

Permitting Decisions- Variation

We have decided to grant the variation for Bioganix (Bonby) Food Waste Handling Facility operated by Bioganix Ltd.

The variation number is EPR/FP3092NC/V011.

The variation authorises the following changes to the environmental permit

- The addition of a new tank farm (tank farm 3);
- An increase in the permitted storage at any one time from 4,000m³ to 10,000m³;
- An increase in annual throughput from 75,000 tonnes to 200,000 tonnes;
- An increase in the waste treatment capacity for the recycling of animal waste and physical treatment of non-animal by-products to 1,800 tonnes a day;
- The handling and processing of powdered wastes;
- The addition of a new waste activity to treat soapstock (accepted under EWC 02 03 04) using sulphuric acid;
- The construction and use of a new biofilter (to address improvement condition IC1 from the previous variation);
- Improved onsite drainage and rainwater harvesting;
- Improved secondary containment capacity;
- Extension to the existing site boundary to the east and west of the existing permit boundary and to the southeast for additional vehicle holding area as throughput increases;
- The use of a small generator (<1MWth) powered by recovered oils;
- The addition of waste codes 07 07 12 & 19 12 12;
- Changes to the waste codes and descriptions in line with RPS 241 and removal of wates with a 99 suffix.
- The installation of a 50kW solar system on the roof of Area A

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

On site containment

The new tank farm (tank farm 3) has been constructed and is located within the existing footprint of the site. The construction of the new tank farm will provide the site with more storage capacity pending analysis and increased source separation and mixing including a dedicated landspreading compliant storage tank. Tank farm 3 is made up of 8 tanks with a total capacity of 4,800m³. The tank farm is housed within a building with a reinforced concrete floor.

Due to the location of the tanks across the site, a single bunding area cannot be provided. Therefore, the full site is considered as a large containment bund. The yard area has been bunded using concrete blocks and a geomembrane, the northern areas of the yard have been surfaced using concrete to increase storage capacity. CIRIA C736 states that 'where two or more tanks are installed within the same bund, the recommended capacity of the bund is the greater of;

- 110% of the capacity of the largest tank within the bund.
- 25% of the total capacity of all the tanks within the bund.

The largest tanks are Tanks 1 & 2 within Tank farm 3, each have a volume of 1200m³. Based on Ciria C736, the capacity of the bund would be required to be 1,320m³. When considering the total volume of the non-bunded tanks across the site the volume is 7,230m³, which equates to a bund volume requirement of 1,807.5m³, based on the 25% total capacity calculation. As the 25% capacity calculation is greater this has been used in determining the capacity of the containment across the site. The containment calculations of the site showed that sites storage volumes totalled 1,628.21m³. Which falls short of the required 1,807.5m³ by 179.29m³. To achieve the additional volume the site has installed a front upstand to tank farm 3, allowing it to contain a small volume of the failure before it overtops into the lower containment bund. The upstand has been constructed to a height of 0.20m, which provides a storage volume of 196m³ within tank farm 3 and an overall containment volume of 1,824.21m³ across the site.

It has been demonstrated that the sites containment system has been constructed in compliance with the guidance set out within CIRIA C736 and the site has the capacity to contain 25% of the volume of all the tanks, which is considered the worst case scenario.

The majority of the tanks across the site are on a telemetry system to ensure the tanks aren't overfilled. Those which aren't on the telemetry system are monitored by CCTV. The new tanks (Tanks 1-8) which make up Tank Farm 3 are all fitted with telemetry and are inspected weekly.

Odour Assessment

New abatement system

The site has an existing biofilter which is located to the east of Tank Farm 1. During the determination of the previous variation (V010, issued 09/11/2018) it was agreed improvements to the biofilter were required. The Operator committed to replacing the biofilter, improvement conditions (IC 1 and IC 2) and pre-operational condition (POM1), were included for the Operator to submit a commissioning plan and install the replacement biofilter. In support of this variation the Operator has provided an Odour Assessment (Ref 1718-6r3 Dated 4th August 2021) and an Abatement system Commissioning Plan (Ref 1718-7rs Dated 4th August 2021).

The Odour Assessment follows on from a previous assessment undertaken in October 2020. This assessment assesses the potential impact of odours from the new biofilter and existing emission points across the site.

The new biofilter will be used to treat odour emissions generated by a number of existing sources at the site, potential future processing areas and air displaced from Tank Farm 2 and 3. Air will be extracted at a rate of 3 air changes per hour from the main waste reception building which also houses the depackaging room, chicken skin processing room and Tank Farm 1. In addition, the new biofilter will treat odour emissions from the secure destruction barn also at a rate of 3 air changes per hour. The two existing vessels within Tank Farm 2 will be covered with a membrane to provide containment of emissions and fitted with top vents to allow continuous extraction of air. The 8 vessels within Tank Farm 3 will also be fitted with top vents to allow continuous extraction of air from the tanks. The extract air will be transferred to the inlet of the biofilter for treatment prior to discharge to atmosphere

The new biofilter will be installed on an existing concrete pad to the south of the processing building. The biofilter will measure 21m x 11m x 3.5m with an overall media volume of 693m³. The biofilter is of a conventional open top design with a perforated support floor to allow equal distribution of air through the media. The bed of the biofilter will comprise of woodchip to a depth of 3m. The woodchip will provide a substrate for the formation of biofilm and a suitable environment for the development of microbial populations for effective odour abatement. The biofilter will have a number of sample ports to allow for monitoring of the effectiveness. A surface irrigation system will be installed to ensure that an appropriate moisture level is maintained.

Air extracted from the main reception building, the secure destruction barn, Tank Farm 2 & 3 will pass through the media before being released to the atmosphere.

The biofilter is designed to have an EBRT (empty bed residence time) of 50.70 seconds, this the average time the air passing through the biofilter spends in contact with the media. The EBRT is within the Environment Agency guidance of 30-60 seconds.

The Operator has committed to undertaking a programme of monitoring and maintenance once the installation of the biofilter has been completed, to ensure that optimum abatement efficiency is achieved by the system. This will include regular inspections to ensure that the correct operating parameters are maintained at all times and any component failure or performance issues are proactively identified and resolved. In the unlikely event of the biofilter malfunctioning there is a risk of fugitive odour emissions from the process buildings and the tanks. The Operator has identified the following contingency measures to be implemented within 1 hour of detection of the system failure.

- System reset
- Repair work by an engineer or external contractor to restore operation
- Temporary suspension of waste reception activities (process buildings and tanks) in order to minimise the potential for fugitive emissions
- Temporary suspension of material movement between process and storage tanks in order to minimise the potential for fugitive emissions

Should the reset or the repair work fail to restore operation within 2 hours the following backstop measures will be implemented.

- Instruction of emergency repair work or component replacement by an external contractor
- Diversion of waiting waste deliveries to an alternative facility
- Diversion of all pending deliveries to an alternative facility
- Suspension of processing operations
- Instruction of emergency waste collections

Prior to undertaking planned maintenance activities, which have the potential to cause release of odour emissions, conditions will be evaluated to assess if dispersion conditions are appropriate. If conditions are likely to cause odorous emissions the activities will be delayed until conditions are deemed to be suitable.

As the biofilter is not operational the Operator has committed to undertaking a full performance test of the biofilter within six weeks of commissioning. This will include extractive odour sampling and analysis to evaluate the performance of the biofilter, quantify treated air odour concentrations and to identify any remedial work required to optimise reduction efficiencies. We have included improvement condition (IC3)

in the variation for the subsequent report to be submitted to the Environment Agency for technical assessment and approval.

Odour modelling

The Operator undertook further odour dispersion modelling as set out in the submitted report (Odour Assessment, Bioganix Food Waste Handling Facility, Bonby Date 4th August 2021), in order to assess the impacts of the new biofilter and existing sources including the new Tank Farm, Tank Farm 3. The assessment identified potential odour sources and quantified site-specific emission rates based on the results of a measurement survey. Impacts at the sensitive receptors were calculated using dispersion modelling and the results compared with the relevant odour benchmark level. The results of the survey indicated that predicted odour concentrations were below the relevant benchmark level (1.5ouE/m³) at all sensitive receptors. As such the report concluded that odour emissions from the facility, inclusive of releases from the new biofilter, are not considered to be significant.

Odour Management Plan

The sites odour management plan (OMP) has been updated to reflect the changes proposed by this variation. The site employs a number of measures to minimise odour emissions from the site, including the following:

- Housekeeping: The site has a cleaning schedule which identifies the areas of the site that are required to be cleaned during each shift (twice in a 24-hour period). The schedule is checked and signed off by supervisors/management. The hygiene assessment involves the visual inspection followed by jet washing and disinfection where required. Where possible cleaning wash waters are recirculated within the process.
- Waste acceptance: The site uses strict waste acceptance criteria to ensure only wastes that are listed within the permit are accepted at the site for processing. Prior to the waste arriving at the site, information is collected on the process of origin, quantity and compositional analysis. Wastes will not be accepted unless the load is pre-booked and sufficient capacity exists at the site. Wastes which are excessively odorous or are non-conforming will be rejected from the site. Likewise, if the sample of waste fails testing it will be rejected from the site and not allowed to load into the reception tanks.
- Odour monitoring: daily sniff testing is carried out at various points around the site boundary, at point source emissions and identified sensitive local receptor locations. If required, in the event of any complaints being received

additional locations will also be monitored. Sniff testing will be undertaken by site staff, visiting members of staff or members from the local community. Sniff testing will be undertaken soon after arriving on site to avoid noise blindness.

- **Odour abatement:** A dedicated scavenger system will continuously extract air at a rate of 3 air changes per hour from Tank Farm 1, the unpacking room and chicken skin barn. The air will be extracted and transferred to the inlet of the biofilter for treatment prior to discharge to atmosphere. The biofilter will also treat air extracted from the secure destruction barn, the two vessels in Tank Farm 2 and the 8 vessels within Tank farm 3. The continuous extraction of air from the process buildings will help to promote negative pressure internally and reduce the potential for fugitive odour emissions when doors are opened to allow vehicle and personnel access. Air displaced from the tanks during deliveries will be released into the tank farm areas and treated directly by the biofilter. The displaced air from the tankers will be managed by spacing collection and deliveries throughout the day. The odour assessment assessed the impact of displaced air on the sensitive receptors and concluded the emissions from this source is found to be negligible.

We consider that the conditions in the permit are sufficient to ensure that odour emissions from the facility do not cause annoyance. The odour management plan includes procedures for recording and investigating odour complaints. In the event that odour emissions are causing pollution, the permit conditions require the Operator to comply with the measures specified in the site's operating techniques and odour management plan.

Air Dispersion Modelling (ADM)

The Operator undertook ADM for the inclusion of the onsite generator, the Operator used the Environment Agency's H1 methodology to assess the releases from the proposed new stacks on local air quality in the context of applicable air quality standards and accepted environmental benchmarks for conservation sites.

The applicant's assessment of the impact to air quality is set out in the submitted report (Report Ref 1718-4r1 dated 30 September 2020) which was submitted with the application. The objectives of the study were to assess the impact of emissions from the existing boiler and proposed generator on ambient air quality and determine whether the proposed changes will result in significant changes in pollutant concentrations within the study area. The modelling considered the potential impacts associated with the emissions to air from site looking at oxides of nitrogen (expressed as NO₂), sulphur dioxide and particulate matter.

We agree with the Operator's conclusions that the results of the dispersion modelling indicate the impacts of the pollutant concentrations are not predicted to be significant at any of the sensitive human or ecological receptor locations.

The impacts were assessed on a conservative approach including the assumption that the boiler will be operating at full capacity and emit the maximum concentration of each pollutant throughout an entire year. As such the predicted pollutant concentrations are likely to be an overestimate of actual emissions.

On site generator (recovered oils)

During the determination the Operator undertook an End of Waste assessment for the use of recovered oils within the onsite generator. The process is a self-assessment process, the outcome of which was that the treated recovered oils have stopped being waste and meet all the relevant conditions and criteria of article 6 (end of waste status) of the Waste Framework directive and relevant domestic implementing legislation. The use of the material as a fuel must have no overall adverse impact on the environment and human health when compared to the non-waste fuel it is replacing. The Environment Agency has not undertaken a review of the self-assessment. As part of permit compliance, the Operator may be requested to provide evidence to support their self-assessment that the recovered oils are no longer a waste product.

Waste Types

As part of the variation the Operator proposed the addition of two waste codes to the permit.

07 07 12 - Sludges from on-site biological effluent treatment plant at chemical manufacturing sites other than those mentioned in 07 07 11 only.

This waste was previously included on the permit, but no waste had been supplied for some time as such no analytical data was available to determine whether waste imported under this code was suitable for supply to the adjacent anaerobic digestion (AD) plant. Therefore, the code was removed from the permit under a past variation. During this determination the Operator requested that the waste was re-added to the permit (Addendum HC1666-15). The Operator has proposed that the waste would be accepted at the site and sent directly to the dedicated landspreading tank (Tank 2) within Tank Farm 3, via a filter to remove any unexpected materials. There is no intention for the waste to be processed for onward use as an AD feedstock.

19 12 12 - Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11.

The permit currently allows wastes coded as 02 07 04, which includes wastes such as out of specification soft drinks and alcopops. The inclusion of 19 12 12 is required as the site has an incoming waste stream from a secure destruction facility which takes 02 07 04 wastes. The facility sends the wastes direct to AD plants however, on occasion where supply exceeds demand for the wastes an additional outlet is required. The Environment Agency have deemed that the depackaged wastes become 19 12 12 when it leaves the site, rather than 02 07 04. As not all AD plants are able to accept wastes coded as 02 07 04, the Operator has requested to include 19 12 12 on their permit.

19 12 12 is included on both the Standard Rules permits SR 2012 No11 (anaerobic digestion facility including use of the resultant biogas) and SR 2021 No 6 (anaerobic digestion facility, including use of the resultant biogas – installations). As the waste code is included within the appropriate standard rules set the waste code is suitable for the food waste handling facility.

We are satisfied that the waste types added to the permit as part of this variation are suitable for the proposed on-site treatment processes and, where applicable, for further off-site treatment via anaerobic digestion.

Removal of 99 codes

Since the application was issued the Environment Agency has taken an approach to standardising waste codes and removing wastes with a 99 code. Regulation Position Statement (RPS 241) allows sites to accept wasted codes which are the equivalent of wastes ending in a 99 code and previously described as 'not otherwise specified'. As a result, the Operator has provided a revised Support Document with the updated waste codes and descriptions. Tables S2.2 and S2.3 have been updated to reflect this, with wastes recoded in line with RPS 241.

Processing of powdered wastes

As part of the variation the Operator has proposed the acceptance and processing of powdered fruit, vegetable and cereal matter which will be mixed with liquid wastes to produce a thicker AD feedstock. The material can be handled within the existing EWC codes on the environmental permit. The processing will take place within C Process Reception, the storage area within the building will allow for 1000 tonnes or 1,400m³ of powdered wastes. The majority of wastes will be unloaded directly within the building, with larger vehicles unloading outside and the wastes moved inside immediately by forklift.

Wastes will be loaded into the hopper, which is situated within the existing building, from the hopper the wastes are transferred to the grinding mill and then on to a

mixer. At this point the wastes are conditioned with liquid wastes to generate an anaerobic feedstock. The feedstock is transferred to Tanks 7 & 8 in Tank Farm 3. The introduction of the powdered waste and treatment by mixing with liquid waste will increase the site's treatment capacity to up to 1800m³/day.

There is a potential risk that the processing of powdered wastes will generate dust, the Operator has committed to undertaking testing of the grinding mill for dust generation. The manufacturer's recommendation is to maintain all seals. The Operator also proposes to install a fan extraction to cyclone. The cyclone will decelerate the airflow and drop and product back into the process. There are no external emission points associated with this process.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made. The decision was taken in accordance with our guidance on confidentiality.

Identifying confidential information

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

The decision was taken in accordance with our guidance on confidentiality.

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:

- Public Health England (now the UK Health Security Agency)
- Environmental Health (Local Authority) – North Lincolnshire Council
- APHA (Animal Plant & Health Agency)

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

The regulated facility

We considered the extent and nature of the facility 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'.

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.

Site condition report

Following the low-risk surrender of three areas of land from the neighbouring site, Brigg Lane Biogas (BLB) (EPR/WP3530JB/S003). The footprint of the permitted area has increased to the east and west, in addition to an extension at the eastern end of the Process Area C together with the land to the south. The increase in the permitted area will accommodate infrastructure changes between Bioganix and BLB and allow for a vehicle holding area adjacent to the existing grain stores. This will assist with managing increased traffic movements as a consequence of increased throughput. The additional areas are not subject to past contaminative uses.

The operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.

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 these designations.

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.

We have not consulted Natural England; the decision was taken in accordance with our guidance.

Environmental risk

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

The operator's risk assessment is satisfactory.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment all emissions may be screened out as environmentally insignificant.

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.

Odour management

We have reviewed the odour management plan in accordance with our guidance on odour management.

We consider that the odour management plan is satisfactory, and we approve this plan.

We have approved the odour management plan as we consider it to be appropriate measures based on information available to us at the current time. The applicant should not take our approval of this plan to mean that the measures in the plan are considered to cover every circumstance throughout the life of the permit.

The applicant should keep the plans under constant review and revise them annually or if necessary, sooner if there have been complaints arising from operations on site or if circumstances change. This is in accordance with our guidance 'Control and monitor emissions for your environmental permit'.

Fire prevention plan

We have assessed the fire prevention plan and are satisfied that it meets the measures and objectives set out in the Fire Prevention Plan guidance.

We have approved the fire prevention plan as we consider it to be appropriate measures based on information available to us at the current time. The applicant should not take our approval of this plan to mean that the measures in the plan are considered to cover every circumstance throughout the life of the permit.

The plan has been incorporated into the operating techniques S1.2.

Updating permit conditions during consolidation

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

Waste types

We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.

We are satisfied that the operator can accept these wastes for the following reasons:

- they are suitable for the proposed activities
- the proposed infrastructure is appropriate; and
- the environmental risk assessment is acceptable.

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme. We have included the following improvement condition (IC3):

IC2 – IC2 has been retained from the previous variation for the Operator to install the replacement bio filter.

IC3 – IC3 has been included in the variation notice for the Operator to undertake a review of the replaced biofilter following its commissioning to determine whether the measures have been effective in minimising the emissions of bioaerosols to air.

The following improvement condition has been marked as complete.

IC1– IC1 required the Operator to submit a commissioning plan for the installation of a replacement biofilter (including air extraction). Following the issuing of this variation V011 IC1 has been marked as complete.

Emission limits

No emission limits have been added, amended or deleted as a result of this variation.

Monitoring

Monitoring has not changed as a result of this variation.

Reporting

Reporting has not changed as a result of this variation.

Management system

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

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 Public Health England (now the UK Health Security Agency).

Brief summary of issues raised: No significant concerns were raised.

Summary of actions taken: None required.