



Food & Drink BAT Conclusions Review

Environmental Permit Variation Application

Kellogg Company of Great Britain

Wrexham Breakfast Cereals

Bryn Lane

Wrexham Industrial Estate

BV8016ID

October 2024





BAT 1.

In order to improve the overall environmental performance, BAT is to elaborate and implement an environmental management system (EMS) that incorporates all of the following features...

Kellogg's are committed to managing and continually improving environmental performance and have an existing Environmental Management System (EMS) which covers current operations and change management. The EMS will be updated to incorporate the modifications associated with the project.

This will include:

- Reviewing and updating the plant's objectives and performance indicators for significant environmental aspects;
- Determining roles and responsibilities for management of the site after the project changes and ensuring competence and awareness of staff due to the new processes being introduced to the installation;
- Update the management, monitoring, and maintenance procedures to incorporate the new equipment associated with the changes as per manufacturer recommendations; and
- Updates to the site's emergency preparedness and response protocols.

In addition, in accordance with the Environmental Permit, and BAT, the following are in place and will be reviewed to incorporate the modifications on site:

- odour management plan;
- noise management plan;
- inventories of water, energy and raw material consumption and wastewater and releases to atmosphere;
- energy efficiency which is part of our site sustainability plan.

BAT 2.

In order to increase resource efficiency and to reduce emissions, BAT is to 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 following features...

There will be no change to how resource efficiency is managed as a result of the modifications on site.

In accordance with the EMS and company objectives and targets, the facility monitors water, energy and raw material consumption, wastewater, waste and waste gas stream generation.





Monthly environmental reports are produced in which energy usage, water usage, waste generation are compared against targets. These are reviewed at site level, as part of daily meetings and monthly in the site Natural Resource Conservation, Centre of Excellence (NRC CoE), as well as regionally.

Internal site targets are in place for the reduction of energy and water use, as well as production of waste.

Raw materials are consumed on a daily basis using standard recipe settings and weekly each material is stock-checked to check we have consumed/accounted for usage correctly. Over/under consumption is monitored and investigated if necessary.

Emissions to the onsite effluent plant have been characterised. They are monitored on a daily basis and the results recorded, then reviewed. If internal triggers are exceeded an investigation is carried out as to the cause.

The Air Quality Impact Assessment in Section 8 of the application includes information on characteristics of the new point source emissions to air associated with the modifications. Emissions to air are monitored and reported in line with our environmental permit requirement.

BAT 3.

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)...

BAT 4.

BAT is to monitor emissions to water with at least the frequency given below 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...

Process Effluent

There will be no changes to the existing waste water monitoring as a result of the modifications on site.

Process effluent is discharged under consent to municipal sewer following treatment in the onsite effluent treatment plant. The effluent quality is monitored in accordance with the requirements of the Dŵr Cymru effluent discharge consent.

Dŵr Cymru also regularly collect samples of process effluent samples from the site. Duplicate samples are taken at this time and analysed internally.

The process effluent is also monitored internally on a daily basis (for COD, SS, pH and flow rate); the monitoring results are recorded (WX-EMS-0002-EMR). We have a Liquid Discharge Monitoring and Testing Protocol (WX-EMS-0019-EREF) which details the sampling requirements.

The in-house analytical methods used have previously been agreed with NRW.





Surface Water

There will be no changes to the existing surface water monitoring as a result of the modifications on site.

Surface water runoff from building roofs, car park areas and loading bay is discharged to the East and West Balance Ponds.

Daily water samples are taken from the East (inlet and discharge point) and the West Balance Ponds (inlet and discharge point) and analysed inhouse for COD and SS using methods previously agreed by NRW. The monitoring results are recorded (WX-EMS-0002-EMR). We have a Liquid Discharge Monitoring and Testing Protocol (WX-EMS-0019-EREF) which details the sampling requirements.

Weekly samples are also analysed by an external UKAS certified laboratory for BOD and SS.

There will be no change to the monitoring standards as a result of the modifications on site.

BAT 4 requires the following monitoring:

- COD - daily, no monitoring standard.
- Total suspended solids - daily, monitoring standard EN 872 (note: applicable to the discharge of surface water runoff from the site only)
- BOD - monthly, monitoring standard EN 1899-1 (note: applicable to the discharge of surface water runoff from the site only). Our discharge is monitored weekly for BOD.

BAT 5.

BAT is to monitor channeled emissions to air with at least the frequency given below and in accordance with EN standards...

Emissions monitoring of point source emissions to air is carried out using the required standards at a frequency required by the Environmental Permit.

The Air Emissions Impact Assessment carried out as part of the variation highlighted the combined contribution from existing and new emission points does not lead to any exceedance of the air quality standards (long or short term).

BAT 6.

In order to increase energy efficiency, BAT is to use BAT 6a and an appropriate combination of the common techniques listed in technique b below...

There will be no change to how energy efficiency is managed as a result of the modifications on site.

Energy efficiency is considered regularly at the facility. The facility produces monthly environmental reports in which energy usage is compared against targets. Anomalies in relation to notable increases in energy use will be investigated and measures put in place to improve energy consumption, as appropriate. Energy efficiency is reviewed as part of the sites NRC CoE and regional meetings.





ESOS assessments are undertaken every 4 years; the assessments identify energy efficiency improvement opportunities which are considered by the facility for implementation.

Energy efficiency techniques employed at the facility include the following:

- burner regulation and control
- energy efficient motors
- use of variable speed drives
- heat recovery with heat exchangers
- during refurbishment or new build projects lighting is replaced with energy efficient lighting
- minimising boiler blowdown
- optimising steam distribution systems
- steam from the process is supplied to Portable Foods, which is located on the Kellogg's site.
- preheating feed water (including the use of economisers)
- automated process controls are in place for elements of the manufacturing process, this ensures the optimum use of energy
- reducing compressed air leaks
- insulation to prevent heat loss

All of these aspects will continue after the modifications are completed on site.

BAT 7.

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...

The new systems will be designed and optimized to minimise water consumption on site.

The reuse of water on site has been considered but due to hygiene and food safety standards it is not considered a viable option.

The most appropriate cleaning technique is selected depending on the area of the Site and with water consumption reduction in mind. Sanitisation Standard Operating Procedures are produced for each activity and detail the chosen cleaning method. These will be updated to incorporate the modifications to Site associated with the increased to production capacity and identify the most appropriate cleaning techniques for these areas which also contribute to the most efficient reduction in water consumption.

Equipment is dry cleaned prior to wet cleaning to reduce the amount of water required.

A high pressure hot water ring main is in place to improve efficiency.

Control devices will be used to automatically adjust water flow, the correct number and position of nozzles will be determined and water pressure will be adjustable.

Surface water runoff from building roofs, car park areas and loading bay is segregated from foul and process effluent. It is discharged via the surface water drainage system to the East and West Balance Ponds prior to consented discharge to surface water. The surface water is not subject to treatment prior to discharge, however it does pass via oil/water interceptors before discharge into the ponds.





Cleaning in place (CIP) systems are installed with the equipment. These are more efficient than manual cleaning and have been designed and will be operated to minimise wastewater generation. For example, cleaning programmes will be controlled by fixed volume sensors as opposed to fixed time programmes. The CIP systems will have long-life diaphragm valves also.

Ease of cleaning has been considered when ordering the new equipment. Equipment has been chosen which does not cause excessive spillage of material onto the floor. Jets, nozzles and orifices associated with the CIP systems will be optimised to maximise efficiency.

BAT 8.

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...

There will be no change to how we manage the use of harmful substances on site as a result of the modifications.

Cleaning chemicals in use at the site are approved for use in food manufacturing processes. All chemicals in use on site are subject to a Control of Substances Hazardous to Health (COSHH) assessment, this includes assessment of the potential environmental hazards. The facility ensures that all hazardous chemicals are stored appropriately to minimise the risk of release to the environment.

BAT 9.

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...

Where new equipment containing refrigerants is required as part of the site modifications refrigerants with low global warming potential and zero ozone depleting potential will be used. This is covered in procedure WX-EMS-0032-EMP.

Site has developed an Ozone Depleting Substances and F Gases Register (WX-EMS-0006-EREF). The register includes details of:

- the equipment containing ozone depleting substances (ODS);
- the equipment location and asset number;
- the manufacturer, serial and model numbers of this equipment;
- the refrigerant type and quantity.

BAT 10.

In order to increase resource efficiency, BAT is to use one or a combination of the techniques given below.





There will be no change to the way the waste is disposed of as a result of the modifications on site.

In accordance with the EMS and company objectives and targets, the facility monitors water, energy and raw material consumption, wastewater, waste and waste gas stream generation.

Monthly environmental reports are produced in which energy usage, water usage, waste generation are compared against targets. These are reviewed at site level, as part of daily meetings and monthly in the site NRC CoE, as well as regionally.

Internal site targets are in place for the reduction of energy and water use, as well as production of waste.

We have internal site targets for the reduction of energy and water use, as well as production of waste.

Sludge produced at the effluent plant is either sent for anaerobic digestion or landspreading.

Any food produced on site, that is unable to enter the food chain, is sent off site as a by product (in line with the by product test) to be used in the manufacture of animal feed.

BAT 11.

In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for waste water...

There will be no change to the control of emissions to sewer as a result of the modifications on site.

Process effluent is treated at the onsite effluent treatment plant which has been designed to treat the volumes of wastewater generated by the manufacturing processes and the associated cleaning activities.

BAT 12.

In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques given below...

There will be no changes to the techniques used to treat the emissions as a result of the modifications on site. The current limits specified in the Trade Effluent Consent will not be altered.

The effluent treatment plant incorporates physical separation, aerobic treatment and final settlement.

BAT 13.

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 Noise Management Plan (NMP) is in place in accordance with the requirements of the Environmental Permit. The Plan is subject to regular review and updates in accordance with the EMS and the permit. The Plan incorporates noise control measures, contingency measures including a protocol for actions and





timelines, for conducting noise emissions monitoring and measures to be implemented in response to identified noise events. The Plan also identifies potential sources of noise at the facility, the current noise management measures in place, possible noise control measures (in accordance with best available techniques) should noise breakout occur and details of timescales and/or review of the control measures in place. The Plan will be reviewed and updated as necessary to reflect the changes on site.

Response to identified noise incidents/complaints is managed in accordance with the NMP and Non Conformity, Corrective and Preventative Action Procedure (WX-EMS-0015-EMP).

BAT 14.

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...

The methods used will be a combination of appropriate location, operational measures, noise control and abatement equipment

Further information is in the Noise Impact Assessment completed as part of the Variation Application and the NMP.

BAT 15.

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...

An Odour Management Plan (OMP) is in place at the facility in accordance with the requirements of the Environmental Permit. The Plan is subject to regular review and updates in accordance with the EMS and the permit.

The Plan incorporates odour control measures and requirements for odour monitoring. The Plan also identifies potential sources of odour at the facility, the current odour management measures in place, possible odour control measures should odour issues be identified, and details of timescales and/or review of the control measures in place. The Plan will be reviewed and updated as necessary to reflect the changes on site.

Response to identified odour incidents/complaints is managed in accordance with the OMP and Non Conformity, Corrective and Preventative Action Procedure (WX-EMS-0015-EMP).

