Bradgate Bakery Effluent Treatment Permit Variation

Environmental Risk Assessment

# Introduction

Bradgate Bakery is a subsidiary of Samworth Brothers Ltd and encompasses two facilities (Ashton Green & Madeline Road) based in Beaumont Leys, Leicester. Bradgate Bakery produces high quality sandwiches, wraps, pasta pots & salads for the major UK retailers. We are currently varying our permit to add a S5.4A(1)(a)(ii) effluent treatment activity, which comprises pH correction only.

As part of the variation application this risk assessment assesses the additional risks to site posed by the pH correction plant. Other risks from the site have been assessed in the original permit application and will not change as part of this permit application.

In creating this risk assessment, we have followed the guidance for risk assessments for environmental permits on the government website ([Risk assessments for your environmental permit - GOV.UK (www.gov.uk)](https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit)).

# Risks from the pH Correction Plant & Containment Measures

The pH correction plant is located to the north of the site. The effluent is first screened for solids in the bakery with the use of catch pots with <6mm perforations. The effluent is then pumped from a pit just outside of reception, which is towards the northeast of the site, to a reception tank in the pH plant itself. In this tank, the effluent is mixed with either caustic or with sulphuric acid, depending on the characteristics of the effluent. From this tank, the effluent is fed by gravity into a separate tank, from which it is pumped to the final point of discharge at the north-east of the site.

The mixing tank has a capacity of 5,000 litres, while the second tank has a capacity of 2,500 litres. These tanks are kept within a bunded shipping container, while the sulphuric acid and caustic are kept within tanks within a concrete bund. The tanks for each chemical have a capacity for 5,000 litres, while the concrete bund has a capacity of 12,000 litres. The entire plant is located on hardstanding and is access controlled to trained staff only, including Engineers, Hygiene staff (for delivery only) and the SHE Team. In addition, there are three interceptors on site in addition to a pH-controlled penstock valve on the final point of discharge, which has a reaction time of 1 second on the pH probe.

In line with the Environment Agency’s guidance on risk assessments, a table has been created assessing any the potential probability and consequence of any environmental exposures of each hazard.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Hazard | Process | Receptor | Pathway | Risk management techniques | Probability of exposure | Consequences | Overall risk |
| Effluent | Continuous pumping of effluent to the mixing tank, leading to discharge via a storm drain. | The receiving watercourse from the storm drain network. | The storm drain network. | * High level alarms and float switches within the tanks.
* Float switches within the ISO container to trip the pumps.
* Interceptors.
* Penstock valve on final point of discharge.
* Trained staff maintaining the plant and checking it daily.
 | The effluent could enter the storm drain network leading to effluent with varying pH escaping into a receiving watercourse. | Potential for a pollution incident at the receiving watercourse.  | Low if we use the management techniques. |
| Effluent | A breach of the effluent tanks (primary containment), leading to discharge via a storm drain. | The receiving watercourse from the storm drain network. | The storm drain network. | * Low level alarms and float switches within the tanks.
* Float switches within the ISO container to trip the pumps.
* Interceptors.
* Penstock valve on final point of discharge.
* Trained staff maintaining the plant and checking it daily.
 | The effluent could enter the storm drain network leading to effluent with varying pH escaping into a receiving watercourse. | Potential for a pollution incident at the receiving watercourse.  | Low if we use the management techniques. |
| Chemical | A spill of chemicals in the area could enter the storm drain network. | The receiving watercourse from the storm drain network. | The storm drain network. | * Trained staff maintaining the plant and checking it daily.
* Spill kits are available of size relative to the source, with trained staff to use them.
* A concrete bund at >110% of the holding tanks capacity.
* Interceptors.
* Penstock valve on final point of discharge.
 | The effluent could enter the storm drain network leading to effluent with varying pH escaping into a receiving watercourse. | Potential for a pollution incident at the receiving watercourse.  | Low if we use the management techniques. |
| Chemical | A breach of the chemical tanks (primary containment), leading to discharge via a storm drain. | The receiving watercourse from the storm drain network. | The storm drain network. | * Trained staff maintaining the plant and checking it daily.
* Spill kits are available of size relative to the source, with trained staff to use them.
* A concrete bund at >110% of the holding tanks capacity.
* Interceptors.
* Penstock valve on final point of discharge.
 | The effluent could enter the storm drain network leading to effluent with varying pH escaping into a receiving watercourse. | Potential for a pollution incident at the receiving watercourse.  | Low if we use the management techniques. |
| Chemical | A spill of chemicals during delivery could enter the storm drain network. | The receiving watercourse from the storm drain network. | The storm drain network. | * Trained staff used to deliver the chemicals, and trained Bradgate staff overseeing the delivery.
* Trained staff maintaining the plant and checking it daily.
* Spill kits are available of size relative to the source, with trained staff to use them.
* A concrete bund at >110% of the holding tanks capacity.
* Interceptors.
* Penstock valve on final point of discharge.
 | The effluent could enter the storm drain network leading to effluent with varying pH escaping into a receiving watercourse. | Potential for a pollution incident at the receiving watercourse.  | Low if we use the management techniques. |

# Risk of Accidents

Risk of accidents has been addressed in the table above, along with the operational techniques that are employed to eliminate or reduce environmental harm arising from these accidents. These include:

* Failure of pumps leading to overflow of effluent tanks.
* Breach of primary effluent tanks.
* Breach of primary chemical tanks.
* A chemical spill within the effluent plant.
* A chemical spill during delivery.

# Identification of Receptors

Severn Trent have been contacted by Bradgate Bakery previously to ascertain where the storm water drainage network we connect to terminates. Severn Trent have stated in an email they are unsure where the network terminates.

No further assessment has been carried out. H1 Annex D2 was reviewed, however this states that it assesses sanitary pollutants specifically for surface water discharge, whereas Bradgate Bakery under normal conditions will discharge to a trade effluent sewer.