



Duranta Teesside Limited Permit Variation Application

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Technical Standards and BAT Assessment



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Duranta Teesside Limited



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Secondary Containment Assessment Revision 01, 6 February 2026
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1. INTRODUCTION

1.1. Introduction

- 1.1.1 The Teesside AD Power Plant is an AD Biogas installation located at Forty Foot Road, Middlesbrough, TS2 1HG, NGR NZ 48840 21016, under the operation of Duranta Teesside Limited.
- 1.1.2 The site currently operates under permit reference EPR/YP3236RW and is permitted to operate under a Bespoke Installation permit. The pending changes at the site require a normal variation to the current site permit.
- 1.1.3 The applicant commits to ensure that all relevant and required aspects of the European Commission document JRC Science for Policy Report – Best Available Techniques (BAT) Reference Document for Waste Treatment, Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control), Pinasseau et.al 2018 will be met (or where appropriate justify deviations from specific measures) thus ensuring that the facility will be fully BAT compliant and operable without adverse impact under the conditions of an Environmental Permit (EP).
- 1.1.4 Following the variation of the site permit, the operation will continue to be designed to process up to 157,000 tonnes of waste per year with no proposed changes to the annual tonnages of feedstock processed at the site. All wastes will continue to be received at the site via the existing reception and pre-storage and treatment facilities with no changes proposed to these aspects of operations.
- 1.1.5 The site will continue to process biowastes restricted to those listed on the current Anaerobic Digestate Resources Framework (ADRF) to ensure ongoing compliance with end of waste requirements and PAS110 certification.
- 1.1.6 The main changes at the site will be the addition of a newly developed area to be added into the permitted area. This will include addition of a new digester with associated gas storage provision in the tank head space, a new additional biogas upgrading unit and additional associated grid entry unit, a new additional emergency gas flare unit, and surface water collection system for management of surface water arising in the new development area. The additional infrastructure will allow increased processing capacity for activities/directly associated activities already listed on the site permit.
- 1.1.7 This report has been written with reference to European Commission document JRC Science for Policy Report – Best Available Techniques (BAT) Reference Document for Waste Treatment, Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control), Pinasseau et.al 2018, , EA online guidance ‘Biological waste treatment: appropriate measures for permitted facilities’, and ‘Environment Agency Sector Guidance Note IPPC S5.06 Guidance for the Recovery and Disposal of Hazardous and Non-Hazardous Waste.

2. SITE SETTING, DESIGN, AND CAPACITY

2.1. Site Setting, Design and Capacity

- 2.1.1 The site is located at Forty Foot Road, Middlesbrough, TS2 1HG, NGR NZ 48840 21016 in a predominantly industrial setting, on the southern side of a loop of the River Tees. The residential and habitats sites receptors in the vicinity are detailed further in the environmental risk assessment for the site submitted with this application reference **CB2255-07 Environmental Risk Assessment**.
- 2.1.2 The site is underlain by unknown thicknesses of Made Ground then Post Glacial Marine Alluvium on top of an unknown thickness of Glacial Laminated Clay. The underlying bedrock is mudstones and marls of the Triassic Mercia Mudstone Group (MMG).
- 2.1.3 Site Investigation indicates that Made Ground is between 1.8 to 3.2m in thickness and includes foundry waste, granular black ashes and coal with occasional slag and brick, ranging from fine material to gravel and cobble sizes. Beneath this the natural geology of ground and river alluvium comprises soft and firm natural sandy clay followed by soft silty clay with some sand or very sandy clay.
- 2.1.4 The northern part of the site was previously occupied by a pond or man-made water feature. The site is located within an area of Low groundwater vulnerability at the bedrock designation, and high vulnerability at the superficial designation. The site is located in a secondary A aquifer at the superficial level, and a principal aquifer at the bedrock level with a location classification of secondary superficial aquifer of medium vulnerability.
- 2.1.5 The site is not located in a groundwater source protection zone. There is one licenced groundwater abstraction point 613m east of the site Licence No: 1/25/04/183/R01, at Sherwood Sandstone. The water usage is for drinking, cooking, sanitary, and washing.
- 2.1.6 The site is located within a loop of the River Tees, with the river ~550 metres to the north & west. There are no abstraction points within 250m, the nearest licenced abstraction point being Licence No: 1/25/04/152, 843m northeast from the River Tees for cooling water usage.
- 2.1.7 There are several Statutory and Non-Statutory Designated Habitats sites in the area. The nearest designated sites are located within 500m -1.5km of the site.
- 2.1.8 The nearest sensitive residential receptors located in the St Pauls Road area some 750m south of the site.
- 2.1.9 Further details of receptors can be found in the Environmental Risk Assessment associated with the Teesside AD Power Plant site permit application at document **CB2255-07 Environmental Risk Assessment**.
- 2.1.10 Details of the site and its setting are shown below in Figure 1, and the site layout in Figure 2.

Figure 1 - The New Development Area to be Added to Permitted Operations (CB2255-04a)



EMISION POINTS:

A1 - Exhaust Stack	A7 - Oxygen Picher	A14 - Emergency Flare 2 Stack
A2 - Exhaust Stack	A8 - Biogas Upgrading Plant Stack	W1 - Uninstrumented Slab Surface Water
A3 - Exhaust Stack	A9 - Generator Exhaust Emission Point	DWO - Uninstrumented Slab Surface Water
A4 - Exhaust Stack	A10 - Syn Gas Separator Generator Exhaust	
A5 - Gas Flare	A11 - Tanker Offload Oxygen Picher	
A6 - Refinery Exhaust	A15 - Biogas Upgrading Plant 2 Stack	

PROPOSED A.Y. DAWSON RAILWAY FACILITY

EMISION POINTS PLAN

Client: DURANTA ENERGY
 Job Title: AMERIBIO DIGESTION PLANT TESSROD AD PLANT FORTY FOOT ROAD MIDDLEBROUGH

Scale: 1:500 (A1) Date: OCT 28 Drawn: JH Checked: M.F.H.

Drawing No: 25-1719-01 Rev: 1

3. WASTE PRE-ACCEPTANCE, ACCEPTANCE AND TRACKING PROCEDURES

3.1 Waste Pre-Acceptance and Acceptance Procedures

- 3.1.1 The operation is currently permitted to process up to 157,000 tonnes of waste per year. There are no proposed changes to the annual tonnages of wastes to be processed as part of this variation.
- 3.1.2 There are no proposed changes to the measures and facilities in place for pre-acceptance, acceptance, storage and tracking of wastes received at the site.
- 3.1.3 The increased gas production will be achieved at the site as a result of installation of a new digester which will allow the operator to process the currently permitted tonnages listed on the site permit.
- 3.1.4 The operator is a certified producer of PAS110 digestate and is aware of the recent publication of the new end of waste position for digestate for operators of AD sites in England (the Anaerobic Digestion Resource Framework (ADRF)). The operator has undertaken a review of the revised waste types listed in the new ADRF and notes that there are three waste codes that are now permitted under the revised position that do not currently appear on the Duranta Teesside permit.
- 3.1.5 As this variation application is being prepared at this time, the operator wishes to take the opportunity to include addition of these three codes onto the permit in order to maximise the wastes that can be processed in accordance with the ADRF. The **three codes are outlined in CB2255-01 List of Changes**.
- 3.1.6 The three additional wastes codes, should they be accepted, can be managed according to the current measures and infrastructure provided without any change in risk characteristics of the operation. If they are incorporated into any PAS110 compliant food soup received by the operator under EWC 19 12 12, then the operator will also be able to receive this food soup as these codes will be listed on their site permit.
- 3.1.7 Other than this small change to the list of wastes accepted at the site, there are no other changes to this aspect of operations arising from the proposed site developments.

4. WASTE STORAGE, SEGREGATION, TRANSFER AND HANDLING

4.1 Waste Storage and Handling Prior to Treatment

- 4.1.1 There are no significant changes to this aspect of operations arising from the proposed developments at the site.
- 4.1.2 Additional pipework will be installed connecting existing liquid food substrate pre-storage facilities to the new digester tank that is proposed under the new development. This pipework will be all above ground and will be located within the secondary containment area of the site which will intercept any spillage or loss of containment from the new pipeline should this occur.

5. WASTE TREATMENT

5.1 Waste Treatment - Digestion

- 5.1.1 Liquid waste feedstocks will be processed in the new digester tank in accordance with the current AD process and system of process control. Liquid food waste will be pumped to the new digester tank from the already existing pre-storage tanks through sealed pipeline.
- 5.1.2 The fermentation process takes place across a dual-step continuous flow anaerobic process that operates in the mesophilic range across five digesters (four primary and one secondary, the new tank being an additional primary digester).
- 5.1.3 The new digester is an above ground steel tank that is 28m in diameter, 11m in height and with a working capacity of 7,200m³. The tank is fitted with a roof mounted double layer weatherproof and UV resistant gas storage bag above the tank space and incorporates at least one emergency under/over pressure relief valve. The gas storage roof has an operating capacity of 1,950 m³ at operating pressure of 4,0 mbar.
- 5.1.4 Mixing of the substrate in the tank is carried out by internal submersible mixers. The tank is fitted with heating coils which utilise hot water for heating of the process tanks to heat the substrate. The combination of the heating and the mixing within the insulated tanks will ensure that the temperature and substrate are kept uniform throughout the digesters, avoiding sedimentation and development of floating layers. The outer walls of all digesters are insulated and clad to achieve maintenance of the set point temperature.
- 5.1.5 The digester is fitted with at least one under/over pressure relief valve that can vent gas to air in the event of a build-up of pressure in the tanks. The tank is also fitted with high level sensors that will trigger an alarm and control response if a set point high level is reached. The tank is also fitted with a foam release valve that is orientated towards the main area of the site, and diverts foaming digestate downward to ground level to the bunded area and drainage collection system in the event of any foaming incident.
- 5.1.6 The tank will be fitted with dosing points for dosing with anti-foaming agent and other additives which can be applied if needed. Records are kept regarding the use of pressure relief valves and high level/foaming events and a full documented account made on occasions where these have operated. All digesters are fitted with sample points to enable controlled substrate removal for analysis.
- 5.1.7 Pressure relief valves and foam release valves will be inspected and re-seated in the event of a foaming incident or venting of the pressure relief valves to ensure that they are properly sealed and re-instated as fit for purpose for ongoing operations.
- 5.1.8 All feed pipework associated with the new digester tank is above ground.

5.1.9 The digester is fitted with oxygen addition points in the head of the digester for biological control of hydrogen sulphide. Ferric chloride is also added to the process as a further control measure for H₂S.

5.1.10 Access to the tank and associated plant, equipment and controls is via galvanised staircases with landing and gantry, allowing safe and unrestricted access for operational maintenance. The digester is fitted with a viewing port to allow the operator to view the inside of the tank daily.

5.1.11 Critical limits of the digestion process are as follows:

Table 1: Critical Limits of Digestion Process

Reactor	Parameter	Critical limits
Primary Digesters	Temperature	38 - 42 °C
	Minimum HRT	57 days
Secondary Digester	Temperature	42 to 45 °C
	Minimum HRT	57 days
	Max Organic Loading Rate	TBC
	Substrate Feeding Rate	Maximum of 430t per day (fresh feedstocks)

5.1.12 Secondary containment provision will be made for the new digester as an extension to the current bespoke secondary containment provision at the site. The proposed design of this secondary containment provision expansion is outlined in a report prepared by SLR Consulting Limited (SLR); **‘Duranta AD Plant - Plant Expansion Secondary Containment Assessment Revision 01, 6 February 2026**. This report is now submitted as **Appendix 1** to this document.

5.1.13 The digestion tank is fitted with temperature, pressure, and level transmitters, which continually report data that is displayed on the computerised SCADA monitoring screens in the control room. Temperature/flow/feed rate can be controlled by this system. If high level thresholds set for temperature, pressure, or level are breached, a high-level alarm will sound.

5.1.14 The digester has temperature probes fitted at different levels within the tanks. The temperature transmitters in the digesters are set to trigger a response if the temperature should rise or fall from optimum level by a set amount. Fluctuations in temperature are monitored, and the heating system is automatically adjusted accordingly. Any breach of high or low-level thresholds will also trigger an SMS alarm.

- 5.1.15 Monitoring probes and equipment is calibrated as required/recommended by the instrument supplier, and calibration records are kept within the management system. All electrically operated monitoring equipment situated inside risk zones is ATEX rated as required.
- 5.1.16 Pipework and vessels have isolation valves fitted to enable maintenance activities or interventions.
- 5.1.17 The system is fitted with a series of non-return valves to ensure that material flows in a single direction and that the potential for uncontrolled backflow is avoided.
- 5.1.18 Hydraulic retention time and maximum organic loading rate are monitored via a flow meter and the retention can therefore be calculated and recorded on the central computer.
- 5.1.19 The critical limits specified in Table 3 are appraised every day on the Master Control Panel (computer) screen in the Control Room. The Master Control Panel is connected to the internet to allow remote connection to the system. Alarms can also be sent via SMS message.
- 5.1.20 The AD facility has a backup unit for keeping the PLC and other associated circuits live for 30 mins. This allows valves to be sent to a default position and for alarms on the system to be sent via email and SMS. Should the CHP stop producing power, the facility will automatically switch over to the imported power supply from the national grid. The site also benefits from an emergency backup diesel generator.
- 5.1.21 Further parameters/operational conditions to be monitored by in situ monitors in the digesters are:
- 5.1.22 Level of substrate monitored via level meters and triggers high- and low-level alarms; accordingly, and
- 5.1.23 Volume / capacity of digester tanks utilised (% capacity occupied).
- 5.1.24 The site operator monitors the health of the digesters on at least a daily basis by analysis of samples on site. Samples are taken on a daily basis from the primary and secondary digesters. There is a titration machine on site to enable the operator to monitor FOS/TAC ratio on a daily basis. The results of this analysis allow actions to be taken about feedstock and process management to prevent abnormal condition from developing.
- 5.1.25 The site has two, automatic, closed (ground) back-up flares that can burn gas in a controlled manner, at a minimum of 1,000°C and 0.3 seconds retention time at this temperature. The flares have the capacity to burn total biogas production in the event of CHP or gas grid connection down time e.g., during periods of on-site/grid maintenance. The flares are mounted on a concrete plinth with pedestrian access for inspection and maintenance, in a location that is compliant with DSEAR and ATEX regulations. The second flare has been installed as part of the current expansion project to ensure that there is sufficient capacity to manage the additional gas production at the site.

- 5.1.26 Records are kept of the flare use on the SCADA control system, and the reason for its use is documented within the EMS (Environmental Management System) incident documentation process if relevant.
- 5.1.27 All vessels and pipes are identified on the SCADA system by a unique identifier code that is cited on the master control screens.
- 5.1.28 Final digestate from the new tank will pass to existing tank F3, then to the existing Post Fermenter, and then through the existing macerator and pasteurisation system.
- 5.1.29 All plant and equipment will be subject to planned monitoring checks, maintenance schedules, and cleaning schedules in accordance with manufacturers recommendations and APHA requirements.

5.2 Waste Treatment – Biogas

- 5.2.1 The biogas upgrading unit to be installed at the site will be duplicate or equivalent treatment process/technology to the unit currently installed and operational at the site.
- 5.2.2 The technology provider for the unit as yet to be finalised. However, a **quotation and specification for the biogas upgrading unit provided by one of the shortlisted suppliers (Bright) is provided with this document as appendix 2.**
- 5.2.3 The biogas produced in the digester is passed to the biogas upgrading unit where treatment takes place. The upgrading unit treatment equipment is housed in containers located on a concrete plinth.
- 5.2.4 The biogas undergoes an initial drying process. This is because the gas is wet and needs to be dried before the rest of the process can take place. To do this, the gas temperature is reduced using a chilled water/biogas exchanger in order to condense the water contained in the gas.
- 5.2.5 The biogas temperature is regulated at the exchanger outlet.
- 5.2.6 Condensate removed from the gas during drying is then passed to a separator filter. It is through this that the condensed water droplets are recovered and collected. The condensate level rises in the separator until it reaches level sensor which triggers opening of a valve to empty the condensate into a condensate tank. There is a manual condensate sampling point at the release valve for sampling and monitoring of condensate if necessary.
- 5.2.7 The biogas is then passed through carbon filters which physically and chemically adsorb hydrogen sulphide (H_2S) to achieve removal from the biogas. Sampling points are available upstream and downstream of the filters, allowing the operator to regularly check the H_2S concentration after dissipation.
- 5.2.8 If the H_2S dissipation rate is less than expected, the operator will check the oxygen (O_2) levels of the incoming biogas and add air if necessary. Optimum concentration is when $[O_2] = 2 \times [H_2S]$.
- 5.2.9 The air injection plate is calibrated to ensure that O_2 concentration does not rise above 1%.

- 5.2.10 The biogas is then passed through further carbon filters designed to adsorb volatile organic compounds (VOC's) physically and chemically. Sample points are available to regularly check VOC rate and saturation level of adsorbents.
- 5.2.11 A screw compressor then compresses the biogas to attain the best pressure for separating the methane (CH₄) and carbon dioxide (CO₂) in the membranes. The gas is then chilled and dried further with removal of further condensate and passed through a further series of filters to remove any particles of oil or dusts before it is passed through the polymer membranes. A membrane is composed of several hollow polymer fibres. The gas being treated is supplied on one side of the membrane at medium pressure. The membrane then generates two flows: a retentate enriched in CH₄, and a permeate at low pressure. This permeate is enriched in CO₂.
- 5.2.12 The CO₂ and CH₄ are separated inside the polymer fibres by a solution-diffusion mechanism.
- 5.2.13 Biogas is passed through a series of membranes which achieve separation of CH₄ and CO₂ and in this way the biomethane resulting is directed towards the grid entry unit and injection network.
- 5.2.14 To match the expected temperature at the outlet of the biogas upgrading unit, the biomethane is heated through a heat exchanger using hot water.
- 5.2.15 CO₂ is directed to a vent and vented to atmosphere.
- 5.2.16 Condensate arising from the process is collected in a below ground condensate tank/pot. A level sensor with a double threshold is mounted on the tank. The high level is used to inform that the tank is full and must be drained, while the low level is corresponding to the hydraulic guard that must always be maintained. The condensate pot itself is a prefabricated purpose-built plastic unit. The return pipework is stainless steel and located above ground.
- 5.2.17 Off spec gas from the process is returned to the digester head space storage in the adjacent AD digester. The site is equipped with two emergency flare units that have sufficient capacity to manage all gas arising at the site in emergency situations should this be needed.
- 5.2.18 Power supply for the process is provided by the AD facility as generated by the site CHP units or from mains power.
- 5.2.19 All pipework is labelled for contents and direction of flow.
- 5.2.20 In situ gas detectors are sited in the equipment containers to monitor for gas that may present risk of anoxia or explosion. The monitors are linked to an air extraction system which will trigger a dilution response and warning beacon if a set threshold is detected. An emergency shut down sequence is also triggered.
- 5.2.21 Upgraded biomethane is passed from the biogas upgrading unit to the grid entry unit for final treatment and injection to the grid. A second grid entry unit will be installed at the site as part of the

current expansion process to create additional capacity for injection of biomethane in accordance with the increased production capacity.

- 5.2.22 Propane is added to the upgraded biomethane to raise the calorific value of the biomethane to a suitable level for grid injection. There are already pre-existing purpose-built propane storage tanks at the site located in a dedicated compound that are used to store propane intended for this use to support the current biogas upgrading system. No additional storage is proposed as part of this expansion, and the existing facilities will be sufficient with more frequent deliveries scheduled.
- 5.2.23 The enriched biomethane is then subject to analysis to ensure it is of the correct quality to be injected to the national grid. If it fails to meet this the required quality, then it will be rejected at this point and returned to the gas storage roofs at the AD facility.
- 5.2.24 Gas that is in spec can be injected with odourant for health and safety purposes to achieve a 'gas' smell to aid leak detection once released to the national grid network. The gas odorant used will be the same chemical as that currently in use at the site to dose odourant into upgraded biomethane in the existing grid entry unit. The odorant used is Tertiary Butyl Mercaptan and Dimethyl sulphide. This will be supplied by, and all cannister changes undertaken by specialist company, Robinson Brothers. Only the cannister in use at one time will be on site in the grid entry unit with no spares stored on site.
- 5.2.25 Following installation of the new biogas upgrading unit, the site DSEAR assessment will be reviewed to identify any new atex/explosive zones related to both the new upgrading unit and grid entry unit, and the new digester.
- 5.2.26 The site HAZOP will be subject to review and update to ensure hazard control measures are imbedded in the design of the newly installed equipment and associated control system.

6. OUTPUTS

6.1 Outputs

- 6.1.1 Main additional waste outputs arising as a result of the expansion will be increased volumes of digestate and biogas.
- 6.1.2 Biogas will be either upgraded in upgrading unit, returned to digester storage during normal working conditions. It may be burnt in the emergency flare or vented to atmosphere via an emergency under/over pressure relief valve in unusual circumstances.
- 6.1.3 Upgraded biomethane will achieve end of waste status according to the EA's published end of waste position; Biomethane from waste: resources framework¹.
- 6.1.4 CO₂ removed during the upgrading process will be vented to atmosphere in the same way as occurs for the existing biogas upgrading unit that is already operational at the site.
- 3.1.8 The operator is already a certified producer of PAS110 end of waste digestate and the additional digestate arising from the expansion will be in scope to also achieve certification.
- 3.1.9 Additional storage provision will need to be made for increased volumes of digestate arising from the site expansion. Digestate is currently managed by a third-party contractor who is contracted to provide haulage, storage, marketing and spreading of digestate products. The digestate storage plan for the site will be updated to source additional storage provision at the point that the expansion of activities is implemented and additional digestate volumes are anticipated to be produced.
- 3.1.10 The existing storage provision and customer base is well established and proven, and reasonable notice and contract extension will be given to/agreed with the offtake contractor to expand current provision to accommodate the additional volumes. An update to the existing Digestate Storage Plan will be made on this basis closer to the time when additional digestate to be taken to market is being generated.
- 6.1.5 Records of outgoing wastes and end of waste products will be reported to the EA via the quarterly waste return as required by the site permit, or via the annual reporting process.
- 6.1.6 Surface water arising from concrete secondary containment areas will be collected in an attenuation tank and diverted to the existing surface water collection system via a controlled release. The existing system has the capacity to manage the additional surface water run-off, and the water will be subject to the current testing and release schedule as currently specified in the site permit. There will be no change to this aspect of operational controls as a result of this current permit variation.
- 6.1.7 It is anticipated that there will be a small increase in wastes arising from maintenance works for the additional plant and equipment at the site, namely oils and absorbents and carbon media from servicing and maintenance of the upgrading unit. These outputs are currently already generated at the site due to current site operations, and it is anticipated that volumes of these existing waste streams will increase.

¹ [Biomethane from waste: resource framework - GOV.UK](#)

7. EMISSION CONTROL

7.1. Emission Control – Point Source Emissions

- 7.1.1 The operator has undertaken a full risk assessment of proposed activities and as part of this process has identified potential emissions from the site. The risk assessment for operations is submitted with the application as document **CB2255-07 Environmental Risk Assessment and Appendices**. An updated point source emissions plan is now submitted as document **CB2255-04 Site Boundary and Emission Points Plan**, and a list of current emissions points is provided in document **CB2255-08 Emission Point Monitoring**.
- 7.1.2 There is also the potential for fugitive emissions from operations that have been identified in the risk assessment. The operator has prepared a wastewater and waste gas streams inventory that is included in the operators EMS and has been updated to reflect the proposed site changes and has informed preparation of the risk assessment and this document. It should be noted that the wastewater and waste gas stream types at the site have not changes. Changes are to the anticipated volumes and release points. A copy of the **updated wastewater and waste gas streams inventory** is included with this document as **appendix 4**.
- 7.1.3 The point source emissions to air and water and associated monitoring points from the plant are outlined in application document **CB2255-04 Site Boundary and Emissions Points Plan, CB2255-04b Proposed New Area Site Layout and CB2255-08 Emission Point Monitoring**.
- 7.1.4 The potential for air quality impacts from emissions from the additional emission point associated with the additional upgrading unit have been assessed using a standard screening tool to predict pollution levels as a result of the additional emissions to air. The findings indicated that the operation of the plant is not predicted to result in significant impacts at any location within the vicinity of the site. A report of the findings is provided in an appendix 1 to the application document as **CB2255-07 Environmental Risk Assessment and Appendices**.
- 7.1.5 The new plant and equipment will be subject to regular maintenance and monitoring to ensure optimum performance. The programme of monitoring and maintenance to be undertaken will be defined in association with the unit suppliers who will provide service and maintenance support once the unit becomes operational.
- 7.1.6 All maintenance and monitoring activities related to the new site plant and equipment will be documented in the site EMS.
- 7.1.7 Six monthly Leak Detection and Repair (LDAR) surveys are undertaken at the site using a suitably experienced third-party specialist, using equipment and methodology in accordance with Best Available Techniques guidance. These campaigns that are currently undertaken will be extended to include the

new equipment in scope. Monitoring exercise will be carried out for emissions from the new flare as required by the site permit and as for the flare currently in use to support operations. The results of monitoring campaigns will be reported to the Environment Agency as required. Any sample point and methodology for sampling will be as specified in the site permit. Monitoring and sample point selection will be carried out in association with an MCERTS accredited external contractor who will be commissioned to undertake the exercise.

- 7.1.8 The odour impacts arising from the expansion of operations have been assessed within the site wide qualitative risk assessment submitted as document **CB2255-07 Environmental Risk Assessment and Appendices**. The additional emissions points to atmosphere (a second biogas upgrading unit CO₂ vent, a second emergency flare unit, and additional emergency pressure relief valves) are not considered to have characteristics that will significantly change the odour characteristics of emissions from the site, both due to the nature of the gas streams (in the case of CO₂), and due to the fact that emissions will not be made during normal routine operations but occasional emergency unusual operations only (in the case of the flare and the pressure relief valves). Storage of gas odorant and propane associated with the biogas upgrading unit activities would have the potential to cause odour impacts should a spill or loss of containment of propane or odourant occur. Again, these occurrences would constitute unusual conditions and not normal everyday operational conditions. Propane is already stored and handled at the site, and gas odourant is already stored in the existing grid entry unit. As such, the operator has already considered risks arising from these sources, and suitable responses to any loss of containment have been included in the site EMS. As such, no significant changes have needed to be made to the current odour management plan, and only minimal update has been required to reflect expansion of existing infrastructure type.
- 7.1.9 The measures to be implemented across the site to manage odour to prevent negative impacts beyond the site boundary are outlined in the site's Odour Management Plan which has been produced in accordance with the Environment Agency's H4 Odour Management Guidance. The updated odour management plan has not been submitted to support this application as only minor update has been made and it is not considered that full re-assessment of the plan is required to support this variation application due to the fact that no substantial changes have been made to the abatement equipment at the site and its process monitoring provision. The document has been updated into version 4.
- 7.1.10 During internal review of the site emissions points plan when preparing this application, it was noted that emission point A12 is still listed on the site permit and shown on the emissions points plan. This emission point was previously listed on the permit when a scrubber unit was installed at the site for abatement of emissions to air from the pasteurisation units. This scrubber has since been removed and the head space of the pasteurisation system linked into continuity with the gas line, and therefore creating a sealed system with no emission point. This change was made some time ago and update was made to the odour management plan to reflect the change. However, the change has never been

regularised on the permit plan. The operator is now taking the opportunity to update the current plant to reflect the currently existing arrangements.

- 7.1.11 Emissions points to surface water have not changed as a result of this variation. Additional surface water arising in the new expansion area will be collected in a new attenuation tank and discharged at a controlled rate into the current existing surface water system where it will then be subject to storage, and monitoring controls in accordance with the current permit provision. There are no changes to this aspect of operational control.

7.2. Emission Control – Fugitive Emissions

- 7.2.1 Potential for fugitive emissions from the new expansion area of the site arise from potential for gas leaks from plant, pipework and equipment, and spills of liquid digestate.
- 7.2.2 The risk of emissions from these sources are already presented by existing plant and equipment, and the operator has already made provision for these potential sources within the current site management plans.
- 5.2.28 Digestate spills and control of surface water releases are currently provided for by provision of a bespoke secondary containment system, and system for surface water collection and controlled release. The site expansion will be subject to the same existing controls; the bespoke containment system being expanded to incorporate the new tank, and the additional attenuation tank allowing surface water from the expansion area to be discharge to the existing system and managed under existing controls. The design proposal for this extension to the existing secondary containment system is now provided in a document prepared by SLR Consulting Limited (SLR); '**Duranta AD Plant - Plant Expansion Secondary Containment Assessment Revision 01, 6 February 2026**'. This report is now submitted as **Appendix 1** to this document.
- 7.2.3 The impermeable surfaces of the bunds will be subject to regular visual inspection to check ongoing integrity as specified in the current site maintenance and daily inspection plans.
- 7.2.4 Gas leaks are managed by implementation of the existing schedule of LDAR monitoring and routine preventative maintenance. Both of these existing management procedures which are implemented with respect to the current digesters, containment system, and biogas upgrading unit will simply be extended to include the expansion area in scope.
- 7.2.5 The operator has outlined the measures that are in place to control accidental releases and spillages in EMS document reference **DUR-C01 – Accident Management Plan**. This plan has been updated to reflect the expansion of the site and is included with this report as **appendix 4**.
- 7.2.6 Risk of nuisance from noise arising from the site as a result of the addition of the expansion has been assessed via **a screening noise impact assessment presented as an appendix to CB2255-07 Environmental Risk Assessment and Appendices**. The screening assessment has concluded that

the additional plant at the site would not have any adverse noise impact at the nearby industrial premises, or at more remote residential receptors. On this basis, a full noise impact assessment is not considered to be required. Given this conclusion, no update to the existing noise management plan within the site EMS is deemed to be required.

- 7.2.7 Meteorological conditions are monitored at the site via an onsite weather station in accordance with current permit requirements, and this data is used to inform dynamic risk assessments of potential impacts and to inform day to day management decision and incident investigation.
- 7.2.8 All management plans are subject to regular review and update, and training is provided to all staff on their roles and responsibilities with respect to implementation of the various plans.
- 7.2.9 Raw materials used in the new equipment will be stored in existing onsite stores with no changes in store capacity, storage infrastructure provision, or location. The only additional raw material storage will be addition of a second odourant cannister (in use) in the second grid entry unit. No odourant spares are kept on site.

8. PROCESS EFFICIENCY

8.1. Process Efficiency

- 8.1.1. The activities carried out at the Duranta Teesside Limited AD facility are designed to allow for recovery of wastes for production of gas/electricity generation. As such, the activity is designed to achieve recovery and minimisation of wastes as its main objective.
- 8.1.2. The expansion of the existing activities into the new area adjacent to the site will allow the operator to recover more waste in this way and will be supported by other sites in the operator's portfolio that support collection and recovery of household food wastes. This activity is in line with current government objectives to increase household food waste recovery and achieve subsequent carbon savings.
- 8.1.3. The expansion to the site will allow the operator to process the full tonnages of wastes currently permitted at the site and to therefore maximise the efficiency and production capacity of the existing operation.
- 8.1.4. Most outputs from the process (biogas and digestate) achieve end of waste status and are put to use as waste derived end products that replace equivalent non-waste derived materials. As such these products represent wider resource efficiency gains.
- 8.1.5. The operator ensures that any final waste outputs that do not achieve end of waste status are assessed and assigned an EWC according to the EA's WM3 technical guidance on waste classification. The requirement to consider the waste management hierarchy is always applied when identifying onward disposal/recovery destinations for outgoing waste streams.
- 8.1.6. Water inputs to the process are minimised due to the surface water collection system at the site which allows interception and use of surface water in the process if needed.
- 8.1.7. Onsite generation of electricity via utilisation of biogas fuels in the onsite CHP engines provide further operational efficiencies as this electricity is used to power operations. Heat recovered from the process is also recovered for process heating achieving yet further process efficiencies.
- 8.1.8. Use of water, energy, and raw materials, and generation of wastes are monitored via the site key performance indicators (KPI) monitoring system, and usage trends are reviewed on an ongoing basis. Should opportunities for further efficiencies be identified, then these are subject to planning and implementation.
- 8.1.9. Energy and raw materials usage, and waste minimisation is considered during any process of change or during procurement of products and services to support site operations.

9. GENERAL MANAGEMENT, MONITORING AND IMPACT

9.1. Facility Management

- 9.1.1 The operator will maintain a formal controlled environmental management system that will be designed to ensure the following:
- that environmental risk and impacts are managed proactively
 - that all legislative requirements are complied with; and
 - that procedures are in place to enable timely and effective response to environmental incidents should they occur.
- 9.1.2 The operator will ensure that suitable provision is made for Technical Competence at the site. At the current time this provision is made via certification to the Energy and Utility Skills Council (EU Skills)/Environmental Services Association (ESA) Competence Management System (CMS). A copy of the current certificate is submitted with this application in document reference **CB2255-02 Technical Competence**.
- 9.1.3 The core site staff team includes a full-time Plant Manager, site operatives, and a maintenance operatives. The core site team are supported by a wider team including a Group Operations Director and accounts department. The site team is further supported by third party contractors for maintenance of specific items of plant and equipment, and a third-party specialist consultancy that provides support with Environmental Permit Compliance. There are other permitted waste facilities in the nearby area that are in the wider Duranta portfolio of operations. Staff from these facilities may be available for short term cover at the site if needed.
- 9.1.4 All sample analyses undertaken for waste characterisation or suitability assessment purposes sent to third party facilities for analysis will be sent to a suitably registered or accredited lab. This will be NRM laboratories. Trained staff may undertake further routine surveillance sample analyses in the small inhouse lab at the site or at other lab facilities in the operator's portfolio.
- 9.1.5 A list of current controlled documents included in the management system for the plant is provided with this application as **CB2255-03 Summary of EMS**.
- 9.1.6 The operator has conducted an air quality, noise, and odour impact screening assessments based on the proposed expansion of current site operations. The operator has also conducted a site wide qualitative risk assessment based on the 'source, pathway, receptor' model. These assessments have been provided with this application as **CB2255-07 Environmental Risk Assessment and Appendices**. The operator has already developed a number of management plans for management of current operations and application of appropriate measures. The proposed expansion of the site does not introduce new risk factors but 'duplicate' activities that are currently carried out at the site and have

already been made provision for in the current risk assessments and management plans. As such, only minor update has been required to these plans, if update has been required at all to reflect the addition of duplicate activities. A copy of the **updated accident management plan** has been provided with this document as **appendix 4**. A copy of the **updated Leak Detection and Repair (LDAR) plan** has been provided with this document as **appendix 5**.

- 9.1.7 The environmental management system also includes procedures for reporting, documenting and investigating incidents, near misses, complaints, and non-compliances.
- 9.1.8 The management system includes procedures for regular maintenance checks/activities on plant machinery and infrastructure to control identified high risk activities, and external and internal audit systems. The site will also carry a supply of critical spares to enable timely response to breakdown and the need for repair. The new plant and equipment will be included in the maintenance plan.
- 9.1.9 All staff employed at the site will have defined job descriptions, that will define the skills and competencies required to carry out the required role. These clearly defined roles will be the basis for a staff training needs assessment, which will form the basis of the staff training plan for the site.
- 9.1.10 All staff will receive training that will enable them to understand the regulatory context in which the plant is operating, and the impact that their own role may have on compliance with the permit. All staff will be trained to develop an awareness of the potential environmental impacts of the operations on site, and in the reporting procedures for incident and near misses. The proposed changes will result in expansion of current existing activities and as such staff are currently experienced and competent in managing these aspects of operation based on current experience.
- 9.1.11 All staff will receive training in the implementation of the site's Accident Management Plan.
- 9.1.12 The training needs/information sharing requirement of contractors visiting the site will be considered within the training needs analysis for the site, and systems set up accordingly to ensure that contractors are equipped with sufficient training and knowledge to undertake their activities on site in a manner that is in line with the operator's systems for management of environmental risk at the site.
- 9.1.13 The operator has collated a raw materials inventory detailing tonnage of raw materials used on an annual basis. The nature and volumes of materials used on site are reviewed on an ongoing basis and where possible efficiencies will be made, or changes will be made in the selection of materials used to ensure that low impact options are used wherever possible. This is included in the management system. The expansion of activities will not result in any new materials being stored at the site that are not currently handled. There will be one additional cannister of gas odourant present on site in use in the new grid entry unit associated with the second biogas upgrading facility. All other raw materials associated with the additional equipment (maintenance oils and propane) will be stored in the existing storage facilities at the site.
- 9.1.14 Similarly monitoring and review of wastes produced, water usage, and energy usage will continue to be carried out in order to identify areas where efficiencies can be made.

- 9.1.15 The operator has prepared an inventory **of wastewater and waste gas streams** produced at the site to allow suitable assessment and management of these on an ongoing basis. A copy of this updated inventory is provided with this document as **appendix 3**.
- 9.1.16 The operator has considered the potential impacts on operations from climate change environmental and weather trends and will incorporate adaptations into the site EMS as identified in the site-specific risk assessment in the operator's EMS.
- 9.1.17 The operator has documented the baseline site context and current site changes in a **Site Condition Report CB2255-05**. This report provides a baseline from which to measure the impact of operations over time. Changes/relevant events/incidents impacting on the characteristics of the site will be recorded in this report on an ongoing basis throughout the life of the plant. It will be possible to use this report as the basis of any detailed plan, or requirement for specific measures that may be needed to return the site to a fit state at the point of decommissioning. This document has been updated to reflect the addition of the expansion area into the permitted area as part of this variation.
- 9.1.18 The operator has prepared a site Closure and Decommissioning Plan outlining the measures that will be carried out in the event of site closure to ensure that the site is left in a state that addresses any subsequent risk to the environment arising from this process. The site Closure and Decommissioning Plan is included in the operator's EMS and will be updated to reflect the proposed changes.

9.2 Facility Management

- 9.2.1 In addition to this, the management system outlines the schedule of monitoring relating to the following areas:
- Annual monitoring of the generator (by MCERTS Certified Consultancy);
 - 6 monthly performance monitoring for odour abatement equipment according to the standard specified in the site permit;
 - Monitoring required by the site HACCP;
 - Ongoing monitoring of feedstock quality/compliance with agreements/incoming feedstocks procedure (appendix 1 of this document);
 - AD process monitoring;
 - Monitoring of energy and raw material usage;
 - Annual performance monitoring and review;
 - Quarterly waste returns reporting to the Environment Agency;
 - Ongoing process monitoring as specified in the site EMS and permit;
 - Ongoing monitoring of the effectiveness of odour abatement equipment installed on site as outlined in the Odour Management Plan;

- Daily odour impact monitoring;
- Other on-site regular environmental monitoring identified by the environmental risk assessment, and specific management plans including the Odour Management Plan, Fugitive Emissions Plan, Noise Management Plan, Pest Management Plan, and Accident Management Plan;
- Monitoring of maintenance issues/infrastructure such as bund surfacing, drainage channels, sumps and collection systems etc;
- Ongoing monitoring and review of complaints and incidents occurring on site (Noise Complaint Form, Odour Complaint Form, Incidents and Complaints Summary and Preventative and Corrective Measures Tracking); and
- Ongoing monitoring of the impact of operations on the site, via establishment of baselines in the Site Condition Report, and collection of data regarding impact of site operations for the life of the site (**Site Condition Report** submitted with this application as **CB2255-05**).

9.2.2 A full list of management system documents is provided with this application as **CB2255-03 Summary of EMS**.

9.3 Impact Assessment

- 9.3.1 The operator has carried out an assessment of the potential receptors to the site, and a qualitative 'source – pathway – receptor' risk assessment of the potential impacts at these receptors (**CB2255-07**).
- 9.3.2 The nearest statutory habitat site is which is located approximately 550m from the site. Potential for impacts on habitats sites have been considered in more depth during site risk assessments in the following way:
- The operator has commissioned an air quality screening assessment based on predicted impacts from the proposed expansion activities. This report concludes that the operation is not predicted to result in significant impacts at any location within the vicinity of the site. The **air quality screening report is provided as appendix to CB2255-07 Environmental Risk Assessment**.
 - The operator has commissioned a noise impact screening assessment based on predicted impacts from the proposed expansion activities. This is provided with the application as an appendix to CB2255-07 Environmental Risk Assessment. The noise impact screening assessment findings were that the additional plant at the site would not have any adverse noise impact at the nearby industrial premises, or at more remote residential receptors. On this basis, a full noise impact assessment is not considered to be required.

The potential for impact from odour arising from the proposed expansion activities is not deemed to be significant and as such no further detailed assessment or provision beyond that currently laid out in the site

Odour Management Plan has been deemed necessary. A small update has been undertaken to the Odour Management Plan to reflect the duplicate plant and equipment at the site.

10. BAT ASSESSMENT

10.1. BAT Assessment of Proposed Changes

10.1.1 The table below lists relevant BAT conclusions, and measures in place to demonstrate BAT.

BAT Conclusion	Impact of proposed changes on BAT requirement	Measures in place to demonstrate compliance
BAT 1	BAT is to develop and implement an Environmental Management System that incorporates features listed in points (I) – (XV)	
	The operator has an established management system that is prepared based on BAT requirements. This already established framework has required some review and update to reflect the changes being undertaken.	The following changes have been made to the site EMS in order to maintain the system in accordance with BAT. A number of key documents have been reviewed and updated to reflect the new configuration of the site, notably the site wide environmental risk assessment, accident management plan, wastewater and waste gas streams inventory, LDAR plan, noise management plan (minor addendum), odour management plan (minor update), site condition report, site layout plans and green line boundary plan, plant maintenance schedules, and closure and decommissioning plan. The site EMS has been prepared taking into consideration all of the aspects specified as BAT under BAT 1 and this position has been maintained following the proposed site changes via suitable review and update. A Summary of the EMS is provided in application document reference CB2255-03. It is considered therefore that BAT has been applied.
BAT 2	In order to improve overall environmental performance, BAT is to use the techniques listed (a – g)	
		The operator has waste pre-acceptance and acceptance procedures in place to outline the measures proposed for assessment and

BAT Conclusion	Impact of proposed changes on BAT requirement	Measures in place to demonstrate compliance
	The operator proposes to accept three new waste types to regularise the list of permitted wastes with the new ADRF list of wastes.	characterisation of wastes at the pre-acceptance stage, waste acceptance procedures, and waste tracking. Procedures for segregation of non-conforming wastes are also outlined. As the three new waste codes are all ADRF compliant there will be no change required to these current procedures. We consider that this has demonstrated that techniques a-e have all been implemented at the site and so it has been demonstrated that BAT has been applied.
BAT 3	In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of wastewater and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all of the features listed in (i) – iii)	
	The wastewater and waste gas streams arising from the site has not changed significantly with respect to the types of wastewater and waste gas streams generated, but rather the number of sources has increased for specific types (CO ₂ from the additional upgrading unit, and combustion gases from the additional flare. Additional surface water.	The operator has reviewed and updated the inventory of wastewater and waste gas streams arising from updated site operations within the site EMS to reflect these changes. As such it is considered that BAT has been applied.
BAT 4	In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques listed (a) – (d)	
	There has been no change to the proposed annual tonnages of wastes processed or to the waste storage facilities.	Existing measures remain current. As such, it is considered that BAT has been applied.
BAT 5	In order to reduce the environmental risk associated with the handling and transfer of waste, BAT is to set up and implement handling and transfer procedures	
	There is only minor changes to the handling and transfer provision at the site as a result of the proposed expansion of activities as a result of the need to convey waste feedstocks to the additional digester tank.	Additional pipework that is located above ground and inside the containment area of the site will be installed to convey feedstocks to the new digester. This additional pipeline will be minimal and a minimal extension of the existing system.

BAT Conclusion	Impact of proposed changes on BAT requirement	Measures in place to demonstrate compliance
BAT 6	BAT is to monitor key process parameters at key locations for relevant emissions to water	
	There will be additional surface water generated in the expansion process area.	This surface water will be collected and diverted to the existing surface water collection system and subject to existing controls for monitoring and release to public surface water sewer as specified in the site permit. As such BAT is considered to have been applied.
BAT 7	BAT is to monitor emissions to water with at least the frequency given	
	There will be additional surface water generated in the expansion process area.	This surface water will be collected and diverted to the existing surface water collection system and subject to existing controls for monitoring and release to public surface water sewer as specified in the site permit. As such BAT is considered to have been applied.
BAT 8	BAT is to monitor channelled emissions to air with at least the frequency given	
	There will be addition of two, point source emissions points to air under the proposed changes, from the second biogas upgrading unit CO ₂ stack, and the additional flare unit. As such this aspect has required review and updated to ensure BAT is applied.	These new release points to air have been identified within the updated risk assessment and site layout and emissions plan submitted with this application. The operator anticipates that permit conditions will be set for regular scheduled monitoring of these emissions points as specified as BAT and as currently specified for the existing biogas upgrading unit CO ₂ stack and flare unit. Such monitoring will be carried out once a variation has been granted and operations can commence.
BAT 9	BAT is to monitor diffuse emissions of organic compounds to air from the regeneration of spent solvents, the decontamination of equipment containing POP's with solvents, and physico-chemical treatment of solvents for the recovery of their calorific value, at least once a year using one or a combination of the techniques given	
	This activity is not undertaken at the site. As such, this BAT conclusion is not applicable to the site operations.	

BAT Conclusion	Impact of proposed changes on BAT requirement	Measures in place to demonstrate compliance
BAT 10	BAT is to periodically monitor odour emissions	
	The change in proposed waste types and treatment activities at the site will not significantly change the risk factors relating to odours at the site.	Minor update has been made to the existing OMP to reflect the additional area and duplicate activities/emissions that have been considered in the plan for the existing equivalent emissions points. As such it is considered that BAT has been applied.
BAT 11	BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and wastewater, with a frequency of at least once per year	
	The expansion in operations at the site is anticipated to result in an increase in annual consumption of energy and raw materials, and the nature and quantities of residues and wastewater generated. Processes for monitoring will remain the same as for current operations.	The operator will continue to monitor raw material and energy usage and generation of residues and wastewater using the current monitoring methods. As such it is considered that BAT has been applied.
BAT 12	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 that includes the listed elements	
	The change in proposed waste types and treatment activities at the site will not significantly change the risk factors relating to odours at the site.	Minor update has been made to the existing OMP to reflect the additional area and duplicate activities/emissions that have been considered in the plan for the existing equivalent emissions points. As such it is considered that BAT has been applied.
BAT 13	In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the techniques given	
	The change in proposed waste types and treatment activities at the site will not significantly change the risk factors relating to odours at the site and will not result in the need for changes to the current odour abatement systems in use at the site.	The odour management plan prepared for the current operations makes provision for the techniques described and no significant changes to these are required. As such it is considered that BAT has been applied.
BAT 14	In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use and appropriate combination of the techniques given	
	The expansion of activities will not change the characteristics of the potential for diffuse emissions but will	

BAT Conclusion	Impact of proposed changes on BAT requirement	Measures in place to demonstrate compliance
	increase the number of potential release points. Key areas of focus are the potential for gas leaks/slippage relating to the proposed additional gas consumers.	The LDAR plan for the site has been updated to include reference to the new expansion area that will need to be included in scope of LDAR surveys once installed. As such it is considered that BAT has been applied.
BAT 15	BAT is to user flaring only for safety reasons or for non-routine operating conditions	
	There has been a change in flare provision as a result of the proposed expansion to make provision for an additional unit.	The additional unit has been provided to account for the increase gas production to be upgraded during normal operations. The additional flare will be used for emergency management of gas only and will be subject to monitoring of use. As such it is considered that BAT has been applied.
BAT 16	In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use the techniques given	
	A new additional flare unit is proposed as part of the expansion plan.	The additional flare will be of a capacity and operational specification in accordance with BAT requirements and as such BAT will have been applied.
BAT 17	In order to prevent, or where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement, and regularly review a noise and vibration management plan as part of the environmental management system that includes the listed elements	
	The proposed expansion will result in addition of plant and equipment that has noise potential.	A noise screening assessment has been carried out based on the potential for the additional equipment to result in impacts. This screening assessment has concluded that there will be no significant impacts arising and no significant updates are required to the noise management plan other than to append the recent assessment. As such BAT is considered to have been applied.

BAT Conclusion	Impact of proposed changes on BAT requirement	Measures in place to demonstrate compliance
BAT 18	In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques listed	
	The expansion activities has the potential to make addition of noise generating equipment that is duplicate equipment of a type already in situ at the site.	The current noise management plan considers the techniques listed and makes provision for these where relevant. These measures are relevant to the new expansion area, and no additional update is needed to the plan which considers the plant and equipment types associated with the expansion. As such it is considered that BAT has been applied.
BAT 19	In order to optimise water consumption, to reduce the volume of wastewater generated, and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of techniques listed	
	The proposed expansion is not anticipated to result in an increase in wastewaters generated at the site. There will be an increase in surface water subject to collection, monitoring and release.	There are no significant changes to this aspect of operations and as such BAT is considered to continue to be applied.
BAT 20	In order to reduce emissions to water, BAT is to treat wastewater using an appropriate combination of the techniques listed	
	There are no wastewater treatment facilities at the site as all wastewaters are collected and blended in the final food soup waste to be sent to third party AD sites for further treatment for recovery. As such this BAT conclusion is not relevant to operations at the site.	
BAT 21	In order to prevent or limit the environmental consequence of accidents and incidents, BAT is to use all of the techniques give as part of the accident management plan (see BAT 1)	
	The proposed expansion does not significantly change the type of likelihood of incidents anticipated at the site. The addition of a new digester will require an extension to the existing containment system for site tankage to maintain current provision. As such the site accident management plan has required review and updated and provision is made for extension to the current containment system.	Provision has been made to extend the current secondary containment provision at the site to make additional allowance for the additional digester tank. The accident management plan for the site has been reviewed and updated. The updated accident management plan has been submitted with this variation application. As such it is considered that BAT has been applied.

BAT Conclusion	Impact of proposed changes on BAT requirement	Measures in place to demonstrate compliance
BAT 22	In order to use materials efficiently, BAT is to substitute materials with waste	
	There is no substantial change to this aspect arising from the proposed changes. There are few raw materials used in the process and there is no significant change in the potential for these to be replaced by wastes.	The proposed activities are intended to create additional gas for upgrading and injection into the national grid network and by definition is intended to provide a means of recovering wastes to generate. Final digestate is certified to PAS110 end of waste standard and recovered as a fertiliser. As such it is considered that BAT has been applied as relevant in this context.
BAT 23	In order to use energy efficiently, BAT is to use both of the techniques given below	
	There will be increase energy usage for operation of the additional plant and equipment.	The operator will continue to monitor electricity usage once the expansion has been implemented. Power to the site will continue to be generated by onsite CHP engines. Further options for optimising energy usage will be considered on an ongoing basis based on usage figures following commencement of new activities. As such it is considered that BAT has been applied.
BAT 24	In order to reduce the quantity of waste sent for disposal, BAT is to maximise the reuse of packaging, as part of the residues management plan (see BAT 1)	
	There will be no change in the characteristics and quantities of waste packaging generated at the site as a result of the proposed changes.	
BAT 33	In order to reduce odour emissions and to improve the overall environmental performance, BAT is to select the waste input	
	The proposed changes will not impact significantly on this aspect of operation. Provision has been made to consider odour potential at the waste pre-acceptance and acceptance stages. The three additional waste codes proposed will not impact on this aspect and will be managed under existing controls.	The three additional waste codes proposed will not impact on this aspect and will be managed under existing controls. As such it is considered that BAT has been applied.

BAT Conclusion	Impact of proposed changes on BAT requirement	Measures in place to demonstrate compliance
BAT 34	In order to reduce channelled emissions to air of dust, organic compounds and odorous compounds, including H₂S and NH₃, BAT is to use one or more or a combination of the techniques given	
	The two new emissions points associated with the proposed expansion are not considered to present high risk for generation of dusts, odours, H ₂ S or NH ₃ .	The risk assessment of proposed expanded operations does not identify that emissions of this type are considered to be high risk of generation from the proposed activities. As such it is considered that BAT has been applied.
BAT 35	In order to reduce the generation of wastewater and to reduce water usage, BAT is to use all of the techniques given	
	The proposed expansion activity makes facility for collection, monitoring and controlled release of clean surface water arising from operations.	BAT has been implemented via provision of a surface water attenuation tank for collection, monitoring and release of surface water according to the current agreed controls specified in the permit. As such, BAT is considered to have been applied.
BAT 38	In order to reduce emissions to air and to improve the overall environmental performance, BAT is to monitor and/or control the key waste and process parameters	
	The proposed expansion will introduce an additional digester that will be subject to process monitoring and optimisation.	There are currently three primary digesters with associated gas storage roofs at the site that are subject to a schedule of processes monitoring and control to ensure optimum operations and control. The schedule of process monitoring is already specified in the operator's EMS and will be applied to this expanded equivalent activity. The new digester will be fitted with the same range of internal monitoring instrumentation, mixers, heating arrangements, sample and dosing points as the other digesters at the site and will be subject to SCADA interface monitoring and controls. The tank will be subject to the same emergency management provision through installation of pressure relief valves, foam release valves, and additional flare provision to ensure controlled management of the additional gas produced. As such, it is considered that BAT has been applied.

