protection for human health and the environment. We have altered the permit as a result of the statutory review, and we are confident that the new requirements will deliver a superior level of protection to that which was previously achieved. Where a site is not currently

compliant with BAT, Improvement Conditions have been included to bring the site up standard by 4 December 2023.

2. The legal framework

The Variation and Consolidation Notice (which includes the consolidated permit as Schedule 2) will be issued under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 (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 Industrial Emissions Directive (IED);
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the Variation and Consolidated Permit, 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.

3. How we reached our decision

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 on 28 April 2020 requiring the operator to provide information to demonstrate how the operation of their installation currently meets, or will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

The Regulation 61(1) Notice required the operator to:

- Describe the techniques that will be implemented before 4 December 2023, which will then ensure that operations meet the revised standard, or
- Justify 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 standard is not applicable to those processes, or
- Justify why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.

- Where their permitted activity involves the use, production or release of a hazardous substance, as defined in Article 3(18) of the Industrial Emissions Directive, the Operator was required to carry out a risk assessment considering the possibility of soil and groundwater contamination at the permitted installation with such substances. Where risk of such contamination is established prepare a baseline report containing information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definite cessation of the activity.
- Where their permitted activity involves the use, production, storage or release of priority hazardous substances and any other relevant substances., as defined by the Water Framework Directive, the Operator was required to carry out a risk screening assessment considering the presence of priority hazardous substances at the permitted installation. Where a risk of these substances is established the operator is to sample the effluent and screen for the priority hazardous substances. If these substances are found to be present in the effluent stream, then assessment using the H1 tool and potential detailed modelling will be required to demonstrate that the effluent discharge will not have a significant impact to the receiving water.

Where the operator proposed that they were not intending to meet a BAT standard, that also included a BAT-AEL described in the Food, Drink and Milk BAT Conclusions Document, the Regulation 61(1) Notice requested that the operator make a formal request for derogation from compliance with that 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(1) Notice response from the operator was received on the 12 October 2020. No additional information was received. We considered that the response contained sufficient information for us to commence determination of the permit review. The operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61(1) Notice response that appears to be confidential in relation to any part.

4. Key issues/Regulation 61 response

BAT Conclusions for the Food, Drink and Milk Industries were published as

Commission Implementing Decision EU 2019/2031 in the Official Journal of the EU on 4 December 2019. There are 37 BAT Conclusions. Annex 1 provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This should be read in conjunction with the permit/variation notice issued.

A detailed response was received from the Operator. Where the operator has concluded that they have achieved BAT, and we are in agreement, no further information or justification has been sought by Natural Resources Wales.

Baseline report

Where their permitted activity involves the use, production or release of a hazardous substance, as defined in Article 3(18) of the Industrial Emissions Directive, the Operator was required to carry out a risk assessment considering the possibility of soil and groundwater contamination at the permitted installation with such substances. Where risk of such contamination is established prepare a baseline report containing information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definite cessation of the activity.

The Operator did not provide a suitable response to the request above, therefore an Improvement Condition has been set.

5. Changes we have made

Improvement Conditions

Based on the information provided in the Regulation 61(1) response, we consider that we need to set improvement conditions. These conditions are set out below. We are using these conditions to require the operator to provide Natural Resources Wales with details that need to be established or confirmed during operations. The improvement conditions ensure compliance by 2023.

IC6	The Operator shall submit to Natural Resources Wales an updated written procedure(s) following additional investigative work describing how they intend to meet the following BAT requirements in accordance with requirements specified within: • BAT Conclusion 13 of the Food, Drink and Milk Industries BRef Document (EU 2019) – 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 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 e.g. 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.	4 June 2023 or otherwise agreed in writing with Natural Resources Wales
IC7	The Operator shall submit to Natural Resources Wales an updated written procedure(s) following additional investigative work describing how they intend to meet the following BAT requirements in accordance with requirements specified within: • BAT Conclusion 15 of the Food, Drink and Milk Industries BRef Document (EU 2019) – 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, that includes all of the following elements: - a protocol containing actions and timelines - a protocol for conducting odour monitoring. It may be complemented by measurement/estimation of odour exposure or estimation of odour impact. - a protocol for response to identified odour incidents e.g. complaints - an odour 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.	4 June 2023 or otherwise agreed in writing with Natural Resources Wales
IC8	The Operator shall complete and submit for approval in writing by Natural Resources Wales: • A baseline report containing information necessary to determine the current state of soil and groundwater contamination; or • Provide a summary report referring to information previously submitted where you are satisfied that such information represents the current state of soil and groundwater contamination; so as to enable a quantified comparison to be made with the state of soil and groundwater contamination upon definitive cessation of activity.	4 June 2023 or otherwise agreed in writing with Natural Resources Wales
IC9	The Operator shall submit to Natural Resources Wales an updated Environment Management System which incorporates recent changes made to the Effluent Treatment Process.	12 weeks from issue date of V006 variation

IC10	The Operator shall submit to Natural Resources Wales an updated written procedure following additional investigatory work describing how they intend to meet the following BAT requirements in accordance with the requirements specified within: • BAT Conclusion 9 of the Food, Drink and Milk Industries BRef Document (EU 2019) – 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 The report should include but not limited to: • a review of the use of the current refrigerant(s) as to whether they meet the BAT requirements as specified above and; • a feasibility study and implementation plan (if appropriate) regarding the replacement of the current refrigerant(s) with one with a lower global warming potential and no ozone depletion potential. Suitable alternatives include but not limited to ammonia, water and carbon dioxide. The report shall be submitted to Natural Resources Wales by the date specified for review. Natural Resources Wales will review the report to determine if the above BAT requirements have been achieved.	4 June 2023 or otherwise agreed in writing with Natural Resources Wales
IC11	(a) The Operator shall submit to NRW the maximum capacity of the installation that was used in the most recent risk assessment submitted to NRW. (b) The Operator shall submit to NRW for approval the maximum capacity of the installation at the current time. (c) If the maximum capacity of the installation has increased from the time of the last submitted risk assessment and the current time, the Operator shall review and update the risk assessment to account for the current maximum capacity. The risk assessment shall be submitted to NRW for review. Notes: The capacity is to be taken and presented using the same units from the relevant sub-section of Section 6.8, Part 2, Schedule 1 of the Environmental Permitting Regulations 2016 (as from time to time amended). Capacity is to be taken as the maximum possible capacity of the installation, not the maximum actual production. The risk assessment should follow the methodology set out in The Environmental Risk Assessment (EPR-H1). You may use a methodology other than EPR-H1 however the methodology must address the same issues as in EPR-H1 to an equivalent level of detail.	(a) and (b) Within 6 months of permit variation issue (c) Within 9 months of permit variation issue (if applicable)

IC6, IC7 and IC10 have been included due to deficiencies in the Operator BAT assessment, see Annex 1 for full details. IC8 has been included as the Operator did not provide a response to the request in the Regulation 61(1) Notice. IC9 has been included due a request from the Regulatory compliance officer for the site.

Capacity creep

We have included an improvement condition (IC11) in order to establish the current maximum capacity at the installation and to determine if there has been a change since the last risk assessment submitted to NRW. If there has been an increase in the maximum capacity, what we call capacity creep, we have asked the Operator to

review and update their risk assessment and submit to us for review. We have also implemented a maximum capacity limit into Table S1.1 of the permit in line with the IC response to prevent any further capacity creep at the installation.

Other changes

We have updated the improvement condition table in the permit as detailed above. We have used this opportunity to update the operating techniques table in the permit to include operating techniques relating to the effluent treatment plant and the nutrient offset scheme.

We have updated the site plans in the permit as they were previously incorrect in showing the extent of the site boundary relating to the east side of the site where the Effluent Treatment Plant is situated. As per IC8 the Operator will be required to submit a site condition report that encompasses the whole site.

We have updated the activity description of activity reference A6 as it was not accurate and did not reflect the operational activity on site. The activity relates to operation of passive carbon filters as opposed to an active odour control unit.

We have removed Note 2 from Table S3.1 and Note 1 from Table S4.1 relating to monitoring of the Medium Combustion Plant within 4 months of permit issue/operation. The Operator has already satisfied this 4 month monitoring condition and therefore the monitoring will now be annually going forward (from January 2022), the notes are removed from the permit to avoid any confusion in the monitoring frequency required.

Operational Changes

There have been no operational changes at the installation as part of this variation.

Medium Combustion Plant (MCP) / Specified Generator (SG)

The installation has three existing MCPs already listed in Table S1.1 as a Directly Associated Activity and with emission points (A1 – A3) in Table S3.1. The existing MCPs are natural gas boilers, each 8.0 MWth input. Emission Limit Values (ELVs) and monitoring for existing MCPs is not required until 1st January 2025 at the earliest. As this is some way off, we decided to maintain any existing ELVs and monitoring requirements in the permit and not to impose new stricter ELVs ahead of time. The installation also has one new MCP added in Variation V005 listed in Table S1.1 with

emission point A4 in Table S3.1, as this is a new MCP, the requirements of the MCP Directive apply now.

Emissions to Water

As part of our delivery of the Water Framework Directive requirements, we need to identify and assess the impact for all discharges to surface waters and/or sewer from the site for priority hazardous substances and any other relevant substances. The emissions monitoring for these substances should be carried out using the methods and standards described in the M18 guidance on "Monitoring of discharges to water and sewer".

With reference to the risk assessment guidance on the gov.uk website entitled "Surface water pollution risk assessment for your environmental permit" (accessible via: https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit) the company carried out the following assessments:

- Screening tests for priority hazardous pollutants and any other relevant priority hazardous substances.
- For any substance which is not screened out by the screening tests further modelling, as described in the risk assessment guidance "Surface water pollution risk assessment for your environmental permit".

The installation has two discharges to surface water, one of treated process effluent and all surface water via their Effluent Treatment Plant (ETP) to the Western Cleddau, the other of uncontaminated surface water drainage to Merlins Brook. The Operator has stated that the ETP activity was altered in 2013 via a substantial permit variation, a full risk assessment of the discharge was completed as part of the permit application and there has been no change to the discharge since the risk assessment was completed, therefore the risk assessment remains valid and accurate. We are in agreement with the Operator and do not consider it necessary for the Operator to complete the risk assessment again.

The specific BAT Conclusions on water emissions were also reviewed based on the Food, Drink and Milk BREF and the following changes are made to the ELVs for emissions to water taking into account BAT Conclusion 12 from the BREF.

ELVs have been amended for the following parameters:

Parameter	Limit	Compliance period
Temperature	35 °C (absolute maximum)	Until 3 December 2023

Biochemical oxygen demand	40 mg/L (absolute maximum)	
	20 mg/L (95th percentile)	
Total suspended solids	60 mg/L (absolute maximum)	
	30 mg/L (95th percentile)	
Ammonia	10 mg/L (absolute maximum)	
	3.5 mg/L (95th percentile)	
Total phosphates	5 mg/L (absolute maximum)	
	3 mg/L (95th percentile)	
Iron	10 mg/L (absolute maximum)	
	5 mg/L (95th percentile)	
Aluminium	2.0 mg/L (absolute maximum)	
	1.0 mg/L (95th percentile)	
pH	6 – 9 (minimum, maximum)	

Where BAT-AELs are identified limits may be prescribed at the top end of the range unless the proximity of sensitive receptors requires a tighter limit or if tighter limits are previously on the permit, this ensures no backsliding of emission limits. The red text below indicate the ELV that have changed following implementation of the BAT-AELs.

Parameter	Limit	Compliance period
Temperature	35 °C (absolute maximum)	From 4 December 2023
Biochemical oxygen demand	40 mg/L (absolute maximum)	
	20 mg/L (95th percentile)	
Total suspended solids	50 mg/L (daily average)	
Ammonia	10 mg/L (absolute maximum)	
	3.5 mg/L (95th percentile)	
Total phosphorus	4 mg/L (daily average)	
Iron	10 mg/L (absolute maximum)	
	5 mg/L (95th percentile)	
Aluminium	2.0 mg/L (absolute maximum)	
	1.0 mg/L (95th percentile)	
pH	6 – 9 (minimum, maximum)	
Total nitrogen	20 mg/L (daily average)	
Chemical oxygen demand	125 mg/L (daily average)	

We have removed the current absolute maximum and 95%ile limits on both Total Suspended Solids and Total phosphorus and replaced with a daily average limit in line with the BAT-AELs. We consider this not detrimental to the environment nor backsliding because:

- the monitoring is being changed from spot samples to 24-hour flow proportional composite which enables a much more accurate determination
- there is no change in the actual process effluent discharged so the level of TSS and total phosphorus will remain the same
- the current 95%ile limits and the look up table allowed for a maximum of 5 ELV breaches a year (if they sampled every week). There will be no breaches allowed with the daily average limits

Emissions to Water – Article 15(4) Derogations

No derogations

Emissions to Air

There were no changes to the ELVs for emissions to air as no BAT-AELs are applicable. All four point source emissions to air at the installation are from combustion units.

Emissions to Air – Article 15(4) Derogations

No derogations

Other IED BREFs relevant to the permit review

There is a Section 5.4 activity listed within Table S1.1 of the permit relating to the Effluent Treatment Process of process effluent from the main activity. We consider this activity to be covered by the BAT conclusions with the Food, Drink and Milk BREF and therefore no additional assessment has been completed against the Waste Treatment BREF.

6. Conclusion

We consider that the installation already employed what used to be BAT, and that the operator has achieved significant improvements in performance since the permit was originally granted. The revised BREF and its BAT-AELs provide the opportunity to consider further environmental improvements.

Coupled with the consolidation and modernisation of the permit, we believe this variation provides a sound basis for ongoing regulation of the installation and we are

satisfied that the operator is currently achieving or will be achieving all relevant BAT by 4 December 2023.

We believe that we have ensured compliance with all relevant legal requirements in carrying out this review and making our determination on the variation.

Annex 1: Decision checklist regarding relevant BAT Conclusions for Food, Drink and Milk Industries

BAT Conclusions for the Food, Drink and Milk Industries were published as Commission Implementing Decision EU 2019/2031 in the Official Journal of the EU on 4 December 2019. There are 37 BAT Conclusions. This checklist 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 permit.

All BAT Conclusions arising are listed by number in order below;

BATc number		Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
OVERALL ENVIRONMENTAL PERFORMANCE			
1	**Environment Management System (EMS) – <u>ALL</u> of the following:**		
	I.	Commitment, leadership and accountability of the management, including senior management for the implementation of an effective EMS	Compliant in the future The Operator has stated their EMS meets the requirements of this BAT conclusion with one exception. The Operator has stated that there is improvement needed to their current EMS include periodic independent auditing which they have stated they will be compliant with by December 2023. Their current EMS is based on ISO14001 requirements however it is not externally accredited.
	II.	An analysis that includes the determination of the organisation's context, the identification of the needs and expectations of interested parties, the identification of characteristics of the installation that are associated with possible risks for the environment (or human health) as well as of the applicable legal requirements relating to the environment.	
	III.	Development of an environmental policy that includes the continuous improvement of the environmental performance of the installation	
	IV.	establishing objectives and performance indicators in relation to significant environmental aspects, including safeguarding compliance with applicable	

BATc number		Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		legal requirements;	
	V.	Planning and implementing the necessary procedures and actions (including corrective and preventive actions where needed), to achieve the environmental objectives and avoid environmental risks;	
	VI.	Determination of structures, roles and responsibilities in relation to environmental aspects and objectives and provision of the financial and human resources needed;	
	VII.	Ensuring the necessary competence and awareness of staff whose work may affect the environmental performance of the installation (e.g. by providing information and training);	
	VIII.	Internal and external communication	
	IX.	Fostering employee involvement in good environmental management practices;	
	X.	Establishing and maintaining a management manual and written procedures to control activities with significant environmental impact as well as relevant records;	
	XI.	Effective operational planning and process control;	
	XII.	Implementation of appropriate maintenance programmes;	
	XIII.	Emergency preparedness and response protocols, including the prevention and/or mitigation of the adverse (environmental) impacts of emergency situations;	
	XIV.	When (re)designing a (new) installation or a part thereof, consideration of its environmental impacts throughout its life, which includes construction, maintenance, operation and decommissioning;	
	XV.	Implementation of a monitoring and measurement programme, if necessary,	

BATc number		Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		information can be found in the Reference Report on Monitoring of Emissions to Air and Water from IED Installations;		
	XVI.	Application of sectoral benchmarking on a regular basis;		
	XVII.	Periodic independent (as far as practicable) internal auditing and periodic independent external auditing in order to assess the environmental performance and to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;		
	XVIII.	Evaluation of causes of nonconformities, implementation of corrective actions in response to nonconformities, review of the effectiveness of corrective actions, and determination of whether similar nonconformities exist or could potentially occur;		
	XIX.	Periodic review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;		
	XX.	Following and taking into account the development of cleaner techniques.		
	(i)	Noise Management Plan (BAT 13)		See BAT13
	(ii)	Odour Management Plan (BAT 15)		See BAT15
	(iii)	Inventory of water, energy and raw materials consumption as well as of waste water and waste gas streams (BAT 2)		See BAT2
	(iv)	Energy Efficiency Plan (BAT 6a)		See BAT 6a
2	**Establish and maintain a waste water and waste gas inventory as part of the EMS - <u>ALL</u> of the following:**			
	Information about the food, drink and milk production processes, including;			
	I.(a)	simplified process flow sheets that show the origin of the emissions		Currently Compliant The Operator has stated there is daily, weekly, monthly and annual Key Performance Indicator monitoring and tracking systems for Electricity,
	I.(b)	descriptions of process-integrated techniques and waste water/waste gas treatment techniques to prevent or reduce		

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		emissions, including their performance	Gas, Water, Milk, Packaging and effluent streams. See BAT7 for more detail.
	II.	Information about water consumption and usage and identification of actions to reduce water consumption and waste water volume (BAT 7)	
	Information on quantity and characteristics of the waste water streams, such as:		
	III.(a)	Average values and variability of flow, pH and temperature	Currently Compliant The Operator currently monitors the waste water streams continually for flow, temperature and pH. They measure certain parameters as specified by permit requirements (BOD, ammonia, total phosphorus) and we consider this appropriate.
	III.(b)	Average concentration and load values of relevant pollutants/parameters (e.g. TOC/COD, nitrogen species, phosphorus, chloride, conductivity) and their variability	
	Information on characteristics of waste gas streams, such as:		
	IV.(a)	*Mean and variability of:*	Currently Compliant The Operator measures certain characteristics on the waste gas streams (only from four combustion units) as per the current permit requirements to MCERTS standard. There is no waste gas treatment system in place, the only point source emissions to air are those from combustion sources.
		Flow	
		temperature	
	IV.(b)	*Mean concentration, load and variability of relevant substances:*	
		Dust	
		TVOC	
		CO	
		NOx	
		SOx	

BATc number		Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	IV.(c)	*Presence of other substances that may affect the waste gas treatment system or plant safety:*	
		O2	
		Water vapour	
		Dust	
	V.	Information about energy consumption and usage, the quantity of raw materials used, as well as the quantity and characteristics of residues generated, and identification of actions for continuous improvement of resource efficiency (BAT 6 and BAT 10)	Currently Compliant See BAT2
	VI.	Identification and implementation of an appropriate monitoring strategy with the aim of increasing resource efficiency, taking into account energy, water and raw materials consumption. Monitoring can include direct measurements, calculations or recording with an appropriate frequency. The monitoring is broken down at the most appropriate level (e.g. at process or plant/installation level).	Currently Compliant See BAT2
MONITORING			
3	**For relevant emissions to water as identified by the inventory of waste water streams (BAT 2): monitor key process parameters at key locations**		
	Key process parameters		
	Waste water flow		Currently Compliant The Operator currently monitors the waste water streams continually for flow, temperature and pH.
	pH		
	Temperature		

BATc number	Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		They measure certain parameters as specified by permit requirements (BOD, ammonia, total phosphorus) and we consider this appropriate.
	Key monitoring locations	
	Pre-treatment inlet and/or outlet	Currently Compliant The Operator currently monitors inflow to the ETP and outflow from the ETP in line with the permit requirements to BS EN standard.
	Final treatment inlet	
	Discharge point (to the environment)	
	Other location	
4	*Monitoring of water emissions: monitor emissions to water with at least the frequency given below and in accordance with EN standards:*	
	Refer to monitoring emissions to water table in BRef document	Compliant in the future The Operator currently monitors: BOD, total suspended solids, ammonia, total phosphates, iron, aluminium weekly and Temperature and pH continuously. As per the BREF we will implement additional monitoring for COD, total Nitrogen and Chloride to the frequency and standard as stated in the BREF. There is no standard for COD therefore we will implement the standard as stated in M18 guidance. We will retain weekly sampling as the emissions are considered sufficiently stable and do not consider it necessary to increase the frequency to daily.
5	Refer to monitoring emissions to air table in BRef document Monitoring parameters depend on sector	Not Applicable Only point source emissions to air are from combustion processes therefore not in scope of

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			this BAT conclusion.
6	**Energy Efficiency: BAT is to use 6a and appropriate combination of common techniques**		
	a.	Energy Efficiency Plan	Compliant in the future Operator has stated there are KPIs in place for energy use via their Continuous Improvement Plan and Annual Business Plans. However, the Operator has stated an 'energy efficiency plan' needs to be formally put in place by December 2023.
	b.	Use of common techniques	Currently Compliant The Operator has stated the following techniques are in place at the site, including but not limited to: • Burner regulation and control on all three site boilers • Energy efficient motors and pumps • Heat recovery using large number of heat exchangers • SCADA process control system • Ongoing programme of pipe and vessel insulation / lagging • Introduction of CHP plant which has seen reduction in grid electricity use
7	**Water consumption and waste water discharge** **BAT is to use 7a and one or a combination of techniques in b to k**		
	a.	Water recycling and/or reuse	Currently Compliant

BATc number		Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			The Operator has stated they currently extract 45 – 47% of water from milk in the cheese making process, this water is then cleaned and utilised within different operations throughout the site. The extracted water accounts for over 35% of the total water use on site each year. The Operator has stated they reuse water within the cooling plant, emergency sprinkler system and during cleaning in place.
	b.	Optimisation of water flow	Currently Compliant The Operator has stated the following techniques are in place: • Cleaning in place • Reuse of water within the emergency sprinkler systems • Reuse of water within the cooling plants The Operator has stated that all techniques are in place apart from 'pigging'.
	c.	Optimisation of water nozzles and hoses	
	d.	Segregation of water streams	
	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	
8	**Harmful substances. BAT is to use one or a combination of the techniques given below:**		
	a.	Proper selection of cleaning chemicals and/or disinfectants	Currently Compliant The Operator has stated dry cleaning and
	b.	Reuse of cleaning chemicals in cleaning-in-place CIP	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Dry cleaning	cleaning in place are utilised at the site.
	d.	Optimised design and construction of equipment and process areas	
9	**BAT is to use refrigerants without ozone depletion potential and with a low global warming potential**		Compliant in the future The Operator has stated that all gases with a GWP of over 2500 have been removed from site. The refrigerant in use now is product R449a which has a GWP of 1397 and Ozone depleting rating of 0. R449a is a HFO – hydroflouro-olefin based refrigerant. However this refrigerant still has a relatively high GWP we have asked the Operator for an improvement condition to review the use of this refrigerant and assess the feasibility of moving towards using one with a lower GWP.
10	**Increase resource efficiency, use one or a combination of the techniques given below**		
	a.	Anaerobic digestion	Currently Compliant The Operator has stated the following techniques are in use at the site: • Sludge from ETP is sent to a local Anaerobic Digestion plant • Separation of residues (capture of cheeses residues) by using capture mechanisms such as 'catch trays' • They capture any residues where they can't make full products out of, these
	b.	Use of residues	
	c.	Separation of residues	
	d.	Recovery and reuse of residues from pasteuriser	
	e.	Phosphorus recovery as struvite	
	f.	Use of waste water for land spreading	

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			residues are separately marketed as other products • Any cheese waste that touches the floor must be spoiled and sent for disposal, this is either sent to Anaerobic Digestion or landfill
EMISSIONS TO WATER			
11	**Prevent uncontrolled emissions to water, provide an appropriate buffer storage capacity for waste water**		Currently Compliant There is a divert tank 1800 m^3 in size to divert any out of specification effluent prior to discharge.
12	**Reduce emissions to water, use an appropriate combination of the techniques given below**		Currently Compliant The Operator stated the following processes are in place: • DAF – dissolved air flotation with optional chemical dosing • Coagulation • Membrane bioreactor system
	a.	Equalisation	
	b.	Neutralisation	
	c.	Physical separation	
	d.	Aerobic and/or anaerobic treatment	
	e.	Nitrification and/or denitrification	
	f.	Partial nitrification	
	g.	Phosphorus recovery as struvite	
	h.	Precipitation	
	i.	Enhanced biological phosphorus removal	
	j.	Coagulation and flocculation	
	k.	Sedimentation	

BATc number		Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	l.	Filtration	
	m.	Flotation	
	BAT-AELs for direct emissions to a receiving water body. Table 1 and associated notes. Associated monitoring given in BAT 4.		
	Chemical oxygen demand COD	25–100 mg/L	Compliant now The BAT-AEL limit of 125 mg/L will be applied as the site is a Dairy. The current permit has a BOD ELV of 40 mg/L (absolute maximum). COD is higher than BOD with 0.1 – 0.3 BOD to COD ratio typically seen in final treated effluent, this would give a predicted maximum concentration of 120 mg/L COD therefore able to meet the COD BAT-AEL. The COD BAT-AEL of 125 mg/L (daily average) will be imposed as part of the permit requirements by 2023. The Operator has stated compliant now.
	Total suspended solids TSS	4–50 mg/L	Compliant now The Operator currently has a total suspended solids limit of 60 mg/L (absolute maximum) in their permit; however they have stated compliant now with the BAT-AEL. The TSS BAT-AEL of 50 mg/L (daily average) will be imposed as part of the permit requirements by 2023.
	Total nitrogen	2–20 mg/L	Compliant now Total nitrogen is made up of free ammonia and

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			ammonium, nitrite, nitrate and organic nitrogen compounds. The site currently monitors ammoniacal nitrogen with an ELV of 10 mg/L (absolute maximum). Therefore, it is expected the Operator will be able to meet the BAT-AEL for Total Nitrogen (daily average). The Total Nitrogen BAT-AEL of 20 mg/L (daily average) will be imposed as part of the permit requirements by 2023.
	Total phosphorus	0.2–2.0 mg/L	Compliant in the future The Operator currently has a limit of 5 mg/L (absolute maximum) for total phosphates in their permit. The Operator has stated meeting the BAT-AEL of 4 mg/L for total phosphorus will be a challenge however have indicated they will work with their ETP contractor towards meeting the new BAT-AEL and have not indicated the need for a derogation nor have they requested a derogation. The Total phosphorus BAT-AEL of 4 mg/L (daily average) will be implemented through the permit requirements by 2023.
NOISE			
13	**Set up, implement, and regularly review a Noise Management Plan (as part of the EMS) where nuisance is expected and/or has been substantiated. Include <u>ALL</u> of the following:**		
	I.	A protocol containing actions and timelines	Compliant in the future A copy of the noise management plan has not
	II.	A protocol for conducting noise emissions monitoring	

BATc number		Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	III.	A protocol for response to identified noise events, e.g. complaints	been submitted therefore we cannot review this against the BAT conclusion; therefore an improvement condition has been set.
	IV.	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.	
14	**Techniques to prevent, or where not practicable reduce noise and vibration emissions. Use one or a combination of the following:**		
	a.	Appropriate location of equipment and buildings	Currently Compliant The Operator has stated the following techniques are in place: • Purposeful location of certain plant • Acoustic cladding of certain plant • Planned preventative maintenance system • Noise monitoring • Avoiding noisy activities at night
	b.	Operational measures – see examples	
	c.	Low-noise equipment – see examples	
	d.	Noise control equipment – see examples	
	e.	Noise abatement – see examples	
ODOUR			
15	**Set up, implement, and regularly review an Odour Management Plan (as part of the EMS) where nuisance is expected and/or has been substantiated. Include ALL of the following:**		
	I.	Protocol with actions and timelines	Compliant in the future A copy of the odour management plan has not been submitted therefore we cannot review this against the BAT conclusion; therefore an improvement condition has been set.
	II.	Odour monitoring protocol	
	III.	Odour complaint response plan/protocol	
	IV.	Odour prevention and reduction programme	

BATc number	Summary of BAT Conclusion requirement		**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
BAT CONCLUSIONS FOR DAIRIES			
21	**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:**		
	a.	Partial milk homogenisation	Currently Compliant See BAT 6 for list of techniques in place
	b.	Energy-efficient homogeniser	
	c.	Use of continuous pasteurisers	
	d.	Regenerative heat exchange in pasteurisation	
	e.	Ultra-high-temperature (UHT) processing of milk without intermediate pasteurisation	
	f.	Multi-stage drying in powder production	
	g.	Precooling of ice-water	
Indicative	***Indicative environmental performance levels for specific energy consumption*** *Table 8 and footnotes*		
	Market milk	0.1-0.6 MWh/tonne of raw materials	Indicative levels The Operator has stated the indicative level is slightly lower than their annual average however they anticipate their average to reduce due to the introduction of their CHP plant and further improvements across the site. This figure will continue to be reported to NRW on an annual basis.
	Cheese	0.10-0.22 MWh/tonne of raw materials	
	Powder	0.2-0.5 MWh/tonne of raw materials	
	Fermented milk	0.2-1.6 MWh/tonne of raw materials	
Indicative	***Indicative environmental performance levels for specific waste water discharge*** *Table 9*		
	Market milk	0.3-3.0 m^3/tonne of raw materials	Indicative levels

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Cheese	0.75-2.5 m^3/tonne of raw materials	The Operator has not indicated their level for specific waste water discharge.
	Powder	1.2-2.7 m^3/tonne of raw materials	
22	**In order to reduce the quantity of waste sent for disposal, BAT is to use one or a combination of the techniques given below:**		
	Techniques related to the use of centrifuges		Currently Compliant The site manufacturers cheese. Whey cream is separated via centrifugal separation and sold on for further processing into butter, ghee or butteroil. The whey has water separated via reverse osmosis and heat evaporation leaving concentrated whey liquor which is sold on for further processing into sports and animal nutrition products. Water extracted from the whey is then reused at the site.
	a.	Optimised operation of centrifuges	
	Techniques related to butter production		
	b.	Rinsing of the cream heater with skimmed milk or water	
	Techniques related to ice cream production		
	c.	Continuous freezing of ice cream	
	Techniques related to cheese production		
	d.	Minimisation of the generation of acid whey	
	e.	Recovery and use of whey	
23	**In order to reduce channelled dust emissions to air from drying, BAT is to use one or a combination of the techniques given below:**		
	a.	Bag filter	Not Applicable No channelled dust emissions to air
	b.	Cyclone	
	c.	Wet scrubber	
	BAT-AELs for channelled dust emissions to air from handling and processing of malt and adjuncts *Table 10*		
	Dust	< 2-10 mg/Nm^3	Not Applicable No channelled dust emissions to air

Annex 2: Consultation on the draft decision where an Article 15(4) derogation has been applied

Not Applicable