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/BN1429IC
The Operator is:	Molson Coors Brewing Company (UK) Limited
The Installation is:	Tower Brewery Tadcaster
This Variation Notice number is:	EPR/BN1429IC/V008

What this document is about

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication by the European Commission of updated decisions on best available techniques (BAT) Conclusions.

We have reviewed the permit for this installation against the BAT Conclusions for the Food, Drink and Milk Industries published on 4th December 2019 in the Official Journal of the European Union. In this decision document, we set out the reasoning for the consolidated variation notice that we have issued.

It explains how we have reviewed and considered the techniques used by the Operator in the operation and control of the plant and activities of the installation. It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position.

As well as considering the review of the operating techniques used by the Operator for the operation of the plant and activities of the installation, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issue. Where this has not already been done, it also modernises the entire permit to reflect the conditions contained in our current generic permit template.

The introduction of new template conditions makes the Permit consistent with our current general approach and with other permits issued to Installations in this sector. Although the wording of some conditions has changed, while others have been deleted because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the Permit in any way. In this document, we therefore address only our determination of substantive issues relating to the new BAT Conclusions.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future.

How this document is structured

1. Our decision
2. How we reached our decision
3. The legal framework
4. Annex 1 – Review of operating techniques within the Installation against BAT Conclusions.
5. Annex 2 – Review and assessment of changes that are not part of the BAT Conclusions derived permit review
6. Annex 3 – Improvement Conditions

1 Our decision

We have decided to issue the Variation Notice to the Operator. This will allow the Operator to continue to operate the Installation, subject to the conditions in the Consolidated Variation Notice that updates the whole permit.

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

The Consolidated Variation Notice contains many conditions taken from our standard Environmental Permit template including the relevant annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the Notice, we have considered the techniques identified by the operator for the operation of their installation and have accepted that the details are sufficient and satisfactory to make those standard conditions appropriate. This document does, however, provide an explanation of our use of "tailor-made" or installation-specific conditions, or where our Permit template provides two or more options.

2 How we reached our decision

2.1 Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 (a Regulation 61 Notice) on 07/06/2022 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 05/10/2022.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review but not that it necessarily contained all the information we would need to complete that determination.

The Operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61 Notice response that appears to be confidential in relation to any party.

2.2 Review of our own information in respect to the capability of the Installation to meet revised standards included in the BAT Conclusions document

Based on our records and previous experience in the regulation of the installation we consider that the Operator will be able to comply with the techniques and standards described in the BAT Conclusions other than for those techniques and requirements described in BAT Conclusion 6. The operator currently hasn't demonstrated compliance with the requirements of BATc 6. In relation to this BAT Conclusion, the operator has committed to demonstrate in writing that the BAT requirements for this BAT Conclusion were in place on or before 4 December 2023. We have therefore included Improvement Condition IC24 in the Consolidated Variation Notice to ensure that the requirements of the BAT Conclusions were delivered before or by 4 December 2023.

2.3 Requests for further information during determination

Although we were able to consider the Regulation 61 Notice response generally satisfactory at receipt, we did in fact need more information in order to complete our permit review assessment and issued a further information request on 26/10/2023. A copy of the further information request was placed on our public register.

3 The legal framework

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

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

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

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

Annex 1: decision checklist regarding relevant BAT Conclusions

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

There are 37 BAT Conclusions.

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

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

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

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

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

NA – Not Applicable
CC – Currently Compliant
FC – Compliant in the future (within 4 years of publication of BAT Conclusions)
NC – Not Compliant

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
GENERAL BAT CONCLUSIONS (BAT 1-15)			
1	**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 confirmed they have an Environmental Management System (EMS) in place which implements all of the features as described in BATc1.
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 operator has confirmed they have an Environmental Management System (EMS) in place which implements all of the features as described in BATc2.
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 discharges uncontaminated surface water runoff and concentrate from the reverse osmosis plant to the River Wharfe via an interceptor; uncontaminated surface water runoff to a Yorkshire Water Sewer; and process effluent for the site is the onsite effluent treatment plant operated under a

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
			separate permit (EPR/NP3135TM) by NSI Industrial O&M Solutions Ltd. Molson Coors confirmed continuous monitoring of influent and outflow is carried out, calibrated measurement devices are used, data is accessed through E Sights/ historian system. They also carry out 24 hour composite samples of influent and outflow, with a daily sampling and testing regime in place. Surface water monitoring is on a continuous sampling loop at the surface water interceptor.
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.	**NA**	We are satisfied that BATc 4 is not applicable to this installation. BATc4 is concerned with emissions to water of process effluent and this installation does not have such discharges. The effluent produced it treated in the onsite ETP operated by a different operator, NSI Industrial O&M Solutions Ltd, under the environmental permit EPR/ NP3135TM. Therefore, we consider that BATc 4 is not applicable to this installation.
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 and in accordance with EN standards.	**CC**	The operator has provided information to support compliance with BATc 5. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 5. The operator confirmed they would be complaint with BATc5 by the 04/12/2023, therefore, we have including monitoring requirements in line with BAT 5 for particulate emissions associated with the handling of malt

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
			and adjuncts for emission point A5 to the standard MCERTS BS EN 13284-1.
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.	**FC**	The operator has provided information to support compliance with BATc 6. We have assessed the information provided and we are not satisfied that the operator has demonstrated compliance with BATc 6. The operator stated they have glidepath in place for energy efficiencies, in addition to site based KPIs and weekly monitoring through FEWER meetings. An energy efficiency plan was not provided and the operator did not inform us of the energy efficiency techniques which are utilised on site. We have included improvement condition IC24 to ensure the operator meets compliance. The operator is required to complete the improvement conditions and demonstrate compliance with BAT6 by the compliance date (see Annex 3).
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. (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	**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. The operator has stated they are compliant indicating they recycle/reuse water and implement improvement such as CIP optimisation - reduction of rinse times, chemical use, minimise no of CIP's. Foam

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) 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		cleaners are used throughout the site to reduce water usage and facilitate cleaning.
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	**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. The operator has procedures in place to ensure all CIP and general use chemicals are purchased from approved supplier. The site works closely with the supplier to identify and progress opportunities for improvement. Weekly service visits ensure optimisation of CIP - cleaning chemicals and water, energy usage. CIP is an automated process; samples are taken to ensure correct chemical dosing rates are maintained. Some on the CIP systems have recovery tanks for reuse of chemicals/ water.
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 satisfied that the operator has demonstrated compliance with BATc 9. The operator confirmed that the site has an ammonia refrigeration system in place which is

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
			considered to have a low global warming potential.
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 (f) Use of waste water for land spreading	**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. The site implements appropriate techniques as described in BATc 10 these include: • Organic waste e.g. waste beer, filter cake and sludge is sent for Anaerobic Digestion. • Sludge deposits may be spread to land depending on time of year. • Byproducts from brewing e.g. overproduced good quality yeast is sent for food reprocessing. Byproducts which are not fit for human consumption are sent for animal feed where appropriate this is regulated by FEMAS. • The operator has confirmed that a cyclone/ dust extraction system is in place with bag filters on malt intake and malt bins, dust is recovered and put back through the process where quality procedures allow.
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 and we are satisfied that the operator has demonstrated compliance with BATc 11.

BATC No.	Summary of BAT Conclusion requirement for Food, Drink and Milk Industries	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
			The installations wastewater treatment plant has a divert tank and balance tank at the front end of the process. These holding tanks provide adequate storage for influent to manage the flow for processing though the plant. The site also has contingency measure in place in the form of tankers to take waste offsite which can be used in an emergency. Envirovalves are in place on final outflows, these can be deployed in an emergency. The wastewater treatment plant has a recirculation loop and site processes would be managed to reduce flow as required. Continuous monitoring probes in place for surface water and effluent.
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)	**NA**	We are satisfied that BATc 12 is not applicable to this installation. This site is a multi-operator installation, the treatment of the process effluent is carried out by the second operator in charge of the effluent treatment plant (ETP), NSI Industrial O&M Solutions Ltd, under the environmental permit EPR/ NP3135TM therefore, BATc12 is not applicable to this facility.

<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></td><td>(m) Flotation</td><td></td><td></td></tr>
<tr><td>12</td><td>Emissions to water – treatment
BAT-associated emission levels (BAT-AELs) for direct emissions to a receiving water body
<table><tr><th>Parameter</th><th>BAT-AEL ([15]) ([16]) (daily average)</th></tr><tr><td>Chemical oxygen demand (COD) ([17]) ([18])</td><td>25-100 mg/l ([19])</td></tr><tr><td>Total suspended solids (TSS)</td><td>4-50 mg/l ([20])</td></tr><tr><td>Total nitrogen (TN)</td><td>2-20 mg/l ([21]) ([22])</td></tr><tr><td>Total phosphorus (TP)</td><td>0,2-2 mg/l ([23])</td></tr></table></td><td>NA</td><td>We are satisfied that BATc 12 (BAT-AELs) is not applicable to this Installation.

This site is a multi-operator installation, the treatment of the process effluent is carried out by the second operator in charge of the effluent treatment plant (ETP), NSI Industrial O&M Solutions Ltd, under the environmental permit EPR/ NP3135TM therefore, BATc12 is not applicable to this facility.

Reverse Osmosis condensate is discharged to surface water however, this is not classified as a process effluent therefore the BAT-AELs are considered not applicable.</td></tr>
<tr><td>13</td><td>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.</td><td>CC</td><td>The operator has provided information to support compliance with BATc 13. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 13.

A noise management plan is in place and the operator has indicated it meets the requirement of BAT13. The noise management has not been assessed as part of this review.

Noise nuisance has been identified as an issue on site historically. The operator carries out a noise survey annually by competent contractors at local receptors. Detailed survey report and noise map produces along with recommendations for improvement.</td></tr>
</table>

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
			Actions are progressed and documented on action log.
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 (e) Noise abatement	**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. The operator has confirmed they implement appropriate techniques such as: • Consideration of noise is given to location of equipment in the event of new projects. • Operational measures are in place such as vehicles not left idling, no use of audible warnings, designated trailer parking areas. Management of bulk deliveries. • Process in place for recording nuisance complaints and tracking of remedial actions. • Complaints received and remedial actions taken are discussed as part of technical compliance review meetings.
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.	**NA**	We are satisfied that BATc 15 is not applicable to this Installation. BAT 15 is only applicable to cases where an odour nuisance at sensitive receptors is expected and/or has been substantiated, or if forms part of an existing permit requirement. There is no existing permit requirement, and the site has no recent history of odour complaints therefore an odour management plan is not required.

<table>
<tr><th>BATC No.</th><th>Summary of BAT Conclusion requirement for Food, Drink and Milk Industries</th><th>Status
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<tr><td colspan="2">BREWING BAT CONCLUSIONS (BAT 18 – 20)</td><td></td><td></td></tr>
<tr><td>18</td><td>Energy efficiency – Brewing Sector

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.

<table>
<tr><th colspan="2">Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>(a)</td><td>Mashing-in at higher temperatures</td><td>The mashing-in of the grain is carried out at temperatures of approximately 60 °C, which reduces the use of cold water.</td><td rowspan="3">May not be applicable due to the product specifications.</td></tr>
<tr><td>(b)</td><td>Decrease of the evaporation rate during wort boiling</td><td>The evaporation rate can be reduced from 10 % down to approximately 4 % per hour (e.g. by two-phase boiling systems, dynamic low-pressure boiling).</td></tr>
<tr><td>(c)</td><td>Increase of the degree of high-gravity brewing</td><td>Production of concentrated wort, which reduces its volume and thereby saves energy.</td></tr>
</table>

Applicable in addition to BAT6</td><td>CC</td><td>The operator has provided information to support compliance with BATc 18. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 18.

The operator has confirmed they implement appropriate techniques including:

a) Heat recovered from hot wort is used to pre heat incoming mash.
b) Evaporation rate is as low as sensory evaluation will allow.
c) High gravity brewing is as high as sensory evaluation will allow currently 10/70.</td></tr>
<tr><td>19</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>(a)</td><td>Recovery and (re)use of yeast after fermentation</td><td>After fermentation, yeast is collected and can be partially reused in the fermentation process and/or may be further used for multiple purposes, e.g. as animal feed, in the pharmaceutical industry, as a food ingredient, in an anaerobic waste water treatment plant for biogas production.</td></tr>
<tr><td>(b)</td><td>Recovery and (re)use of natural filter material</td><td>After chemical, enzymatic or thermal treatment, natural filter material (e.g. diatomaceous earth) may be partially reused in the filtration process. Natural filter material can also be used, e.g. as a soil improver.</td></tr>
</table>
</td><td>CC</td><td>The operator has provided information to support compliance with BATc 19. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 19.

The operator has confirmed that:
a) Yeast is recovered and reused based on maximum no of generations based on sensory evaluations once this is exceeded waste yeast is sent for re use in either food processing or animal feed (Regulated by FEMAS).
b) Natural filter material is currently used for all filtration, this is not captured as a separate waste stream, it is sent for treatment at the onsite ETP as part of the</td></tr>
</table>

<table>
<tr><th>BATC No.</th><th>Summary of BAT Conclusion requirement for Food, Drink and Milk Industries</th><th>Status
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<tr><td></td><td></td><td></td><td>effluent stream. Captured within waste sludge which is sent for AD or land spreading.</td></tr>
<tr><td>20</td><td>In order to reduce channelled dust emissions to air, BAT is to use a bag filter or both a cyclone and a bag filter.</td><td>CC</td><td>The operator has provided information to support compliance with BATc 20. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with BATc 20.

The operator has confirmed that a cyclone/ dust extraction system is in place with bag filters on malt intake and malt bins, dust is recovered and put back through the process where quality procedures allow.</td></tr>
<tr><td>20</td><td>BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from handling and processing of malt and adjuncts
<table><tr><td>Parameter</td><td>Description</td><td colspan="2">BAT-AEL (average over the sampling period)</td></tr><tr><td></td><td></td><td>New plants</td><td>Existing plants</td></tr><tr><td>Dust</td><td>mg/Nm^3</td><td><2 – 5</td><td><2 – 10</td></tr></table>
The associated monitoring is given in BAT 5.</td><td>CC</td><td>The operator has not previously been required to monitor air emissions so did not provide evidence of compliance. However, we consider the operator to be compliant from the issue of this permit.
We have integrated the BAT-AELs by including the limit of 10mg/m^3 for particulate matter for the emission point A5.</td></tr>
</table>

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<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Brewing Sector Environmental Performance Levels</td><td></td><td></td></tr>
<tr><td>EPL</td><td>Environmental Performance Level – Energy consumption for the brewing sector
<table><tr><td>Unit</td><td>Specific energy consumption (yearly average)</td></tr><tr><td>MWh/hl of products</td><td>0.02 – 0.05</td></tr></table></td><td>CC</td><td>The operator has provided information to support compliance with the energy EPL. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with the energy consumption for Brewing.

The sites energy consumption for 2021 was 0.028 MWh/hl of products, which is within the 0.02 - 0.05 MWh/hl of products target.</td></tr>
<tr><td>EPL</td><td>Environmental Performance Level – Specific waste water discharge for the brewing sector
<table><tr><td>Unit</td><td>Specific waste water discharge (yearly average)</td></tr><tr><td>m^3/hl of products</td><td>0.15 – 0.50</td></tr></table></td><td>CC</td><td>The operator has provided information to support compliance with the specific waste water discharge EPL. We have assessed the information provided and we are satisfied that the operator has demonstrated compliance with the specific waste water discharge EPL for the brewing sector.

The sites energy consumption for 2021 was 0.283m^3/hl of products, which is within the 0.15 – 0.5 m^3/hl of products target.</td></tr>
</table>

Annex 2: Review and assessment of changes that are not part of the BAT Conclusions derived permit review

Updating permit during permit review consolidation

- Activity name
- Introductory note (updated)
- Site plan
- Table S1.1 overhaul
    - Activity Reference (AR) renumbering
    - Updated listed activities
    - Addition of production capacity
    - Directly associated activities (DAAs) standardisation

We have updated permit conditions to those in the current generic permit template as a part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit.

Capacity Threshold

The Environment Agency is looking to draw a “line in the sand” for permitted production capacity; a common understanding between the Operator and regulator for the emissions associated with a (maximum) level of production, whereby the maximum emissions have been demonstrated as causing no significant environmental impact.

We have included a permitted production level (capacity) within table S1.1 of the permit for the section 6.8 listed activity and we need to be confident that the level of emissions associated with this production level have been demonstrated to be acceptable.

The Operator has completed a H1 assessment of emissions for typical figures of production at the time of permitting.

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

Emissions to Air

We asked the operator to list all emission points to air from the installation in the Regulation 61 notice. And to provide a site plan indicating the locations of all air emission points.

The operator has provided an up to date air emission plan which we have included in the permit.

Implementing the requirements of the Medium Combustion Plant Directive

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

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

- Date each combustion plant came into operation

The Operator provided the information in the table below:

Boilers

1. Rated thermal input (MW) of the medium combustion plant.	10.5 MWth	8.4 MWth
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Boiler	Boiler
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Natural gas	Natural gas & biogas
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.	June 1983	June 1979

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.

Biogas is produced at the installation from the Anaerobic Digestion (AD) treatment by NSI Industrial O&M Solutions Ltd under a separate permit EPR/NP3135TM. Molson Coors Brewing Company (UK) Limited receives biogas from the AD process and is utilised in a boiler on this site. As a part of the permit review the Environment Agency has taken the opportunity to review the permit conditions and included permit condition 3.2.4 in order to ensure a leak detection and repair (LDAR) programme is in place.

Particulate Emissions

BAT-AELs are derived for those substances identified as key environmental issues during the BREF review process.

We have implemented the relevant emission limit value (ELV) from the date of permit issue for emission points A5 against BAT 20 for dust emissions abated via bag filters.

We have incorporated the emission limit of 10 mg/m^3 for emission point A5 in the permit.

We have added an improvement condition (IC25) for size fractionation of particulate emissions because a BAT-AEL applies for dust emissions to air. The justification for this IC is that there are a number of activities within the FDM sector which may result

in release of particulates to air e.g. drying, milling and grinding. Overall, there is little available information on how much fine particulates are released. This IC is a one-off exercise requiring operators to monitor and report on the fractions of fine particulate (PM_{10} and $PM_{2.5}$) emissions and increase our understanding of potential health effects. Where BAT-AELS may apply to multiple emission points e.g. grain milling, we may accept limited representative monitoring rather than expecting them to monitor every single emission point.

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. However, monitoring data indicates there has been an increase in TOC, this is thought to be due to the reverse osmosis concentrate effluent.

The installation is a multi-operator installation, the site has an Effluent Treatment Plant (ETP) which is operated by a separate operator NSI Industrial O&M Solutions Ltd under permit EPR/NP3135TM. The ETP treats process effluent from the brewing activity however, Molson Coors Brewing Company (UK) Limited operate a Reverse Osmosis (RO) plant which treats water prior to that water being used in the onsite processes. The operator discharges RO condensate to the River Wharfe via emission point W1.

In the R61 response tool the operator stated that a feasibility study to discharge effluent to foul sewer was carried out prior to the installation of the ETP (EPR/NP3135TM). The outcome of this study found the local foul sewers did not have the capacity to manage site effluent stream. However, there is no indication of an investigation into the discharge of RO condensate to sewer since the ETP has been installed as the volume of RO condensate will be significantly lower than the entire process effluent which was previously investigated.

We have included an improvement condition (IC28) in the permit in order to ensure the operator has considered the feasibility of discharging RO concentrate to foul sewer. In addition, should this not be feasible the operator is required to assess the impact of the RO condensate through an environmental risk assessment and determine if further mitigation is required to reduce the impact/ risk to the environment.

The site plan in Schedule 7 has also been updated to include a pipeline associated with emission point W1, the pipeline is utilised by both Molson Coors Brewing Company (UK) Limited to discharge RO condensate and NSI Industrial O&M

Solutions Ltd to discharge treated process effluent from the ETP. Molson Coors have agreed this pipeline is owed by them and should be incorporated in this permit (EPR/BN1429IC). Although this is integrated in the permit it is evident this is a shared asset as such greater detail of management of shared assets should be included in the operators Environment Management System (EMS). Area will confirm this has been integrated into the EMS as part of routine compliance checks.

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 28/02/2005. 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.

The Operator stated in their R61 response that they have maintained records of controls and any incidents which may impact the site condition. The operator specified they have not undertaken any further monitoring at the time of the R61 response. We have reviewed the information; we consider the original assessment adequately describes the current condition of the soil and groundwater. Consequently, we are satisfied that the baseline conditions have not changed.

Hazardous Substances

Hazardous substances are those defined in Article 3 of Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures

The operator has not provided an adequate risk assessment on the hazardous substances stored and used at the installation, as detailed within EC Commission Guidance 2014/C 136/03.

The operator has not provided an appropriate risk assessment on the hazardous substances stored and used at the installation.

The operator is required to submit a risk assessment for the relevant hazardous substances for review to the Environment Agency via improvement condition (IC26).

Climate Change Adaptation

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

The operator has identified the installation as likely to be or has been affected by unavailability of land for land spreading of waste and prolonged dry weather/ drought, which we consider to be a severe weather event.

We do not consider the operator to have submitted a suitable climate change adaptation plan for the installation. We have included an improvement condition into the permit (IC27) to request a climate change adaptation plan is submitted by the operator for approval from the Environment Agency.

Containment

We asked the Operator via the Regulation 61 Notice to provide details of the each above ground tanks which contain potentially polluting liquids at the site, including tanks associated with the effluent treatment process where 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

We reviewed the information provided by the operator and their findings. We are satisfied that the existing tanks and containment measures on site are appropriate.

Carbon Dioxide Recovery

We asked the Operator as part of the Regulation 61 Notice to confirm whether carbon dioxide (CO_2) is recovered from the fermentation stage of the process. Where

this recovery is not currently in place, we asked them to provide a summary of any feasibility study carried out.

CO_2 recovery is a recognised technique to be considered in the determination of BAT as described in Chapter 4.4.4.3 of the FDM BREF. The stated environmental benefits include reduced carbon emissions from the permitted installation.

The economics of on-site recovery at the time of the BREF review was a relevant factor in determining whether CO_2 recovery was included as a specific BAT Conclusion. It was noted at the time that industrial gas suppliers were able to provide CO_2 obtained as a co-product from other sectors, such as during ammonia production, at low cost and as readily available resource.

This situation has now changed in the UK over the last two years, primarily due to energy prices. Ammonia is no longer produced in the UK and the CO_2 supply chain is fragile and dependent on imports. Defra and Department for Business and Trade are keen on diversification of CO_2 supply to increase supply resilience.

The operator has provided evidence which demonstrates they carry out carbon dioxide recovery on site. A carbon dioxide recovery plant was introduced to the permit in the latest variation EPR/BN1429IC/V007.

Annex 3: Improvement Conditions

Based on the information in the Operator's Regulation 61 Notice response and our own records of the capability and performance of the installation at this site, we consider that we need to set improvement conditions so that the outcome of the techniques detailed in the BAT Conclusions are achieved by the installation. These improvement conditions are set out below - justifications for them is provided at the relevant section of the decision document (Annex 1 or Annex 2).

Previous improvement conditions marked as complete in the previous permit.

Superseded Improvement Conditions – Removed from permit as marked as "complete"	
Reference	**Improvement Condition**
IC14	The operator is to undertake BS4142:1997 noise surveys at the sensitive receptors already identified plus the new sensitive receptor situated on Tower Cresent opposite from the exit to the keg loading area. Following the noise survey, a written Report summarizing the results is to be submitted to the Environment Agency at the reporting address. On completion of the noise survey the operator shall revise the noise management plan taken into account the guidance found in the H3 Horizontal Guidance for Noise.
IC15	The operator shall implement a monitoring program for discharges to W1. A report is to be submitted to the Agency at the reporting address which shall include proposals for frequency of monitoring reporting periods and proposed limits. The monitoring should include suspended solids or an acceptable substitute together with any other reasonable parameter.
IC16	The operator is to investigate, cost the installation of independent high level alarms on all tanks. The alarms shall be linked so that the incoming valve will be closed on alarm activation. A report is to be submitted to the Agency at the reporting address which shall include a timetable for the installation of the high level alarms to the necessary tanks.
IC17	The operator is to undertake BS4142:1997 noise surveys at the sensitive receptors and also following completion of any improvement measures that may in the future be made. Following each noise survey, a written Report summarizing the results is to be submitted to the Environment Agency at the reporting address. On completion of each noise survey the operator shall revise the noise management plan taken into account the guidance found in the H3 Horizontal Guidance for Noise.
IC18	The operator is to replace the existing IMS storage tanks with suitable alternatives, installed to the standards required in the Environment Agency's Technical Guidance Note IPPC S6.10 as current at the time of issue of this variation.
IC19	The Operator is to review the potential for all releases of potentially polluting liquors to drain and install appropriate containment measures (for example a drip tray, valves on bund drains which default to closed) to prevent an uncontrolled release to sewer or controlled waters. The standards adopted should be those required in the Environment Agency's Technical Guidance Note IPPC S6.10 as current at the time of issue of this variation.

IC20	The operator is to install a continuous TOC analyser in the main storm water discharge from the site to Controlled Waters W1.
IC21	It is assumed that the new ETP will be commissioned over the period 01-Sep-07 and 31-Mar-08. During this period, the operator is to monitor and record: - the quantity and durations of releases to air, to the new ETW, to the TTTW and to controlled waters - details of any off site disposal of waste disposed of as a consequence of the commissioning activities. - details of No 3 boiler time burning biogas and its reliability. This record is to include root cause analyses of any system trips. The operator is to submit a written report to the Environment Agency summarising the above and also to include details of: - any hardware changes made during commissioning the communication protocols between Coors and VWS (UK) Ltd - Any outstanding unresolved issued that may have an impact on the environment
IC22	The operator is to revise the site closure plan to reflect the changes made on the site by the introduction of a new effluent treatment plant and the other changes made on the site since the permit was issued. The Site Closure Plan is to take regard to the requirements set out in Section 2.11 of the Agency Guidance Note IPPC S6.10 as current at the time of issue of this variation. A written report of the plan shall be submitted to the Environment Agency.
IC23	Following commissioning of the new Effluent Treatment Plant, the operator is to review the potential for reusing treated water on the site for process duties with a view to reducing the quantities of fresh water consumed by the operation. A written report, which is to include a discussion of appropriate BAT. is to be submitted to the Environment Agency.

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

Improvement programme requirements		
Reference	**Reason for inclusion**	**Justification of deadline**
IC24	The operator shall submit, for approval by the Environment Agency, a report demonstrating achievement of the 'Narrative' BAT conclusions as identified in the Food, Drink and Milk Bref published on 4 December 2019 where BAT is currently not demonstrated or achieved. The report shall include, but not be limited to, the following: • Methodology applied for achieving BAT 6 • Demonstrating that BAT has been achieved.	17/07/2024

	The report shall address the BAT Conclusions for Food, Drink and Milk Industries with respect to BATc 6 (Energy Efficiency). Refer to BAT Conclusions for a full description of the BAT requirement.	
IC25	The Operator shall submit a written report to the Environment Agency of monitoring carried out to determine the size distribution of particulate matter in the exhaust gas emissions to air from emission point A5, identifying the fractions within the PM10 and PM2.5 ranges. The monitoring shall be carried out under representative operating conditions and shall be in accordance with EN ISO 23210 unless otherwise agreed with the Environment Agency.	17/04/2025
IC26	The operator shall submit to the Environment Agency for approval a risk assessment considering the possibility of soil and groundwater contamination at the installation where the activity involves the use, production or release of a hazardous substances (as defined in Article 3 of Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures). A stage 1-3 assessment should be completed (as detailed within the EC Commission Guidance 2014/C 136/-3) as follows; Stage 1 – Identify hazardous substance(s) used / stored on site. Stage 2 – Identify if the hazardous substance(s) are capable of causing pollution. If they are capable of causing pollution, they are then termed Relevant Hazardous Substances (RHS). Stage 3 – Identify if pollution prevention measures & drains are fit for purpose in areas where hazardous substances are used / stored. If the outcomes of Stage 3 identifies that pollution of soil / ground water to be possible. The operator shall produce and submit a monitoring plan to the Environment Agency for approval detailing how the substance(s) will be monitored to demonstrate no pollution. The operator shall commence monitoring of the RHS within a timescale as agreed by the Environment Agency.	17/04/2025
IC27	The operator shall produce a climate change adaptation plan, which will form part of the EMS. The plan shall include, but not be limited to: • Details of how the installation has or could be affected by severe weather; • The scale of the impact of severe weather on the operations within the installation;	17/04/2025

	• An action plan and timetable for any improvements to be made to minimise the impact of severe weather at the installation. The Operator shall implement any necessary improvements to a timetable agreed in writing with the Environment Agency.	
IC28	The operator shall submit a written report to the Environment Agency for technical assessment and written approval. The report must contain: • A feasibility study to investigate the discharge of Reverse Osmosis (RO) concentrate direct to foul sewer or to the third party Effluent Treatment Plant associated with permit EPR/NP3135TM, which process effluent is currently discharged to via emission point S1. • Results from a minimum of 10 monitoring samples taken at appropriate intervals in relation to the RO concentrate effluent. • Characterisation of the effluent monitoring for the relevant parameters including but not limited to COD/TOC. • The operator shall utilise the monitoring data to undertake a comprehensive assessment of the impact of RO concentrate on surface and ground water. The assessments shall be undertaken in accordance with Environment Agency guidance Surface water pollution risk assessment for your environmental permit - GOV.UK (www.gov.uk); Groundwater risk assessment for your environmental permit - GOV.UK (www.gov.uk); and H1 annex D2: assessment of sanitary and other pollutants in surface water discharges - GOV.UK (www.gov.uk). Where the outcome of any assessment demonstrates an impact which is liable to cause pollution of surface or groundwater, contrary to the provisions of the Water Framework Directive and Groundwater Regulations, the operator shall provide details of an improvement programme to further mitigate against the risks with time scales for implementation, for approval in writing by the Environment Agency.	17/10/2024