

Permitting Decisions- Variation

We have decided to grant the variation for Samlesbury Brewery operated by AB InBev UK Limited.

The variation number is EPR/BO3559IY/V004.

The variation is for

- the increase of the brewery annual capacity by 2Mhl, from 4.46Mhl to 6.43Mhl,
- the addition of a schedule activity for effluent treatment under S5.4 A (1)(a)(i),
- The use of biogas obtained from anaerobic effluent treatment in inhouse boilers.

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.

Purpose of this document

This decision document provides a record of the decision-making process. It

- highlights [key issues](#) in the determination
- summarises the decision making process in the [decision considerations](#) section to show how the main relevant factors have been taken into account
- shows how we have considered the [consultation responses](#)

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit and the variation notice.

Key issues of the decision

The site is increasing its production capacity by removing the capacity pinch points in Brewing, Filtration and packaging, as detailed in the variation notice introductory note.

1. New facilities and surfacing

All new equipment, responsible with the capacity increase, will be installed alongside the existing one, or replace the old equipment.

All tanks to be installed prevent water ingress, are stored on an impermeable surface, and have tank bottom thicknesses in excess of 4mm. Each tank and vessel to be installed is provided with secondary containment. These secondary containments will drain to the effluent treatment plant (ETP) calamity tank as a safety measure. The biggest tank installed as part of the capacity upgrade is 375m³. The volume of the two tanks that act as calamity is 1462m³, sufficient to contain any accidental spillage.

The ETP will consist of:

- a mechanical screening
- a buffer basin and a calamity tank
- an anaerobic digester with biogas recovery
- a reaeration tank for odour removal.

The ETP is designed to treat 60% of the incoming effluent. A flow controlled bypass will divert 40% of the effluent to the discharge point where it will merge with the treated effluent from the ETP and discharged to sewer under agreement with Blackburn United Utilities and from then to River Darwen.

The mechanical screening is designed to remove any large particles before the effluent enters the equalisation tank (epoxy/glass coated bolted steel 1,080m³). In this tank, a partial pre-acidification (acidogenic fermentation) of the effluent will occur, neutralizing high pH values. Hydrochloric acid and Sodium Hydroxide will be dosed via an automated dosing system maintaining the pH between 4.5 and 8.5. The off-specification effluent will be pumped to a 380m³ epoxy/glass coated bolted steel calamity tank and slowly reintroduced in the process.

From the pre-treatment, the conditioned wastewater will be pumped into an Upflow Anaerobic Sludge Bed (UASB) process. The result of the process is sludge which will constantly be removed, treated water, and biogas.

The treated water will then pass to a post aeration tank with a volume of 125m³ to remove any residual odour then it will be mixed with the 40% effluent before discharge to sewer. The resulting odour will be passed through a biofilter.

The Expected Effluent Quality is COD removal 85% ~ 930mg/l, BOD removal 85% ~ 650mg/l, and TSS ~ 400-1000 mg/l.

The biogas will pass the first desulphurisation stage in a biological process by sulphur oxidizing bacteria, a biogas drying stage in a heat exchanger and then a second desulphurisation stage where the remaining H₂S will be removed using an activated carbon polishing filter.

The expected flow of biogas is 5,800 Nm³/day with a 74% CH₄. This will displace a fuel oil equivalent value of 3850 kg/day

All equipment will be operated from a Supervisory Control and Data Acquisition (SCADA) computer system with automatic monitoring and security sensors.

Tanks and vessels within the ETP will be provided with overflow detectors and be sited within a secondary containment bund which has a sufficient capacity of either; greater than 110% of the largest tank volume and 25% of the total tankage within the ETP. The tanks will be capable of being isolated from one another through the closing of valves in the event of an incident. The secondary containment bund will be completely sealed have no drainage outlet points from it or perforations of the wall.

2. Point source emissions to air

The use of biogas was not proposed at duly making stage as it was seen as a future development. The obtained biogas was to be flared until a later stage. However, due to fuel market dynamics, the applicant decided to bring forward the modifications to the boiler burner required for biogas use. This modification was requested at a later stage of the assessment and the risk assessment for biogas use has not been provided, just for flaring the biogas.

We have requested the risk assessment for the use of biogas in the existing boilers via pre-operational condition 1. We have also updated the monitoring requirements and limits for the boilers in table S3.1.

The risk assessment for flaring the biogas has been provided and is precautionary, as it has assumed that the flare operates at maximum capacity 24 hours/day, 365 days/year. The parameters assessed are NO₂, CO and C₆H₆.

The 1-hour mean NO₂ PC is 4.8µg/m³, which is 2.4% of the AQAL (200µg/m³) - <10% of the AQAL and therefore insignificant. The annual mean NO₂ PC is 0.7µg/m³, which is 1.7% of the AQAL (40µg/m³) - >1% of the AQAL, however the PEC 34.2% of the AQAL, which is <70% and therefore insignificant.

The 1-hour (3.2µg/m³) and 8-hour (0.2µg/m³) mean CO PCs are <10% of the AQAL (30,000µg/m³ for 1-hour and 10,000µg/m³ for 8-hour) and therefore insignificant.

The 1-hour mean C₆H₆ PC is 0.6µg/m³, which is 0.3% of the AQAL (195µg/m³) - <10% of the AQAL and the annual mean C₆H₆ PC is 0.04µg/m³, which is 0.9% of the AQAL (5µg/m³) - <10% of the AQAL, therefore both are considered insignificant.

Nitrogen deposition has been assessed for the neighbouring ecological sites - Beeston Brook Pasture SSSI, Red Scar and Tun Brook Woods SSSI, Brewery Wood LWS. In similar fashion, the impacts from nitrogen deposition screen out as insignificant.

We have added point source emission F1 for the flare in table S3.1

We have also added a point source emission to air and monitoring requirements associated with the biofilter serving the ETP, B5. The equalisation tank, calamity tank and post-aeration tanks are connected and vent to the atmosphere through the biofilter.

3. Point source emissions to sewer

There are no discharges to surface water. The treated effluent will be discharged to sewer under agreement with United Utilities in Blackburn and from then to River Darwen. The ETP will have a capacity of 3800 m³/day and is designed to treat 15t COD/day. This value represents 60% of the peak foreseen COD load from the beer manufacturing. This will ensure that a breach of water quality standards on the receiving watercourse following treatment at the Blackburn ETP is avoided.

The following parameters were used in the submitted risk assessment: BOD, Sulphate, Total Phosphorus (P), Total Suspended Solids (TSS). Sulphate screened out as not significant in test 3 and 4 of the H1 screening tool.

Additional modelling has been submitted for BOD, P and TSS using River Quality Planning (RQP), in accordance with 'H1 Annex D2 - Assessment of sanitary and other pollutants within surface water'.

Two modelling test have been run using RQP Monte-Carlo simulation for the 3 parameters:

- Risk to EQS
- Significant deterioration of receiving water quality

Once discharge and further treatment at Blackburn ETP have been considered, all parameters have screened out as no risk of failing the receiving water EQS and unlikely to significantly deteriorate the receiving water quality - River Darwen.

4. Fugitive emissions

Inspection of pipe joints, shaft seals and gaskets of new refrigeration plant will be integrated into the brewery's maintenance and inspection schedule. Proprietary leak detection equipment is used for this purpose.

Site's maintenance records include:

- Quantity of refrigerant and oil added to or remove from the systems;
- Leakage testing results; and
- Location and details of specific leakage incidents.

Pre-operational Condition PO2 has been added to require the operator to demonstrate that all bulk liquid storage tanks, pipelines and secondary containment associated with Effluent treatment plant have been leak-tested.

We have included Improvement Condition IC 12 to request the review of measures and procedures in place to prevent and reduce fugitive emissions and develop a Leak Detection and Repair (LDAR) programme.

5. Odour

The Site has had no history of causing odour annoyance or complaints resulting from odour. The following measures will be implemented:

- The Site’s wastewater drains are inspected and regularly cleaned in accordance with ABI’s existing management system procedures to ensure that the drains do not become blocked.
- The ETP aeration tank will be kept aerated and mixed at all times, other than for maintenance, is covered and the headspace is extracted to a biofilter.
- The biofilter serving the ETP has been designed to cope with potential maximum odour loading and air volumes (1,500m³/hr).

Considering the proposed measures, the likely odour impact has been considered as negligible.

The existing EMS will be updated to include the operation of ETP.

6. Noise

All new equipment to be installed will be of a low-noise type. Noisy equipment (motors, dry goods processing equipment, canning equipment) will be housed within enclosures and/or buildings to attenuate noise. Procedures for responding to noise events, such as complaints, are in place

7. Management system

The site has an existing management system which covers operational procedures and training requirements for staff. The new equipment, procedures relating to its operation and any additional training requirements will be incorporated into the management system. We have added improvement condition IC 11 which requires the update of the EMS.

All the modifications proposed as part of this variation have been designed to be integrated into the process and will lead to improvements in raw material usage and product loss to the wastewater system.

The existing Accident Management Plan will be updated to include the proposed changes. This plan will be reviewed at least every four years or as soon as practicable after an incident with changes made accordingly to minimise the risk of occurrence.

All construction materials have been selected to minimise or slow down the occurrence of corrosion. Additional measures will be employed on Site to prevent corrosion of equipment and plant including lining and coating of equipment, as well as the painting of pipes with corrosion inhibitors. Plant will be inspected on a weekly basis for signs of corrosion.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- UK Health Security Agency (UKHSA),
- Food Standards Agency,
- Local Authority – Planning,
- Local Authority – Environmental Health.

The comments and our responses are summarised in the [consultation responses](#) section.

The regulated facility

We considered the extent and nature of the facilities at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN2 'Defining the scope of the installation', Appendix 1 of RGN 2 'Interpretation of Schedule 1', guidance on waste recovery plans and permits.

The extent of the facilities are defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

The site

The operator has provided a plan which we consider to be satisfactory.

These show the extent of the site of the facility.

The plan is included in the permit.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for Beeston Brook Pasture, Red

Scar and Tun Brook and Darwen River Section. All three are SSSI and ~2km away from the site.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator's risk assessment is satisfactory. However, the air emission risk assessment for switching from gas fired boilers to using biogas has not been provided. Please see Improvement condition section.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Operating techniques for emissions that screen out as insignificant

Details on the emissions of pollutants that have been screened out as insignificant are provided in the key section above. We agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the installation.

We consider that the emission limits included in the installation permit reflect the BAT for the sector.

Pre-operational conditions

Based on the information in the application, we consider that we need to include pre-operational conditions. See Key issues section for details.

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme. See Key issues section for details.

Emission limits

Emission Limit Values (ELVs) and equivalent parameters or technical measures based on Best Available Techniques (BAT) have been added for the following substances: Oxides of Nitrogen (expressed as NO₂), Sulphur dioxide, Carbon monoxide.

Monitoring

We have decided that monitoring should be added for the following parameters, using the methods detailed and to the frequencies specified: Oxides of Nitrogen (expressed as NO₂), Sulphur dioxide, Carbon monoxide.

These monitoring requirements have been included in order to assure that the emissions from boilers operating on biogas are within environmental guidance on medium combustion plants.

We made these decisions in accordance with the Medium combustion plant directive.

Management system

We only review a summary of the management system during determination.

A full review of the management system is undertaken during compliance checks.

Previous performance

We have assessed operator competence. There is no known reason to consider the applicant will not comply with the permit conditions.

We have checked our systems to ensure that all relevant convictions have been declared.

No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the

guidance issued under section 110 of that Act in deciding whether to grant this permit variation.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation Responses

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public, and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from UKHSA.

Brief summary of issues raised: Insufficient details to assess risks, no H1 assessment provided, dust generation concerns, contradictory biogas management details, potential failure of the refrigerant and accident risks, odour emissions.

Summary of actions taken: requested additional details: BAT assessment, H1 assessment for air and water, confirmation that changes will be in accordance with DESEAR guidance, clarifications regarding biogas management, IC to update the EMS and develop a LDAR procedure, Pre-Operational Conditions for additional H1 assessment regarding biogas use for boilers and to confirm the integrity of the effluent storage, pipes and secondary containment.

Response received from South Ribble Borough Council.

Brief summary of issues raised: Concerns regarding noise issues related to AB InBev site operations.

Summary of actions taken: confirmation from the applicant that low level noise will be a requirement for all new equipment.