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| **V008-008: BAT Assessment** |
| **BAT No** | **Topic** | **Requirement** | **BAT Compliance** |
| 1 | EMS | Implement an EMS to meet requirements | Muntons has been certified to ISO 14001:2015 for many years with regular surveillance audits and reviews by BSI. ISO 14001:2015 Certificate No. EMS 98072 |
| 2 | EMS - inventory of inputs & outputs | 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) | Daily monitoring of waste and effluent streams with daily records of volumes and analysis. Where required, samples are sent for third party verification by an MCERTS and UKAS certified laboratory.Waste streams are monitored and recorded with active programmes in place to control and reduce waste.Water abstraction is metered and recorded daily.Air emissions are monitored and measured as required by the environment permit FP3132PH.**No changes are required for this permit variation** |
| 3 | Monitoring - process parameters 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). | Daily monitoring of waste and effluent streams with daily records of volumes and analysis. Where required, samples are sent for third party verification by an MCERTS and UKAS certified laboratory.Trend analysis using the monitoring data is used to predict plant performance and depicts early indication that something is wrong.**No changes are required for this permit variation** |
| 4 | Monitoring - emissions to water | BAT is to monitor emissions to water with at least the frequency given | All monitoring is in line with the requirements of the permit as well as additional monitoring to ensure the WWTP continues to operate within parameters.**No changes are required for this permit variation** |
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| 5 | Monitoring - air emissions | BAT is to monitor channelled emissions to air with at least the frequency given [refer table] and in accordance with EN standards. | All required emissions monitoring is undertaken. The proposed variation to the permit will not add to air emission monitoring requirements.**No changes are required for this permit variation** |
| 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 BATCs. | Muntons has been certified to ISO 50001:2018 with regular surveillance audits and reviews by BSI. ISO 50001:2018 Certificate No. ENMS 568572. |
| 7 | Water and waste water 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 | The BAT lists techniques (a) to (k). Muntons utilises or addresses all the techniques listed except (e) dry cleaning and (f) pigging system for pipes**No changes are required for this permit variation** |
| 8 | 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 | As a food processing factory we can only use food safe chemicals which are all properly COSHH assessed. We monitor and report on potential contaminants in these chemicals for the EA already.**No changes are required for this permit variation** |
| 9 | Use of 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. | Our activities do not involve cooling, chilling, or freezing. However we do maintain an F Gas inventory which we contract a third party to manage and maintain our air conditioning units as part of a service agreement, and we verify their compliance with F Gas Regulations.**No changes are required for this permit variation** |
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| 10 | Resource efficiency | In order to increase resource efficiency, BAT is to use one or a combination of the techniques | An operational UASB anaerobic digester is on-site which treats higher strength process effluent from the ETP. Biogas produced from the AD process is used as fuel for the site's CHP engine. The heat generated by the AD plant is used to supply heat to the AD plant, pasteurisation plant, and the reprocessing of malt ingredient products. The solid digestate recovered from the AD process is pasteurised to meet the requirements placed on us by the EA which has approved this material as being non-waste. The wet material is passed through a decanting centrifuge before storage. The digestate is used by farmers for crop improvement because it is a highly nutritive fertiliser.**No changes are required for this permit variation** |
| 11 | Emissions to water - waste water buffer storage | In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for waste water. | There is a main buffer tank of about 650 m3 storage capacity on-site and a clay-lined lagoon of almost 2200 m3 as a backup for wastewater storage. The lagoon is designed to take any uncontrolled discharges from the wastewater treatment plant and all drains flow to it. Level sensors are in place for the lagoon.**No changes are required for this permit variation** |
| 12 | Emissions to water - treatment | In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques | Wastewater generated from production is treated on-site through a combination of both primary and secondary stages of treatment before the final treated effluent is discharged to River Gipping. We treat lower level COD from malting operation directly through the aerobic plant. Higher COD material from malted ingredient / brewing processes goes via anaerobic treatment first then to aerobic and in the process generates methane to drive a CHP engine that provides 12-16% of site electricity.The introduction of a COD parameter in the most recent permit variation has meant that there is a need to look at how we can meet the requirements. In order to address this, we will need to increase the effluent volume discharge to 2500m3. |
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| 13 | Noise - management plan | In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to set up, implement and regularly review a noise management plan, as part of the environmental management system (see BAT 1) | We are not required to implement and maintain this under our permit.There are no sensitive receptors within 200m of any of the operational parts of the site.**No changes are required for this permit variation** |
| 14 | Noise minimisation | 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 | We are not required to implement and maintain this under our permit.There are no sensitive receptors within 200m of any of the operational parts of the site.**No changes are required for this permit variation** |
| 15 | Odour - management plan | 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 | We are not required to implement and maintain this under our permit.There are no sensitive receptors within proximity of the WWTP. Odours from the maltings are a pleasant biscuity cooking nature and not deemed offensive.**No changes are required for this permit variation** |
| 18 | Energy Efficiency | In order to increase energy efficiency, BAT is to use an appropriate combination of the techniques specified in BAT 6 and of the techniques  | We have a 4Mhl brewery on site to provide wort for malt extract manufacture. It already operates at high gravity so is BAT compliant.**No changes are required for this permit variation** |
| 19 | Waste | In order to reduce the quantity of waste sent for disposal, BAT is to use one or both of the techniques given below.(a) Recovery and (re)use of yeast after fermentation(b) Recovery and (re)use of natural filter material | All our spent grains are collected and sent for processing as animal feed. No waste from brewing operations goes to landfill. Any dry products from screening prior to brewing are recovered and pelletised to be sold as animal feed. Thus we are already compliant with BAT.**No changes are required for this permit variation** |
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| 20 | Emissions to air | In order to reduce channelled dust emissions to air, BAT is to use a bag filter or both a cyclone and a bag filter.  | Emissions to atmosphere are controlled and monitored. Bag filters and or cyclone filters are used for all dust emission points. This does not affect the current permit variation.**No changes are required for this permit variation** |