

Natural Resources Wales permitting decisions

Variation and Consolidation of a bespoke Permit – Bryn Power Limited

We have decided to issue a Natural Resources Wales initiated variation for Gelliargwellt Farm Anaerobic Digester Facility, Gelliargwellt Farm in Gelligaer, Hengoed, CF82 8FY operated by Bryn Power Limited.

The permit number is EPR/AB3092ZE.

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.

The permit has been varied following the publication of the revised Best Available Techniques (BAT) Reference Documents (BREF) for Waste Treatment. The associated BAT conclusions to this document were published on 17 August 2018 in the Official Journal of the European Union.

This variation incorporates the changes required by the Industrial Emissions Directive following a statutory review of permits in the Waste Treatment sector. These include the amendment of the wording of several permit conditions relating to notifications, changes to emissions limits and monitoring requirements.

We are satisfied that the operator will be compliant with the published BAT conclusions which will apply from 17 August 2022.

Purpose of this document

This decision document:

- explains how we have carried out our statutory review of the Operator's Permit;
- why we have decided to vary the Permit as a result of that review; and
- why we have included the specific conditions in the revised Permit through the variation notice we are issuing.

It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position.

Structure of this document

- Assessment of Gelliargwellt Farm Anaerobic Digester Facility against the published BAT conclusions for Waste Treatment.
- Annex 1 – Decision Checklist regarding relevant BAT Conclusions

Assessment of Gelliargwellt Farm Anaerobic Digester Facility against the published BAT conclusions for Waste Treatment

1. Our decision

We have issued a variation, which will allow Bryn Power Limited to operate the installation, subject to the conditions in the varied permit.

The variation does three things:

- it consolidates the original permit to reflect changes made through earlier variations;
- it brings the permit into line with our modern regulatory template; and
- it varies the permit where appropriate to reflect the outcome of our statutory review and incorporate Best Available Techniques (BAT) and Associated Emission Limit Values (BAT-AELs).

We consider that, in reaching this decision, we have taken into account all relevant considerations and legal requirements and that the permit will continue to ensure that a high level of protection is provided for the environment and human health.

The original permit, issued on the 11 September 2015, ensured that the installation, employed Best Available Techniques (BAT) and ensured a high level of protection for human health and the environment. We have altered the permit as a result of the statutory review, and we are confident that the new requirements will deliver a superior level of protection to that which was previously achieved. Where a site is not currently compliant with BAT, Improvement Conditions have been included to bring the site up to standard by 17 August 2022.

2. The legal framework

The Variation and Consolidation Notice (which includes the consolidated permit as Schedule 2) will be issued under Regulation 20 of the Environmental Permitting

(England and Wales) Regulations 2016 (EPR). The environmental permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the Industrial Emissions Directive (IED);
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the Variation and Consolidated Permit, it will ensure that the operation of the installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

3. How we reached our decision

Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 on 4 April 2019 requiring the operator to provide information to demonstrate how the operation of their installation currently meets, or will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

The Regulation 61(1) Notice required the operator to:

- Describe the techniques that will be implemented before 17 August 2022, which will then ensure that operations meet the revised standard, or
- Justifies why standards will not be met by 17 August 2022, and confirmation of the date when the operation of those processes will cease within the installation or an explanation of why the revised BAT standard is not applicable to those processes, or
- Justify why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.

- Where their permitted activity involves the use, production or release of a hazardous substance, as defined in Article 3(18) of the Industrial Emissions Directive, Bryn Power Limited were required to carry out a risk assessment considering the possibility of soil and groundwater contamination at the permitted installation with such substances. Where risk of such contamination is established prepare a baseline report containing information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definite cessation of the activity. Bryn Power Limited have stated that “the activity does not involve the production or release of relevant hazardous substances as defined in Article 3(8) of the Industrial Emissions Directive”.
- Where their permitted activity involves the use, production, storage or release of a priority hazardous substances and any other relevant substances., as defined by the Water Framework Directive, Bryn Power Limited were required to carry out a risk screening assessment considering the presence of priority hazardous substances at the permitted installation. Where a risk of these substances is established the operator is to sample the effluent and screen for the priority hazardous substances. If these substances are found to be present in the effluent stream, then assessment using the H1 tool and potential detailed modelling will be required to demonstrate that the effluent discharge will not have a significant impact to the receiving water. Bryn Power Limited has stated that there are no emissions to water from the anaerobic digestion process; only clean (rainwater) surface water discharge to soakaway as noted in the permit.

Where the operator proposed that they were not intending to meet a BAT standard, that also included a BAT Associated Emission Level (BAT-AEL) described in the BAT Conclusions Document, the Regulation 61(1) Notice requested that the operator make a formal request for derogation from compliance with that AEL (as provisioned by Article 15(4) of IED). In this circumstance, the Notice identified that any such request for derogation must be supported and justified by sufficient technical and commercial information that would enable us to determine acceptability of the derogation request.

The Regulation 61(1) Notice response from the operator was received on the 3 December 2019 and additional information received on the 13 October 2020, 14 October 2020 and 3 March 2021.

We considered that the response contained sufficient information for us to commence determination of the permit review. The operator made no claim for commercial

confidentiality. We have not received any information in relation to the Regulation 61(1) Notice response that appears to be confidential in relation to any part

4. Key issues/Regulation 61 response

BAT Conclusions for the Waste Treatment were published as a Commission Implementing Decision ((EU 2018/1447) in the Official Journal of the EU on 17 August 2018. There are 53 BAT Conclusions. This section provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This should be read in conjunction with the permit/variation notice issued.

A detailed response was received from Bryn Power Limited. Following assessment of the Regulation 61(1) response, further information was requested from Bryn Power Limited. Where the operator has concluded that they have achieved BAT, and we are in agreement, no further information/justification has been sought by Natural Resources Wales. Where the operator has not provided sufficient information or where the existing documentation does not achieve BAT, improvement conditions have been set to ensure compliance by 2022.

5. Changes we have made

Improvement Conditions

Based on the information provided in the Regulation 61(1) Notice response, we consider that we need to set improvement conditions. These conditions are set out below. We are using these conditions to require the operator to provide Natural Resources Wales with details that need to be established or confirmed during operations. The improvement conditions ensure compliance by 2022.

Reference	Requirement	Date
IC3	The operator shall submit to Natural Resources Wales a written procedure(s) describing how they intend to meet the following BAT requirements in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018): BAT 1 vii. Following the development of cleaner technologies BAT 1 viii. Whole life cycle considerations when designing a new plant i.e. impacts from eventual decommissioning and throughout its operating life BAT 1 ix. Regular sectoral bench marking	17 February 2022 or otherwise agreed in writing with Natural Resources Wales

	BAT 1 xi. The inventory of waste gas stream (and BAT 3) BAT 1 xii. Residues Management Plan BAT 1 xiv Odour Management Plan (update to existing) BAT 1 xv Noise and Vibration Management Plan	
IC4	The operator shall submit to Natural Resources Wales a written procedure(s) in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018) in relation to: BAT 3 (i)(a) The existing process flow diagram requires updating to include the emissions sources (scrubber and biofilter serving the waste reception building, the cattle slurry tank vent, carbon filter on the processing liquid tank and vents on the digestate lagoon) BAT 3 (i)(b) the waste gas treatment description (scrubber and biofilters and carbon filtration systems) including performance information. BAT 3 (iii) establish an inventory of waste gas (scrubber and biofilter serving the waste reception building, the cattle slurry tank vent, carbon filter on the processing liquid tank and vents on the digestate lagoon) to collate the information in accordance with BAT Conclusion 3 of the Waste Treatment BREF Document (EU 2018), including but not limited to average concentrations and load values of relevant substances.	17 February 2022 or otherwise agreed in writing with Natural Resources Wales
IC5	The operator shall submit to Natural Resources Wales a written procedure(s) in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018) in relation to: BAT 21 a) protection measures (fire and explosion protection) BAT 21 b) management of incidental/accidental emissions BAT 21 c) incident/accident registration and assessment system	17 February 2022 or otherwise agreed in writing with Natural Resources Wales
IC6	The operator shall submit to Natural Resources Wales a written procedure(s) in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018) in relation to: BAT 23 a) an energy efficiency plan for monitoring and analysing performance against indicators. BAT 23 b) energy flow information in an energy balance record showing how the energy is used throughout the process.	17 February 2022 or otherwise agreed in writing with Natural Resources Wales
IC7	The operator shall submit to Natural Resources Wales a written procedure(s) in accordance with requirements specified within BAT Conclusions of the Waste Treatment BREF Document (EU 2018) in relation to: BAT 33 ensure suitability of waste input	17 February 2022 or otherwise agreed in writing with Natural Resources Wales

IC8	The Operator shall submit for written approval a methodology for meeting the process parameters listed in table S3.3 (Schedule 3(b)) as per BAT 38 for the anaerobic treatment of waste. The methodology shall identify each of the process parameters and detail the frequency and techniques in place to record the data. Where a process parameter cannot be monitored justification should be provided and/or a suitable alternative proposed. The methodology should include trigger levels for each of the parameters with associated procedures in place if trigger levels are exceeded.	17 February 2022 or otherwise agreed in writing with Natural Resources Wales
IC9	The Operator shall submit a written report to Natural Resources Wales for approval detailing how the site will implement the latest version of 'Technical Guidance Note M9 Environmental monitoring of bioaerosols at regulated facilities dated July 2018 Version 2'. This assessment should specifically consider channelled emissions to air from the biofilter and the potential for bioaerosol releases. If your biofilter (open and closed biofilters) is within 250 metres of a sensitive receptor you are required to undertake and submit a site specific bioaerosol risk assessment (SSBRA) and any monitoring must be in line with 'M9: environmental monitoring of bioaerosols at regulated facilities'. The written report shall be submitted to Natural Resources Wales by 10 December 2021 and provide procedures and timelines for implementing the new methodology by 10 March 2022.	10 December 2021

IC8 has been included on the permit for the operator to demonstrate that they have control over their anaerobic treatment of waste process. BATc 38 of the Waste Treatment BREF requires the Operator to reduce emissions to air and to improve the overall environmental performance. BAT to is to monitor and/or control the key waste and process parameters. The description requires the operator to have a manual and/or automatic system and lists a number of example process parameters.

The approach taken by NRW is to have an improvement condition for the operator to submit a methodology for how they will address the requirements listed in Table S3.3 of the permit. The Operator will confirm how the information will be gathered, for example, using a SCADA system, on-site testing, sampling etc as well as the frequency this information will be recorded. Where the operator does not undertake certain monitoring parameters, they must provide suitable justification and/or offer an alternative parameter.

This IC is for the operator to demonstrate control over their process. NRW need to understand trigger levels on site by the Operator as well as the frequency of the

monitoring. This information will help inform NRW that the process is stable. The monitored parameters may be submitted as part of the annual report, however, if there is an issue at the site the Schedule 5 Notification Form should be sent to NRW informing us of any issues or exceedances of trigger levels.

This procedure should be reflected within the sites EMS with the site having appropriate backup of this information. The resulting response to IC will become part of the Operating Techniques in Table 1.2.

In addition to NRW's statutory requirement to review and incorporate BAT and BATAELs following the publication of the revised BREF for Waste Treatment, NRW are also required to review the permit against any relevant newly published or updated Technical Guidance Notes. An additional Improvement Condition (IC9) has been added to the permit to ensure the Operator assesses site activities against the latest version of 'Technical Guidance Note M9 Environmental monitoring of bioaerosols at regulated facilities dated July 2018 Version 2'. For permitted activities which have not previously been required to assess bioaerosol emissions from potential sources on site (such as open or closed biofilters), a staged approach has been applied. The first stage requires the Operator to undertake a screening assessment to consider all potential sources of bioaerosols against the relevant screening distance to nearby sensitive receptors. If sources are found to be within 250m of a nearby sensitive receptor, the Operator is required to undertake a Site Specific Bioaerosol Risk Assessment (SSBRA).

Other changes, flare limits - The permit has ELV's set for the emergency flare (A2). The use of the ELVs is from the permitting of landfills where flares are used more due to the fluctuating gas production, whereas for AD plants this is not an issue due to the constant flow of gas to the engines. It is not in operators' interest to burn via a flare and there are no BAT AEL's set in the Waste Treatment BAT conclusions document for emissions from flares. Based on this we have removed the ELVs from the permit. There is further process monitoring for gas production and gas sent to engines and flares per annum. If it looks like there is too much gas production for the facility, then the site would have to adjust their throughput or install new engines to ensure the gas produced is sent to engines for electricity generation. Monitoring is a requirement if the flare is operational for more than 10% of the year therefore the pollutants and monitoring standards will remain in the permit.

Operational Changes

The permit site boundary plan has been updated to now include all point source emissions from the site. This includes the addition of the carbon filter, vents and biofilter emissions points which are existing emissions point sources that have been added to the permit in line with the Waste Treatment BREF requirements for channelled emissions to air defined as “*emissions of pollutants into the environment through any kind of duct, pipe, stack, etc. This also includes emissions from open-top biofilters*” and for which BAT-AELs are set.

The site has two existing CHPs engines 1.6 MWth and 1.4 MWth both of which are already listed in Table S1.1 & emission points in Table S3.1. ELVs and monitoring for existing MCPs & SGs is not required until 1st January 2025 at the earliest. As this is some way off, we decided to maintain any existing ELVs and monitoring requirements in the permit and not to impose MCPD requirements ahead of time.

Emissions to Water

As part of our delivery of the Water Framework Directive requirements, we need to identify and assess the impact for all discharges to surface waters and/or sewer from the site for priority hazardous substances and any other relevant substances. The emissions monitoring for these substances should be carried out using the methods and standards described in the M18 guidance on “Monitoring of discharges to water and sewer”.

With reference to the risk assessment guidance on the gov.uk website entitled “Surface water pollution risk assessment for your environmental permit” (accessible via: <https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit>) the operator is required to carry out the following assessments:

- Screening tests for priority hazardous pollutants and any other relevant priority hazardous substances.
- For any substance which is not screened out by the screening tests further modelling, as described in the risk assessment guidance “Surface water pollution risk assessment for your environmental permit”.

The site does not have any discharges of waste water to surface water or sewer; only discharge of clean uncontaminated surface water to ground via a soakaway.

The specific BAT Conclusions on water emissions in the Waste Treatment BREF taking into account BAT Conclusion 20 from the BREF are therefore not relevant.

There are no emissions to water associated with the permitted activity.

Emissions to Water – Article 15(4) Derogations

No derogations.

Emissions to Air

There were changes to the ELV's for emissions to air taking into account BAT conclusions from the Waste Treatment BREF.

The tables below outline the parameters and limits set to implement the BAT-AELs set out in:

Effective until 16th August 2022

Release point	Parameter	Limit/ BAT AEL	Effective until
A1 CHP Exhaust (Jenbacher)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500mg/m ³	16/08/2022
	Carbon Monoxide (CO)	1400mg/m ³	16/08/2022
	Sulphur dioxide (SO ₂)	350mg/m ³	16/08/2022
	Volatile Organic Compounds (VOCs)	2000mg/m ³	16/08/2022
A2 Flare Stack	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	No limits set	16/08/2022
	Carbon Monoxide (CO)	No limits set	16/08/2022
	Volatile Organic Compounds (VOCs)	No limits set	16/08/2022
A3 Pressure Relief Valves (PRVs)	No parameters set	No limits set	16/08/2022
A4 Boiler Exhaust	No parameters set	No limits set	16/08/2022
A5 CHP Exhaust (Edina)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500mg/m ³	16/08/2022
	Carbon Monoxide (CO)	1400mg/m ³	16/08/2022
	Sulphur dioxide (SO ₂)	350mg/m ³	16/08/2022
	Volatile Organic Compounds (VOCs)	2000mg/m ³	16/08/2022
A6 Carbon filter on the processing liquid tank	No parameters set	No limits set	16/08/2022

A7 Biofilter serving the waste reception building	No parameters set	No limits set	16/08/2022
A8 Cattle slurry tank vent	No parameters set	No limits set	16/08/2022
A9 Covered digestate lagoon vents	No parameters set	No limits set	16/08/2022

Effective from 17th August 2022

Release point	Parameter	Limit/ BAT AEL	Effective from
A1 CHP Exhaust (Jenbacher)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500mg/m ³	17/08/2022
	Carbon Monoxide (CO)	1400mg/m ³	17/08/2022
	Sulphur dioxide (SO ₂)	350mg/m ³	17/08/2022
	Volatile Organic Compounds (VOCs)	2000mg/m ³	17/08/2022
A2 Flare Stack	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	No limits set	17/08/2022
	Carbon Monoxide (CO)	No limits set	17/08/2022
	Volatile Organic Compounds (VOCs)	No limits set	17/08/2022
A3 Pressure Relief Valves (PRVs)	No parameters set	No limits set	17/08/2022
A4 Boiler Exhaust	No parameters set	No limits set	17/08/2022
A5 CHP Exhaust (Edina)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500mg/m ³	17/08/2022
	Carbon Monoxide (CO)	1400mg/m ³	17/08/2022
	Sulphur dioxide (SO ₂)	350mg/m ³	17/08/2022
	Volatile Organic Compounds (VOCs)	2000mg/m ³	17/08/2022

A6 Carbon filter on the processing liquid tank	Ammonia (NH ₃)	20 mg/Nm ³	17/08/2022
	Hydrogen sulphide (H ₂ S)	No limits set	17/08/2022
A7 Biofilter serving the waste reception building	Ammonia (NH ₃)	20 mg/Nm ³ [1]	17/08/2022
	Hydrogen sulphide (H ₂ S)	No limits set	17/08/2022
A8 Cattle slurry tank vent	No parameters set	No limits set	17/08/2022
A9 Covered digestate lagoon vents	Ammonia (NH ₃)	20 mg/Nm ³ [1]	17/08/2022
	Hydrogen sulphide (H ₂ S)	No limits set	17/08/2022

[1] Where BAT associated emission levels are identified (BAT-AELs), limits may be prescribed at the top end of the range unless the proximity of sensitive receptors requires a tighter limit or if tighter limits are previously on the permit, this ensures no backsliding of emission limits.

Emission points A6 - A9 are existing sources which have now been included within the Table S3.1 of the permit. Emission points A6, A7 and A9 are considered to be channelled emissions to air, hence the inclusion of monitoring for Ammonia (NH₃) and Hydrogen Sulphide (H₂S). This decision has been made in line with the Waste Treatment BATc document.

Additional bioaerosol monitoring requirements have also been included within Schedule 3 Table S3.4, in accordance with “M9 – Technical Guidance Note (Monitoring) – Environmental monitoring of bioaerosols at regulated facilities, 2018 Version 2” together with the Environment Agency’s “Guidance on the evaluation of bioaerosol risk assessments for composting facilities. Bioaerosol monitoring will only be required following the completion of Improvement Conditions IC9, and only if it is confirmed that there are nearest sensitive receptors within 250 meters of bioaerosol emissions sources and that monitoring is required. Table S3.4 can be removed from the permit if monitoring is subsequently determined as not required.

Table S3.4 Bioaerosol monitoring requirements					
Location or description of point of measurement	Parameter	Bioaerosol threshold limits CFU m ⁻³	Monitoring frequency	Monitoring standard or method	Other specifications
Bioaerosols shall be monitored: - upwind of the operational area and - downwind of the operational area, in accordance with "M9 – Technical Guidance Note (Monitoring) – Environmental monitoring of bioaerosols at regulated facilities, 2018 Version 2".	Total bacteria	1000	Quarterly or otherwise agreed with NRW	In accordance with "M9 – Technical Guidance Note (Monitoring) – Environmental monitoring of bioaerosols at regulated facilities, 2018 Version 2"	Monitoring requirements to be agreed with NRW subject to completion of IC9
	Aspergillus Fumigatus	500			

Emissions to Air – Article 15(4) Derogations

No derogations.

Process Monitoring Requirements

There were changes to the process monitoring requirements taking into account BAT conclusions from the Waste Treatment BREF. The tables below outline the parameters and monitoring frequencies required in order satisfy BAT 38 of the Waste Treatment BREF.

Effective until 16 August 2022

Release point	Parameter	Monitoring Frequency	Effective until
Biogas from digesting tank and biogas holder	Flow	Continuous	16/08/2022
Biogas from digesting tank, biogas holder and waste reception building	Methane	Spot Sample	16/08/2022
	Hydrogen Sulphide		16/08/2022
	Carbon Dioxide		16/08/2022
Biogas from digesting tank, biogas holder, waste reception building and external storage areas	Odour	Daily	16/08/2022
Biofilter	Temperature	None Specified	16/08/2022
	Moisture		16/08/2022
	Thatching / compaction		16/08/2022

Bund sump and storm water inspection chambers	Oil/grease and ammonia no >0.5 ppm	Periodically	16/08/2022
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Effective from 17 August 2022

Release point	Parameter	Monitoring Frequency	Effective from
Digester feed	pH	To be agreed with NRW	17/08/2022
	Alkalinity		
	Hydraulic and organic loading rates		
Digester	Operating temperature		17/08/2022
	Liquid and foam levels		
	Concentration of ammonia		
	Concentration of VFAs		17/08/2022
	Alkalinity		17/08/2022
	FOS/TAC ratio (VFA/TA)		17/08/2022
	pH		17/08/2022
Digestate	Concentration of VFAs		17/08/2022
	Ammonia		17/08/2022
Biogas from digesters	Flow		17/08/2022
	Quantity		17/08/2022
	Pressure		17/08/2022
	Composition		17/08/2022
	Methane		17/08/2022
	Hydrogen Sulphide		17/08/2022
	Carbon Dioxide		17/08/2022
Biofilter	Temperature		17/08/2022
	Moisture		17/08/2022
	Thatching / compaction		17/08/2022
Biogas from digesting tank, biogas holder, waste reception building and external storage areas	Odour	Daily	17/08/2022
Bund sump and storm water inspection chambers	Oil/grease and ammonia no >0.5 ppm	Periodically	17/08/2022

Reporting

Table S4.4 has been updated to include water usage, energy usage and waste tonnage reporting subject to condition 4.2.5. Form Air 1 and Performance 1 have been

updated and will come into effect following the implementation of the Waste Treatment BREF on 17 August 2022. The forms have been created to reflect the changes in monitoring in Schedule 3 (b) of the permit.

OPRA

There is no change to the operators OPRA score (52) following this NRW led variation.

Other IED BREFs relevant to the permit review

There are no specific listed activities within Table S1.1 of the permit that are within scope of other published BREFS.

6. Conclusion

We consider that the installation already employed what used to be BAT but that the operator requires a few improvements to meet the new BATs. The revised BREF and its BAT-AELs provide the opportunity to consider further environmental improvements.

Coupled with the consolidation and modernisation of the permit, we believe this variation provides a sound basis for ongoing regulation of the installation and we are satisfied that the operator is currently achieving or will be achieving all relevant BAT by 17 August 2022.

We believe that we have ensured compliance with all relevant legal requirements in carrying out this review and making our determination on the variation.

Annex 1: Decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the Waste Treatment BREF were published as a Commission Implementing Decision ((EU 2018/1147) in the Official Journal of the EU on 10 August 2018. There are 53 BAT Conclusions. This Annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This Annex should be read in conjunction with the consolidated variation notice.

All BAT Conclusions arising are listed by number in order below;

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
OVERALL ENVIRONMENTAL PERFORMANCE		
1	Environment Management System (EMS) – <u>ALL</u> of the following:	
	I. Management commitment	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'leadership and commitment' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified Environmental Management System (EMS).

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	II.	Environmental policy development including CI of performance	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires an 'environmental policy' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
	III.	Planning and implementing procedures & targets in conjunction with financial planning & investment	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'planning actions including consideration of its financial requirements' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
	IV.	Implementation of procedures	
		(a) Structure & responsibility	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'organisational roles, responsibilities and authorities' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
		(b) Recruitment, training, awareness & competence	Currently compliant

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'resources, competence and awareness' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
		(c) Communication	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'communication' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
		(d) Employee involvement	Currently compliant The operator has indicated that they currently comply with this BAT requirement and that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 does not have a specific section on employee involvement. A copy of the BPL-2020-MS-Management System has not been provided for review.
		(e) Documentation	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'control of documented information' and a copy of the up to date ISO14001 certification

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			has been provided to evidence the operator is still operating under a certified EMS.
		(f) Effective process control	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'operational planning and control' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
		(g) Maintenance programmes	Currently compliant The operator has stated that they are currently compliant with this BAT requirement and that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 does not have a specific section on maintenance programmes. A copy of the BPL-2020-MS-Management System has not been provided for review. However, the IMS 2019 document provided includes a section on maintenance (5.1).
		(h) Emergency preparedness & response	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'emergency preparedness' and a copy of the up to date ISO14001 certification

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			has been provided to evidence the operator is still operating under a certified EMS.
		(i) Safeguarding compliance with environmental legislation	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'evaluation of compliance' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
	V.	Checking performance and taking corrective action	
		(a) Monitoring & measurement	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'monitoring and measurement' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
		(b) Corrective and preventive action	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'non-conformity and corrective action' and a copy of the up to date ISO14001

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			certification has been provided to evidence the operator is still operating under a certified EMS.
		(c) Maintenance of records	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'creating and updating' and 'control of documented information' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
		(d) Independent (where practicable) internal or external EMS auditing	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'internal audit' and external audit will be required to maintain ISO 14001 certification. A copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.
	VI.	Senior management review of EMS	Currently compliant The operator has stated that they operate an externally audited Integrated Management System (IMS) certified to ISO 9001, 14001 and 45001. ISO14001 requires a section on 'management review' and a copy of the up to date ISO14001 certification has been provided to evidence the operator is still operating under a certified EMS.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	VII.	Following development of cleaner technologies	Compliant in future The operator has stated that they will be compliant with this requirement by the compliance date. An improvement condition has been set.
	VIII.	Whole life cycle considerations when designing a new plant i.e. impacts from eventual decommissioning and throughout its operating life	Compliant in future The operator has stated that they will be compliant with this requirement by the compliance date. An improvement condition has been set.
	IX.	Regular sectoral bench marking	Compliant in future The operator has stated that they will be compliant with this requirement by the compliance date. An improvement condition has been set.
	X.	Waste stream management (BAT 2)	Currently compliant The operator has stated that they comply with this BAT requirement and has referenced their Management Systems (BRL-2020-MS) and ABPR Standard Operating Procedure (Bryn Power-ABPR SOP).
	XI.	Inventory of waste water & waste gas streams (BAT 3)	Compliant in future The operator has stated that all waste water is treated by the AD facility. Water used in washing inside the AD reception building is collected in a sealed drainage system and automatically directed into the processing system. There is no silage clamp at the facility. There are several waste gas streams from the site, from the

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			scrubber and biofilter serving the waste reception building, the cattle slurry tank vent, carbon filter on the processing liquid tank and vents on the digestate lagoon. In addition the CHP exhausts which are outside of the scope of the Waste Treatment BREF. The Odour Management Plan is in the process of being updated to include both of the waste gas streams. The operator has stated that they will be compliant with this requirement by the compliance date. An improvement condition has been set.
	XII.	Residues Management Plan – S6.5	Compliant in future The operator has indicated that they are currently compliant with this BAT requirement and has referenced document BPL-2020-MS-Management Systems. The Management System does not contain a Residues Management Plan as indicated and an improvement condition has therefore been set.
	XIII.	Accident Management Plan – S6.5	Currently compliant The operator has Accident Management Plan (BPL-EPA-2015-AMP) and Hazard Analysis and Critical Control Points (06 PAS HACCP) documents.
	XIV.	Odour Management Plan (BAT 12)	Compliant in future The operator has an Odour Management Plan but has stated that this needs to be updated to take into account the most recent changes at the site. The operator has confirmed this will be updated by the compliance date and an improvement condition has been set.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	XV.	Noise & Vibration Management Plan (BAT 17)	Compliant in future The operator has stated that they have a Noise and Vibration Management Plan (NMP) but has not provided a copy nor is one held by NRW. The operator has stated that the NMP needs to be updated to take into account the most recent changes at the site. The operator has confirmed this will be updated by the compliance date and an improvement condition has been set.
2	Improving overall environmental performance – <u>ALL</u> of the following:		
	a.	Set up and implement waste characterisation & pre-acceptance procedures	Currently compliant The operator has stated that they currently comply with this BAT technique and has referenced the Management Systems (BRL-2020-MS) and Standard Operating Procedures 'SOP' (Bryn Power-ABPR SOP). A copy of the SOP has been provided and reviewed and includes a section 3 on waste pre-acceptance which meets BAT requirements.
	b.	Set up and implement waste acceptance procedures	Currently compliant The operator has stated that they currently comply with this BAT technique and has referenced the Management Systems (BRL-2020-MS) and Standard Operating Procedures 'SOP' (Bryn Power-ABPR SOP). A copy of the SOP has been provided and reviewed and includes a section 4 on waste acceptance which meets BAT requirements.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Set up and implement a waste tracking system & inventory
	d.	Set up and implement an output quality management system
	e.	Ensure waste segregation
Currently compliant The operator has indicated that all waste is tracked through the quarterly returns. This is insufficient to meet the requirements of BAT. However the SOP provided includes within section 4 on waste acceptance, reference to an internal tracking system which will be cross referenced to the unique reference number given to the waste at the pre-acceptance stage. This tracking system is noted as consisting of all information generated during pre-acceptance, acceptance, storage and treatment and kept up to date on an ongoing basis, which meets BAT requirements.		
Currently compliant The operator has stated that they currently comply with this BAT technique as they hold PAS 110 accreditation (which requires a quality management system) for the liquid digestate and automatically monitor the quality of the gases produced by the engine as part of the proprietary control system. The SOP provided has a section 6 on microbial testing of the digestate. A copy of the up to date ISO9001 certification has been provided to evidence the operator is still operating under a certified IMS.		
Currently compliant The operator has stated that they currently comply with this BAT technique and has referenced the Management Systems (BRL-2020-MS) and Standard Operating Procedures 'SOP' (Bryn Power-ABPR SOP). A copy of the SOP has been provided and reviewed and		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			includes reference to the segregation of different waste types (4.2 standard waste reception area coloured green with Animal By Products ‘ABP’ wastes delivered into a dedicated and segregated covered ‘dirty area’ and section 5.2 non-conforming wastes segregated into quarantine area) which meets BAT requirements.
	f.	Ensure waste compatibility prior to mixing or blending	Currently compliant The operator has stated that they currently comply with this BAT technique and has referenced the Management Systems (BRL-2020-MS) and Standard Operating Procedures ‘SOP’ (Bryn Power-ABPR SOP). Permitted to accept only non-hazardous, biodegradable and ABPR wastes so there would not be any compatibility issues other than keeping the ABPR wastes separate (and ensuring only permitted wastes accepted), for which SOPs are in place.
	g.	Sort solid incoming waste – S6.4	Currently compliant The operator has stated that they currently comply with this BAT technique and has referenced the Management Systems (BRL-2020-MS) and Standard Operating Procedures ‘SOP’ (Bryn Power-ABPR SOP). A copy of the SOP has been provided and reviewed and includes a section 6.1 on pre-processing which describes the removal of contamination after the food waste has entered the de-packager bunker, been chopped and conveyed to the hammer mill for pulping. The Runi compactor then washes and removes contamination as the feed comes out of the hammer mill and rejects are collected for recycling.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
3	Establish and maintain a waste water and waste gas inventory as part of the EMS - <u>ALL</u> of the following:	
	<i>Information on characteristics of waste and waste treatment processes</i>	
	(i)(a) simplified process flow sheets showing emission sources	Compliant in future The operator has stated that they currently comply with this BAT technique and has referenced the Management Systems (BRL-2020-MS) and Standard Operating Procedures 'SOP' (Bryn Power-ABPR SOP). The SOP provided has an operational flow diagram but this does not indicate all the emissions sources (i.e. does not include the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters or gas vent on the lagoon. An improvement condition has been set to update this plan.
	(i)(b) Process-integrated and waste water/waste gas treatment descriptions including performance	Compliant in future The operator has stated that they currently comply with this BAT technique as they have a maintenance contract in place for the CHP engines and ongoing monitoring through the operator HMI station. However, this does not relate to the Waste Treatment BREF. A description of the waste gas treatment by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters, the dryer vents and the gas vent on the lagoon and their performances are required. The Odour Management Plan 'OMP' 2016 provides a description of the air treatment system including a description of the fan ventilation system on the waste

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		reception building through which foul air is passed through two-stage scrubbers and bio-filters with a design performance of at least 95% odour removal. No detailed performance information is included (e.g. guaranteed odour concentrations that can be achieved). The OMP also notes the cow slurry (sealed) tank is fitted with a carbon filter to prevent or minimise the release of any foul odour for which no performance information has been provided, nor for the carbon filters installed on both the mixing and receiving tanks. An improvement condition has been set to update this plan.
Information on characteristics of waste water streams		
(ii)(a)	<i>Mean and variability of:</i>	
	Flow	Not applicable There are no waste water discharges to watercourses or sewers.
	pH	As above
	Temperature	As above
	Conductivity	As above
(ii)(b)	<i>Mean concentration, load and variability of:</i>	
	Total suspended solids	Not applicable There are no waste water discharges to watercourses or sewers.
	COD/TOC	As above
	Nitrogen species	As above
	Phosphorous	As above
	Metals	As above

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		Priority substances/micropollutants	As above
		Any other relevant compounds	As above
	(ii)(c)	<i>Bioeliminability data (see BAT 52):</i>	
		BOD	Not applicable There are no waste water discharges to watercourses or sewers.
		BOD to COD ratio	As above
		Zahn-Wellens test	As above
		Biological inhibition potential	As above
	Information on characteristics of waste gas streams		
	(iii)(a)	<i>Mean and variability of:</i>	
		Flow	Compliant in future The operator has stated that biogas flow is continuously monitored through the proprietary control system. Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
		temperature	Compliant in future The operator has stated that daily checks of the chiller temperature are recorded on the control system spreadsheet. Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	(iii)(b)	Mean concentration, load and variability of relevant substances:	
		Organic compounds	Compliant in future The operator has not indicated whether organic compounds are monitored. Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
		POPs e.g. PCBs	Compliant in future The operator has stated that these are not present in the digester environment. Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
		Any other relevant compounds	Compliant in future The operator has stated that H ₂ S is monitored (in the digester environment). Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
	(iii)(c)	Flammability	Compliant in future The operator has stated that flammability is continuously monitored (in the digester environment) through the proprietary

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			control system. Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
		Lower and Higher Explosive Limits	Compliant in future The operator has stated that lower and higher explosive limits are continuously monitored (in the digester environment) through the proprietary control system. Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
		Reactivity	Compliant in future The operator has stated that reactivity is continuously monitored (in the digester environment) through the proprietary control system. Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
	(iii)(d)	Presence of other substances that may affect the gas treatment system or plant safety:	
		O2	Compliant in future The operator has stated that O2 is continuously monitored (in the digester environment) through the proprietary control system.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
		N2	Compliant in future The operator has indicated that monitoring N ₂ is not applicable but not provided any reasoning. Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
		Water vapour	Compliant in future The operator has stated that water vapour in the chiller is monitored daily. Information on the waste gas stream treated by the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon needs to be collected. An IC has been set.
		Dust	Not applicable The operator has stated that the facility is a wet and enclosed environment and no dust is produced.
4	Reducing environmental risk associated with waste storage – ALL of the following:		
	a.	Optimised storage location	Currently compliant The operator has stated that they comply with this BAT requirement and has referenced their Management Systems (BRL-

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			2020-MS) and ABPR Standard Operating Procedure (Bryn Power-ABPR SOP). The Management System notes that all storage and treatment of waste solids, liquids and sludges will not be within certain distances of watercourses, springs, wells, or boreholes.
	b.	Adequate storage capacity	Currently compliant The operator has stated that they comply with this BAT requirement and has referenced their Management Systems (BRL-2020-MS) and ABPR Standard Operating Procedure (Bryn Power-ABPR SOP). The Management System notes (pre-acceptance) that personnel shall ensure that the site has capacity to store and treat any incoming waste. The ABPR SOP includes maximum residence times for storage in section 6 and also notes the tracking system consists of all information generated during pre-acceptance, acceptance, storage and treatment and is kept up to date on an ongoing basis. In addition, the OMP notes the waste reception area storage capacity and that when the ABP buffer tank is full it will stop the hammer mill processing more food.
	c.	Safe storage operation	Currently compliant The operator has stated that they comply with this BAT requirement and has referenced their Management Systems (BRL-2020-MS) and ABPR Standard Operating Procedure (Bryn Power-ABPR SOP). The Management Systems states that wastes shall be stored or treated within enclosed containers, reactor vessels or enclosed well ventilated buildings fitted with a biofilter and/or

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			scrubbing system, a HACCP is in place to control ABP wastes and security measures are in place on site. The ABPR SOP section 6 describes the split between ABP and non ABP wastes and how these are managed on site.
	d.	Separate area for storage & handling of packaged hazardous waste	Not applicable The Management Systems (BRL-2020-MS) states that there shall only be non-hazardous wastes accepted at the AD site.
5	Set up and implement procedures to reduce the environmental risk associated with handling and transfer of waste - include following elements:		
	Carried out by competent staff		Currently compliant The operator has stated that they hold both ISO14001 and ISO45001 accreditation. The Management System states that the manager and operatives will be appropriately trained and will be conversant with the requirements of the Environmental Permit and Management System and that a designated person will hold a suitable qualification (technical competency) in order to operate the site compliantly and their actual attendance hours on site will be recorded in the Site Diary.
	Duly documented, validated and verified		Currently compliant The operator has stated that they comply with this BAT requirement and has referenced their Management Systems (BRL-2020-MS) and ABPR Standard Operating Procedure (Bryn Power-ABPR SOP). The ABPR SOP section 4 notes that there is an internal tracking system for all wastes which is cross-referenced to the

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		unique reference number which was given to the waste at the pre-acceptance stage. The tracking system will consist of all information generated during pre-acceptance, acceptance, storage and treatment and will be kept up to date on an ongoing basis.
	Spill prevention, detection and mitigation measures	Currently compliant The operator has stated that they comply with this BAT requirement as all waste is delivered in sealed areas so all spills are contained and automatically processed in system. Section 5.2 of the Management System details how leaks and spills will be prevented and that where they do occur documented control and remediation procedures will be implemented immediately and recorded. It also notes that a spill kit is available on-site (in main office) for rapid clean-up and amelioration of spills. Section 2 of the ABPR SOP details monitoring and checking for spills.
	Take precautions when mixing or blending wastes	Currently compliant The operator has stated that they comply with this BAT technique as all operations are carried out automatically by the system and in sealed containers/bunkers/tanks. The Management System and ABPR SOP indicate separate procedures/equipment/areas for dealing with ABP and non-ABP wastes.
MONITORING		

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
6	Relevant emissions to water: monitor key process parameters at key locations	
	Key process parameters	
	Waste water flow	Not applicable There are no waste water discharges to watercourses or sewers. The only emission to water from the site is a manually operated discharge of clean surface water collected in the lower AD facility containment area. In accordance with the sites environmental permit, samples of surface water collected in the lower containment area are analysed for ammonia content prior to discharge to soakaway.
	pH	As above
	Temperature	As above
	Conductivity	As above
	BOD	As above
	Other process parameters	As above
	Key monitoring locations	
	Pre-treatment inlet and/or outlet	As above
	Final treatment inlet	As above
	Discharge point (to the environment)	As above
	Other location	As above
7	Monitoring emissions to water (refer to table) Monitoring parameters depend on waste treatment process(es) involved	Not applicable There are no waste water discharges to watercourses or sewers.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
8	Monitoring emissions to air (refer to table) Monitoring parameters depend on waste treatment process(es) involved	Compliant in future The operator has stated that they will be compliant with this BAT by the compliance date. Point source emissions to air from the scrubber and biofilter serving the waste reception building, de-packing building, the carbon filters and the gas vents on the lagoon will need to be monitored once every six months in line with BAT 8 for: H ₂ S and NH ₃ . No requirement has been set for odour concentration monitoring as no odour nuisances are expected / have been substantiated. Monitoring requirements in the permit have been updated.
9	Monitoring diffuse emissions of organic compounds to air from processes involving solvents. Use one or a combination of the following:	
	a	Measurement – S6.2 descriptions
	b	Emissions factor calculation
	c	Mass balance calculation
10	Periodically monitor odour emissions where nuisance is expected and/or has been substantiated (monitoring frequency is outlined in BAT 12)	
	Use EN standards e.g. 13725 or 16841	Currently compliant The operator has stated that an OMP is in place but needs to be updated to take into account recent changes at the site. However,

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		it is noted that the existing OMP currently states that 'Annually, olfactory performance testing of the biofilters shall be conducted in accordance with BSEN 13725:2003 by suitably qualified external consultants (including simultaneous inlet and exhaust testing)'. In addition daily 'odour intensity' sniff test monitoring is undertaken and is sufficient as 'first line' monitoring.
	Use equivalent methods e.g. ISO / national / international monitoring standards	Currently compliant Daily 'odour intensity' sniff test monitoring is undertaken in line with H4 Odour Management guidance which is considered sufficient unless an odour issue is identified which requires further investigation (see above).
11	Annual monitoring for:	
	- Water, energy and raw materials	Compliant in future The operator has stated that the operation of the biogas plant is fully automated from an on-site central Control Panel which monitors information transmitted from field instrumentation around the plant. The system allows Bryn Power to monitor the site remotely. The Control System is bespoke designed for Bryn Power AD facility. The operator HMI station shows the running status of the plant and continually records data. Any water added to the system is recorded on the records. All energy produced by and used by the facility is automatically recorded by the system.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		Monitoring of the annual consumption of raw materials is also required and this has been added to the permit.
	- Generation of residues and waste water	Currently compliant The operator has stated that the quantities of waste plastic removed from the incoming waste is recorded on waste returns. There is no waste water other than surface water runoff collected in the lower AD area. The discharge and monitoring dates are recorded on daily diary.
EMISSIONS TO AIR		
12	Set up, implement and review an Odour Management Plan (as part of the site EMS) where nuisance is expected and/or has been substantiated. Include <u>ALL</u> of the following:	
	Protocol containing actions and timelines	Currently compliant An OMP is in place which contains actions and timelines. The operator has indicated that the OMP needs to be updated to take into account recent changes at the site.
	Protocol for conducting odour monitoring (BAT 10)	Currently compliant An OMP is in place which contains a procedure for odour monitoring in line with BAT 10.
	Protocol for response to odour incidents/complaints	Currently compliant An OMP is in place which contains a procedure for dealing with incidents and complaints.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Odour prevention and reduction programme		Currently compliant An OMP is in place, which contains measure to prevent and where not possible, reduce odours.
13	Techniques to prevent, or where not practicable reduce odour emissions. Use one or a combination of the following:		
	a.	Minimising residence times (open systems only)	Currently compliant This is only applicable to open systems and the permitted activity is a closed system activity but all associated waste reception, waste storage and waste treatment areas are contained / waste is within sealed tanks also. An OMP is in place which restricts residence times stating 'No materials shall be allowed to accumulate on site, without treatment or off-site disposal for a period of greater than 24 hours. Should the waste reception area be at full capacity, waste will be diverted to an alternative suitably licenced facility'.
	b.	Use chemical treatment (N/A if desired output is hampered)	Currently compliant The Management System notes that inline continuous gas monitors are used to regulate air that is injected into the roof space (of the digesters) to aid the growth of sulphur reducing bacteria on the large surface area of the fixed outer tank roof and sulphur net suspended between the liquid level and the gas membrane across the central tank. As BAT 13 requires 'one or a combination of techniques' to be used, BAT is still considered met.
	c.	Optimising aerobic treatment – see examples. Refer to BAT 36 for wastes other than water-based liquid waste.	Not applicable

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			This technique relates to aerobic treatment of water-based liquid waste which is not undertaken at this facility.
14	Techniques to prevent, or where not practicable reduce diffuse emissions to air, in particular of dust, organic compounds and odour. Use one or a combination of the following:		
	a.	Minimising potential diffuse emission sources – see examples	The operator has stated that they comply with this BAT technique and that the facility operates the minimum diffuse emission sources. No detail has been provided on how this is done so it cannot be determined if this technique is in use. As BAT 14 requires ‘one or a combination of’ techniques a – h, BAT is still considered met through other techniques employed.
	b.	Select and use high-integrity equipment – see examples	The operator has stated that they comply with this BAT technique and that the procurement process for the AD facility included a review of the best technology and equipment available though no detail is provided on the valves, seals, gaskets etc so it cannot be determined if this technique is in use. As BAT 14 requires ‘one or a combination of’ techniques a – h, BAT is still considered met through other techniques employed.
	c.	Corrosion prevention – see examples	The operator has stated that they comply with this BAT technique but no detail has been provided on how this is done. It is not clear from the information provided that this technique is used. As BAT 14 requires ‘one or a combination of’ techniques a – h, BAT is still considered met through other techniques employed.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	d.	Containment, collection and treatment of diffuse emissions – see examples	Currently compliant The operator has stated that they comply with this BAT technique. The waste reception and de-packing is undertaken in buildings. The waste reception building benefits from negative pressure and fast acting roller shutter doors together with scrubbers and biofilter and the de-packing building uses an extraction hood over the de-packing bunker to reduce diffuse emissions (and direct them to the biofilter). The AD process is enclosed. The digestate lagoon is covered although does have a floating gas vent.
	e.	Dampening (with water or fog)	The operator has stated that they comply with this BAT technique but no detail has been provided. It is not clear from the information provided that this technique is used. As BAT 14 requires ‘one or a combination of’ techniques a – h, BAT is still considered met through other techniques employed.
	f.	Maintenance – see examples	Currently compliant The operator has stated that they comply with this BAT technique and that all equipment is installed and maintained in accordance with the manufacturer’s/installer’s recommendations. The Management System also notes the site “operates a strict maintenance regime and equipment used is of sufficient capacity to allow down time for routine maintenance and servicing as recommended by the manufacturer.”
	g.	Cleaning of waste treatment and storage areas – see examples	Currently compliant

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			The operator has stated that they comply with this BAT technique and that the site is subject to the ABP regulations and is cleaned and maintained in accordance with its requirements. The ABPR SOP provides further detail.
	h.	Leak Detection And Repair (LDAR) programme for organics – S6.2	The operator has stated that they comply with this BAT technique but no detail has been provided on how this is done. It is not clear from the information provided that this technique is used. As BAT 14 requires ‘one or a combination of’ techniques a – h, BAT is still considered met through other techniques employed.
15	Use flaring only for safety reasons or non-routine operating conditions (OTNOC). Use <u>both</u> of the following:		
	a.	Correct plant design – see examples	Currently compliant The operator has stated that they comply with this BAT technique and that the flare operates strictly for safety reasons or for non-routine operating conditions. The Management System notes during normal plant operation biogas will be utilised by the two CHP and that two 499kWe CHP units are necessary to accommodate the level of biogas production (information in ‘BPL-EPV-2019 - CHP engine details’ from variation V003 of the permit states the outputs of the two engines are: 500 – 637 kWe for the Jenbacher engine and 600 kWe for the Edina engine). A boiler is also installed in order to provide the process heat for the digestion and pasteurisation. Gas holders are in place to store biogas from the digesters and pressure is maintained sufficient to supply gas to the gas booster unit prior to its supply to the CHP

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			unit. Level controllers are installed to control the operation of the CHP unit, boiler and gas mixing system. The fixed roof includes a pressure relief. Pressure relief valves are also noted on the buffer tank and pasteuriser tank. It is noted from V003 that biogas production was more than initially expected necessitating the need for a second CHP engine and as such the capacity of flare, should be re-assessed to ensure it is still fit for purpose (see BAT 16).
	b.	Plant management including gas system balancing and advanced process control	Currently compliant The operator has stated that they comply with this BAT technique and that the flare operates strictly for safety reasons or for non-routine operating conditions. The operating hours and parameters of the flare are recorded on the automated control system. The OMP notes pressure within the tanks along with gas volume is monitored continuously. The Management System notes the operation of the biogas plant is fully automated from an on-site central Control Panel and HMI/SCADA system which monitors information transmitted from field instrumentation around the plant. The system provider provides a remote monitoring service via an internet connection so that changes can be made and advice given to ensure optimisation of the AD process. The system also allows Bryn Power to monitor the site remotely. An inline continuous gas monitor is installed. The analyser transmits signals to the HMI to enable real-time monitoring of CH4,

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			CO2 and H2S. These signals are used to regulate air that is injected into the roof space to aid the growth of sulphur reducing bacteria on the large surface area of the fixed outer tank roof and sulphur net suspended between the liquid level and the gas membrane across the central tank. The operator HMI station consists of a computer terminal graphical interface and shows the running status of the plant and provides control screens from where items of plant and variables can be manually controlled by the operator. The terminal also records data for display in historical trends and has provision for presenting the data as a report or a graphical representation.
16	Reduce emissions to air when flaring is unavoidable. Use <u>both</u> of the following:		
	a.	Correct design of flaring devices – see examples	<i>Compliant in future</i> The operator has stated that they comply with this BAT technique and detail on the flare design has been provided. As noted above, the Management System states that the emergency flare is an “Environment Agency-Compliant High Temperature Non-Visible Surplus Gas Burner with a throughput capacity of 250m ³ /hr to prevent an overpressure situation arising within the gas holder and to ensure no unburned gas is released to the atmosphere” (i.e. in the event of a failure with the CHPs). The flare specification provided (Uniflare 1498 UF10-250) states the design flow is 250Nm ³ hr. The flare is a high temperature (1000 C fully refractory line with automated combustion control)

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			enclosed flare and has a manual combustion air damper, main burner slam shut valve, modulator valve and flame arrestor, stainless steel shroud, uniflare fire blaster pilot, and a minimum retention time of 0.3 seconds. As this is an existing site it has been assumed that the flare was designed fit for purpose at permit application. However, as noted in BAT 15, the capacity of the flare should be reassessed in relation to the amount of biogas produced as it is noted from V003 that biogas production was more than initially expected necessitating the need for a second CHP engine. An IC has been set.
	b.	Monitoring and recording as part of flare management – see examples	Currently compliant The operator has stated that they comply with this BAT technique and that the operating hours and parameters of the flare are recorded on the automated control system. The permit has been updated to provide for continuous monitoring of the quantity of gas sent to flare.
NOISE AND VIBRATIONS			
17	Set up, implement, and regularly review a Noise and Vibration Management Plan (as part of the EMS) where nuisance is expected and/or has been substantiated. Include <u>ALL</u> of the following:		
	I.	Protocol with actions and timelines	Compliant in future

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			The operator has stated that noise monitoring was carried out at the site following successful commissioning of the AD Plant in accordance with the environmental permit and that they will prepare and implement a Noise Management Plan (contradicting the response to BAT 1 which states one is already in place but requires updating). It is noted that further recommendations for abatement were made in the report submitted for IC1 and the response to BAT 18 indicates they have been. The applicability of BAT 17 relates to those sites where a noise or vibration nuisance at sensitive receptors is expected and/or has been substantiated. It is reasonable to expect that a noise or vibration nuisance at sensitive receptors could occur and an IC has been set to implement a Noise and Vibration Management Plan.
	II.	Noise and vibration monitoring plan/protocol	As above
	III.	Noise & vibration complaint response plan/protocol	As above
	IV.	Noise and vibration reduction programme	As above
18	Techniques to prevent, or where not practicable reduce noise and vibration emissions. Use one or a combination of the following:		
	a.	Appropriate location of equipment and buildings	Not applicable The site is existing. The operator has stated that noise monitoring was carried out at the site following successful commissioning of the AD Plant in accordance with the environmental permit. The assessment concluded that the noise criteria was exceeded at a

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			number of noise sources at the site. All recorded exceedances were addressed by either decommissioning, replacing or repairing the plant associated with the exceedance. Additional planting and tree growth is providing additional noise screening for the site.
	b.	Operational measures – see examples	Currently compliant The Management System notes that operational hours for waste acceptance are during day time only, that all vehicles, equipment and plant will be switched off when not in use and that all vehicles, equipment and plant will be maintained with a clear intention to reduce noise and vibration levels. The OMP notes the use of auto roller shutter doors on the waste reception building.
	c.	Low-noise equipment – see examples	This technique is not implemented. As BAT 18 requires ‘one or a combination of’ techniques a – e, BAT is still considered met through other techniques employed.
	d.	Noise & vibration control equipment – see examples	Recommendations for abatement were made in the report submitted for IC1 and the initial response to BAT 18 a indicates all recorded exceedances were addressed by either decommissioning, replacing or repairing the plant associated with the exceedance. It is not clear whether noise and vibration equipment was installed when replacing / repairing. As BAT 18 requires ‘one or a combination of’ techniques a – e, BAT is still considered met through other techniques employed.
	e.	Noise attenuation – see examples	Currently compliant

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			The Management System notes that “all equipment used at the site will be appropriately silenced and the shredder and screening equipment will be noise attenuated”. The permit had a pre-operational measure to install the recommended noise attenuation measures as referenced in section seven of the Hunter Acoustics Environmental Noise Assessment Report – Ref 3781/Nia1_Rev1. The report submitted for IC1 states “the dryer exhaust appears to have a screen erected next to it” and includes a photo.
EMISSIONS TO WATER			
19	Optimise water consumption, reduce waste water generation and prevent or where not practicable reduce emissions to soil and water. Use one or a combination of the following:		
	a.	Water management – see examples	The operator has stated that they comply with this technique and referenced the Management System (BRL-2020-MS) & ABPR Standard Operating Procedure (Bryn Power-ABPR SOP). We disagree that this technique is implemented as neither of these documents contain information relating to optimisation of water consumption. As BAT 19 requires ‘one or a combination of’ techniques a – i, BAT is still considered met through other techniques employed.
	b.	Water recirculation	Currently compliant

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			The ABPR SOP states drainage from the 'Dirty Area' is captured in collection pits and pumped into the ABP buffer tank i.e. recirculated back to the process and all foul water drainage onsite direct liquids into the foul water storage tank, which is used to feed the digester. The operational flow diagram in this document also notes how washing waters from the milking parlour and yard washing as well as liquids from the Runi compactor are fed into the AD process. In addition the Management System states that any surface water found to be contaminated prior to release is instead pumped into the liquids buffer tank for use as processing water in the digesters.
	c.	Impermeable surface	Currently compliant The Management System states that the entire working area is surfaced by impermeable concrete or hard-standing and that all wastes are stored and processed on impermeable surfacing with sealed drainage. It also states "The containment system for the lower level working platform has been designed in accordance with CIRIA guidance 'C736D - Containment systems for the prevention of pollution: Secondary, tertiary and other measures for industrial and commercial premises'".
	d.	Reduce likelihood and impact of tank/vessel overflows and failures – see examples	Currently compliant The ABPR SOP states that the AD tanks are bunded to 110% of the capacity of the primary digester tank (3,800 tonnes), giving a total capacity of 4,180 tonnes. The ABPR SOP also notes a laser level

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			pump for APB Buffer tank that will stop the hammer mill processing more food, when the buffer tank is full. The Management System notes that included within the digester is liquid level control and gas holder level control.
	e.	Roofing of waste storage and treatment areas	Currently compliant The Waste Reception Area is within a building (roofed) and the AD process itself is enclosed. The ABPR SOP also notes the whole digestate is stored in a covered lagoon.
	f.	Segregation of water streams (being mindful of existing plant constraints)	Currently compliant Surface water is collected separately to process / wastewater. A drainage plan is contained within the ABPR SOP.
	g.	Adequate drainage infrastructure	Currently compliant The ABPR SOP states that the storm drains in the “clean” bund area, drain surface rainwater into a sunken storage area within the bund. The sunken area will be inspected daily before being pumped out to the soakaway. The pumping of the sunken storage area needs to be manually approved and will not take place autonomously. Should there be contamination within the collected surface water, the surface water will be pumped into the foul water storage tank, which intern feeds into the primary digester. All foul water drainage onsite direct liquids into the foul water storage tank, which is used to feed the digester.

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	h.	Design and maintenance provisions to allow risk-based leak detection and repair. Minimise use of underground components.	Currently compliant The Management System states that all vehicles, plant and equipment used on site will be operated and maintained with the objective of preventing environmentally harmful leaks and spills. The pipework carrying liquids is noted as being fully welded HDPE pipes laid in clay lined trenches. The ABPR SOP states that monitoring of the site is carried out twice a day and includes checking roadways for any spills, checking all water storage tanks and underground pumping stations for integrity and ensuring that operations are carried out in accordance with the SOP and HACCP Plan. Details are logged in the site diary and on the Process Check List with any comments and actions taken. The ABPR SOP also notes that all pipework and tanks are maintained through a service contract with Marches Biogas.
	i.	Appropriate buffer storage capacity (being mindful of existing plant constraints)	Currently compliant The AD tank bund (110% capacity of the primary digester) would contain any waste liquids from a tank failure and the surface water sump would contain any contaminated surface water.
20	Treat waste water using a combination of:		
	Preliminary, primary and general treatment		
	a.	Equalisation	Not applicable Waste water is not discharged.
	b.	Neutralisation	As above

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Physical separation	As above
	Physico-chemical treatment		
	d.	Adsorption	Not applicable Waste water is not discharged.
	e.	Distillation/rectification	As above
	f.	Precipitation	As above
	g.	Chemical oxidation	As above
	h.	Chemical reduction	As above
	i.	Evaporation	As above
	j.	Ion exchange	As above
	k.	Stripping	As above
	Biological treatment		
	l.	Activated sludge process	Not applicable Waste water is not discharged.
	m.	Membrane bioreactor	As above
	Nitrogen removal		
	n.	Nitrification/denitrification (where biological treatment used)	Not applicable Waste water is not discharged.
	Solids removal		
	o.	Coagulation and flocculation	Not applicable Waste water is not discharged.
	p.	Sedimentation	As above

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	q.	Filtration (sand, micro, ultra)	As above
	r.	Flotation	As above
	BAT-AELs for DIRECT discharges to a receiving waterbody (mg/l) Table 6.1 and its supporting notes. Monitoring requirements are outlined in BAT 7		
	TOC	10.0-60 10-100 for water-based liquid waste	Not applicable Waste water is not discharged.
	COD (TOC is preferred)	30-180 30-300 for water-based liquid waste	As above
	Suspended solids	5.0-60	As above
	HOI	0.5-10 applying to specific waste treatments	As above
	Total N	1-25 for biological treatment and waste oil re-refining 10-60 for water-based liquid waste	As above
	Total P	0.3-2 for biological treatment 1-3 for water-based liquid waste	As above
	Phenol	0.05-0.2 for waste oil re-refining and physio-chemical treatment of waste with CV 0.05-0.3 for water-based liquid waste	As above

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Free CN-	0.02-0.1 for water-based liquid waste	As above
	AOX	0.2-1 for water-based liquid waste	As above
	Metals & Metalloids – specific waste treatments as listed in Table 6.1		
	As	0.01-0.05	As above
	Cd	0.01-0.05	As above
	Cr	0.01-0.15	As above
	Cu	0.05-0.5	As above
	Pb	0.05-0.1	As above
	Ni	0.05-0.5	As above
	Hg	0.5-5	As above
	Zn	0.1-1	As above
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	As above
	Cd	0.01-0.1	As above
	Cr	0.01-0.3	As above
	Hexavalent Cr [Cr(VI)]	0.01-0.1	As above
	Cu	0.05-0.5	As above

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Pb	0.05-0.3	As above
	Ni	0.05-1	As above
	Hg	1.0-10	As above
	Zn	0.1-2	As above
	BAT-AELs for INDIRECT discharges to a receiving waterbody (mg/l) <i>Table 6.2 and its supporting notes. Monitoring requirements are outlined in BAT 7</i>		
	HOI	0.5-10 applying to specific waste treatments	Not applicable Waste water is not discharged.
	Free CN-	0.02-0.1 for water-based liquid waste	As above
	AOX	0.2-1 for water-based liquid waste	As above
	Metals & Metalloids – specific waste treatments as listed in Table 6.2		
	As	0.01-0.05	As above
	Cd	0.01-0.05	As above
	Cr	0.01-0.15	As above
	Cu	0.05-0.5	As above
	Pb	0.05-0.1	As above
	Ni	0.05-0.5	As above
	Hg	0.5-5	As above
	Zn	0.1-1	As above
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	As above

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Cd	0.01-0.1	As above
	Cr	0.01-0.3	As above
	Hexavalent Cr [Cr(VI)]	0.01-0.1	As above
	Cu	0.05-0.5	As above
	Pb	0.05-0.3	As above
	Ni	0.05-1	As above
	Hg	1.0-10	As above
	Zn	0.1-2	As above
EMISSIONS FROM ACCIDENTS AND INCIDENTS			
21	Techniques to prevent or limit the environmental consequences of accidents and incidents, as part of the Accident Management Plan. Use ALL of the following:		
	a.	Protection measures – see examples	Compliant in future The operator has stated that they have ISO 14001 accreditation, an Accident Management Plan (AMP) (BPL-EPA-2015-AMP), a Fugitive Emissions Management Plan (FEMP) (BPL-EPA-2015-FEMP) and HACCP. The operator has indicated that these documents will be updated to meet the requirements of BAT21 and to reflect recent

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			changes on site. The AMP notes that the site is to be as secure as possible. All plant to be locked when not manned. All doors and gates locked outside working hours. The site has no public access. The Management System notes there are security fencing and gates in place to limit vehicular access. This document also notes that operation of the biogas plant is fully automated from an on-site central Control Panel which monitors information transmitted from field instrumentation around the plant. The system provider provides a remote monitoring service via an internet connection so that changes can be made and advice given to ensure optimisation of the AD process. The system also allows Bryn Power to monitor the site remotely. No information is provided on whether a fire and explosion protection system is in place. An IC has been set to update the AMP.
	b.	Management of incidental or accidental emissions	Compliant in future The operator has stated that they have ISO 14001 accreditation, an Accident Management Plan (AMP) (BPL-EPA-2015-AMP), a Fugitive Emissions Management Plan (FEMP) (BPL-EPA-2015-FEMP) and HACCP. The operator has indicated that these documents will be updated to meet the requirements of BAT21 and to reflect recent changes on site. Procedures should be in place/established to manage (in terms of possible containment) emissions from accidents and incidents such

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			as emissions from spillages, firefighting water, or safety valves. An IC has been set.
	c.	Incident/accident registration and assessment system – see examples	Compliant in future The operator has stated that they have ISO 14001 accreditation, an Accident Management Plan (AMP) (BPL-EPA-2015-AMP), a Fugitive Emissions Management Plan (FEMP) (BPL-EPA-2015-FEMP) and HACCP. The operator has indicated that these documents will be updated to meet the requirements of BAT21 and to reflect recent changes on site. BAT 21 c) requires that changes to procedures and the findings of inspections will be recorded and that there are procedures to identify, respond to and learn from incidents and accidents. Although the Management System document indicates the site diary will be used to record incidents more information is needed to meet BAT 21 c). An IC has been set.
MATERIAL EFFICIENCY			
22	Use materials efficiently by substituting materials with waste e.g. waste acids/alkalis for pH adjustment, fly ashes for binders		Currently compliant The operator has stated that they have replaced the non-waste maize feedstock for the AD with food waste products. Where possible Bryn will replace other materials for the treatment of the AD.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
ENERGY EFFICIENCY		
23	Use energy efficiently by using <u>both</u> of the following techniques:	
	a. Energy efficiency plan	Compliant in future The operator has stated that they comply with this BAT and that the HMI station shows the running status of the plant and continually records data. All energy produced by and used by the facility is automatically recorded by the system. Should the facility not be operating at optimum levels then, where possible, the system can be adjusted slightly. The response from the operator does not indicate whether or not an Energy Efficiency Plan and Energy Balance Record are in place, descriptions of which can be found in BAT 23. An IC has been set.
	b. Energy balance record	Compliant in future As above.
REUSE OF PACKAGING		
24	Maximise the reuse of packaging as part of a Residues Management Plan (see BAT 1 XII.)	Currently compliant The operator has stated that there is very little waste packaging produced by the site. Any packaging not falling under the ABPR or is commercially sensitive e.g. a branded product, gets recycled by a

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		suitably permitted facility. IBC's are generally on a 'wash out' system and a sent back to the producers to be re-filled and re-used. An IC has been set regarding provision of a Residues Management Plan (see BAT 1).
MECHANICAL TREATMENT OF WASTE (GENERAL BAT)		
25	Reduce emissions to air of dust, particulate-bound metals, PCDD/F and dioxin-like PCBs by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:	
	a. Cyclone – see S6.1	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
	b. Fabric filter – see S6.1	As above
	c. Wet scrubbing – see S6.1	As above
	d. Water injection into the shredder	As above
	BAT-AEL for channelled dust emissions to air from the mechanical treatment of waste (mg/Nm³) Table 6.3 and its supporting note. Monitoring requirements are outlined in BAT 8	
	Dust 2.0-5.0	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
MECHANICAL TREATMENT OF METAL WASTE BY SHREDDING		

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
26	Improve overall environmental performance and prevent emissions due to accidents and incidents. Use BAT 14g <u>AND ALL</u> of the following techniques:	
	(a) Detailed inspection procedure for baled waste before shredding	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
	(b) Remove dangerous items from waste inputs and dispose of them in a safe manner	As above
	(c) Treatment of containers accompanied by a declaration of cleanliness	As above
27	Prevent deflagrations and reduce emissions from deflagrations. Use technique a. <u>AND ONE OR BOTH</u> of techniques b. and c.	
	a. Deflagration management plan with reduction programme, incident review and response protocol	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
	b. Pressure relief dampers	As above
	c. Pre-shredding (device)	As above
28	Use energy efficiently by keeping the shredder feed stable	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
MECHANICAL TREATMENT OF WEEE CONTAINING VFCS AND/OR VHCS		

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
29	Techniques to prevent, or where not practicable reduce emissions of organic compounds to air. Apply BAT 14d <u>AND</u> BAT14h <u>AND</u> technique a. <u>AND ONE OR BOTH</u> of techniques b. and c.		
	a.	Optimised removal and capture of refrigerants and oils	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
	b.	Cryogenic condensation	As above
	c.	Adsorption	As above
	BAT-AELs for channelled TVOC and CFC emissions to air from treatment of WEEE containing VFCs and/or VHCs (mg/Nm3) <i>Table 6.4. Monitoring requirements are outlined in BAT 8</i>		
	TVOC	3.0-15	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
	CFCs	0.5-10	As above
30	Prevent emissions due to explosions when treating WEEE containing VFCs and/or VHCs. Use <u>EITHER</u> of the following techniques:		
	a.	Inert atmosphere e.g. N2	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
	b.	Forced ventilation	As above
MECHANICAL TREATMENT OF WASTE WITH CALORIFIC VALUE			
31	Reduce emissions to air of organic compounds by applying BAT 14d AND using one or a combination of the following techniques:		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Adsorption – see S6.1	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
	b.	Biofilter – see S6.1	As above
	c.	Thermal oxidation – see S6.1	As above
	d.	Wet scrubbing – see S6.1	As above
	BAT-AEL for channelled TVOC emissions to air from the mechanical treatment of waste with calorific value (mg/Nm3) <i>Table 6.5 and its supporting note. Monitoring requirements are outlined in BAT 8</i>		
	TVOC	10.0-30.0	Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
MECHANICAL TREATMENT OF WEEE CONTAINING MERCURY			
32	Reduce mercury emissions to air by collecting them at source, sending them to abatement and carrying out adequate monitoring. This includes <u>ALL</u> of the following:		
	Equipment is enclosed, under negative pressure and connected to a LEV system		Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
	Waste gas treated using dedusting techniques – see examples – followed by adsorption on activated carbon		As above
	Monitoring of waste gas treatment efficiency		As above

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Mercury levels measured at least weekly within treatment and storage areas	As above
	BAT-AEL for channelled mercury (Hg) emissions to air from the mechanical treatment of WEEE containing mercury (µg/Nm³) Table 6.6. Monitoring requirements are outlined in BAT 8	
	Hg	2.0-7.0 Not applicable Only applies to mechanical treatment of waste when it is not combined with biological treatment.
BIOLOGICAL TREATMENT OF WASTE (GENERAL BAT)		
33	Reduce odour emissions and improve overall environmental performance by selecting the waste input (to ensure its suitability for biological treatment). See also BAT 2	Compliant in future The operator has stated that an OMP is in place that needs to be updated to take into account recent changes at the site. The operator has not provided a response indicating how the selection of waste input is undertaken in order to ensure it's suitability for biological treatment. An IC has been set.
34	Reduce emissions to air of dust, organic compounds and odorous compounds (including H₂S & NH₃) by using one or a combination of the following techniques:	
	a.	Adsorption – see S6.1 Currently compliant The operator uses carbon filters on the mixing and receiving tank.
	b.	Biofilter – see S6.1 Currently compliant The operator uses biofilters for the waste reception building / de-packing building.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Fabric filter – see S6.1.	Technique not used. As BAT 34 requires ‘one or a combination of’ techniques a – e, BAT is still considered met through other techniques employed.
	d.	Thermal oxidation – see S6.1	Technique not used. As BAT 34 requires ‘one or a combination of’ techniques a – e, BAT is still considered met through other techniques employed.
	e.	Wet scrubbing – see S6.1	Currently compliant The OMP notes two stage scrubbers are used on the waste reception hall air ventilation system. A water mist system in the ducting extracting air from the reception building into the biofilter.
	BAT-AEL for channelled NH3, odour, dust and TVOC emissions to air from the biological treatment of waste (mg/Nm3) (ouE/m3) <i>Table 6.7 and its supporting notes. Monitoring requirements are outlined in BAT 8</i>		
	NH3	0.3-20	Compliant in future The operator has indicated that they will be compliant in the future. The site has not indicated whether or not they monitor for this parameter from their emission points nor the performance that the system can achieve. An NH3 emission limit has been set in the permit to be monitored from the compliance date.
	Odour	200-1000	Compliant in future Odour concentration monitoring is not required in addition to NH3 (and H2S) as there has not been any problems with odour impacting sensitive receptors in the past and the operator may choose either an emission limit for NH3 or an emission limit for odour

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			concentration which will need to be monitored from the odour control system outlets.
	Dust	2.0-5.0	Not applicable BAT-AEL relates to mechanical biological treatment of waste.
	TVOC	5.0-40	Not applicable BAT-AEL relates to mechanical biological treatment of waste.
35	Reduce the generation of waste water and reduce water usage by using <u>ALL</u> of the following:		
	a.	Segregation of water streams (see also BAT 19f)	Currently compliant As per BAT 19.
	b.	Water recirculation	Currently compliant As per BAT 19.
	c.	Minimisation of the generation of leachate	Not applicable The nature of the treatment is wet anaerobic treatment. The waste storage and treatment is enclosed and therefore rainwater does not further saturate the waste. Separated digestate liquor from the process, having been pasteurised, is used as a biofertiliser and therefore has a beneficial use.
BIOLOGICAL TREATMENT OF WASTE: AEROBIC METHODS			
36	Reduce emissions to air and improve overall environmental performance by monitoring and/or controlling key waste and process parameters. Include following elements:		
	Waste input characteristics e.g. C to N ratio, particle size		Not applicable

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		The installation does not undertake aerobic treatment of waste.
	Temperature and moisture content within windrows (Moisture monitoring not needed for enclosed processes where H&S issues have been identified)	As above
	Aeration of the windrow	As above
	Windrow porosity, height and width	As above
37	Reduce diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps. Use <u>ONE OR BOTH</u> of the following techniques:	
	a. Use of semi-permeable membrane covers	Not applicable The installation does not undertake aerobic treatment of waste.
	b. Adaptation of operations to the meteorological conditions	As above
BIOLOGICAL TREATMENT OF WASTE: ANAEROBIC METHODS		
38	Reduce emissions to air and improve overall environmental performance by monitoring and/or controlling key waste and process parameters. Include following elements:	
	Implement a manual and/or automatic monitoring system to:	
	Ensure a stable digester operation	Compliant in future The operator has stated that they comply with BAT 38 and that the HMI station shows the running status of the plant and continually records data. There are warning alarms included in the system that sound in the event of a problem. Should the facility not be operating at optimum levels then, where possible, the system can

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		be adjusted slightly. The operator has not stated if all process parameters listed below are monitored and if so, how.
	Minimise operational difficulties and associated odour emissions	As above
	Provide sufficient early warning of system failures	As above
	Windrow porosity, height and width	Not applicable Composting not undertaken.
	Monitoring and/or control of key waste and process parameters – examples below:	
	pH and alkalinity of the digester feed	Compliant in future An IC has been set for the operator to submit a methodology to identify each of the process parameters and detail the frequency and techniques in place to record the data. Where a process parameter cannot be monitored justification should be provided and/or a suitable alternative proposed. The methodology should include trigger levels for each of the parameters with associated procedures in place if trigger levels are exceeded.
	Digester operating temperature	As above
	Hydraulic and organic loading rates of the digester feed	As above
	Volatile fatty acids and NH3 concentrations within digester & digestate	As above
	Biogas quantity, composition (e.g. H2S) and pressure	As above
	Liquid and foam levels in the digester	As above
MECHANICAL BIOLOGICAL TREATMENT (MBT) OF WASTE		

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
39	Reduce emissions to air. Generally applicable to new plants, existing plants may have layout constraints. Use BOTH of the following techniques:	
	a. Segregation of the waste gas streams (refer to inventory described in BAT 3)	Not applicable Mechanical biological treatment of waste is not undertaken.
	b. Recirculation of waste gas. Waste gas treatment is described in BAT 34 and recirculation in BAT 35.	As above
PHYSICO-CHEMICAL TREATMENT OF SOLID AND/OR PASTY WASTE		
40	Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.	
	Monitoring the waste input	
	Content of organics, oxidising agents, metals, salts, odorous compounds	Not applicable Physico-chemical treatment of solid or pasty waste is not undertaken.
	H2 formation potential upon mixing of flue-gas treatment residues/ashes with water	As above
41	Reduce emissions to air of dust, organic compounds and NH3 by applying BAT 14d AND using one or a combination of the following techniques:	
	a. Adsorption – see S6.1	Not applicable Physico-chemical treatment of solid or pasty waste is not undertaken.

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Biofilter – see S6.1	As above
	c.	Fabric filter – see S6.1.	As above
	d.	Wet scrubbing – see S6.1	As above
	BAT-AEL for channelled NH₃, odour, dust and TVOC emissions to air from the physico-chemical treatment of solid and/or pasty waste (mg/Nm³) Table 6.8. Monitoring requirements are outlined in BAT 8		
	Dust	2.0-5.0	Not applicable Physico-chemical treatment of solid or pasty waste is not undertaken.
RE-REFINING OF WASTE OIL			
42	Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.		
	Monitoring the waste input		
	Chlorinated compounds e.g. solvents or PCBs		Not applicable Re-refining of waste oil is not undertaken.
43	Reduce quantity of waste sent for disposal by using <u>ONE OR BOTH</u> of the following techniques:		
	a.	Material recovery e.g. organic residues in asphalt products	Not applicable Re-refining of waste oil is not undertaken.
	b.	Energy recovery	As above
44	Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Adsorption – see S6.1	Not applicable Re-refining of waste oil is not undertaken.
	b.	Thermal oxidation – see S6.1	As above
	c.	Wet scrubbing – see S6.1	As above
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. Monitoring requirements are outlined in BAT 8		
PHYSICO-CHEMICAL TREATMENT OF WASTE WITH CALORIFIC VALUE			
45	Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		
	a.	Adsorption – see S6.1	Not applicable Physico-chemical treatment of waste with calorific value is not undertaken.
	b.	Cryogenic condensation – see S6.1	As above
	c.	Thermal oxidation – see S6.1	As above
	d.	Wet scrubbing – see S6.1	As above
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. Monitoring requirements are outlined in BAT 8		
REGENERATION OF SPENT SOLVENTS			
46	Improve overall environmental performance by using <u>ONE OR BOTH</u> of the following techniques:		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Material recovery (by evaporation from distillation residues)	Not applicable Regeneration of spent solvents is not undertaken.
	b.	Energy recovery e.g. using distillation residues	As above
47	Reduce emissions to air of organic compounds by applying BAT 14d AND using a combination of the following techniques:		
	a.	Recirculation of process off-gases in a steam boiler. Avoid generating PCBs and/or PCDD/Fs	Not applicable Regeneration of spent solvents is not undertaken.
	b.	Adsorption – see S6.1	As above
	c.	Thermal oxidation – see S6.1. Avoid generating PCBs and/or PCDD/Fs	As above
	d.	Condensation or cryogenic condensation	As above
	e.	Wet scrubbing – see S6.1	As above
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. Monitoring requirements are outlined in BAT 8		
BAT-AEL FOR EMISSIONS OF ORGANIC COMPOUNDS TO AIR – SECTION 4.5 (RE-REFINING OF WASTE OIL) (PHYSICO-CHEMICAL TREATMENT OF WASTE WITH CV) (REGENERATION OF SPENT SOLVENTS)			
	BAT-AEL for channelled TVOC emissions to air from the re-refining of waste oil, physico-chemical treatment of waste with calorific value and regeneration of spent solvents (mg/Nm3) Table 6.9 and its supporting note. Monitoring requirements are outlined in BAT 8		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	TVOC	5.0-30	Not applicable Re-refining of waste oil, physico-chemical treatment of waste with calorific value or regeneration of spent solvents are not undertaken.
THERMAL TREATMENT OF SPENT ACTIVATED CARBON, WASTE CATALYSTS AND EXCAVATED CONTAMINATED SOIL			
48	Improve overall environmental performance by using <u>ALL</u> of the following techniques:		
	a.	Heat recovery from the furnace off-gas e.g. for preheating combustion air or steam generation	Not applicable Thermal treatment of spent activated carbon, waste catalysts or excavated contaminated soil are not undertaken.
	b.	Indirectly fired furnace i.e. avoids contact between the furnace contents and the burner flue-gases. Note applicability constraints.	As above
	c.	Process-integrated techniques to reduce emissions to air – see examples	As above
49	Reduce emissions to air of HCl, HF, dust and organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		
	a.	Cyclone – see S6.1	Not applicable Thermal treatment of spent activated carbon, waste catalysts or excavated contaminated soil are not undertaken.
	b.	Electrostatic precipitator (ESP) – see S6.1	As above
	c.	Fabric filter – see S6.1	As above

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	d.	Wet scrubbing – see S6.1	As above
	e.	Adsorption – see S6.1	As above
	f.	Condensation – see S6.1	As above
	g.	Thermal oxidation – see S6.1	As above
	Note supporting text for BAT 49g (thermal oxidation) Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.		
WATER WASHING OF EXCAVATED CONTAMINATED SOIL			
50	Reduce emissions to air of dust and organic compounds from the storage, handling and washing steps by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		
	a.	Adsorption – see S6.1	Not applicable Water washing of excavated contaminated soil is not undertaken.
	b.	Fabric filter – see S6.1	As above
	c.	Wet scrubbing – see S6.1	As above
	Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.		
Decontamination of equipment containing PCBs			
51	Reduce emissions to air of PCBs and organic compounds and improve overall environmental performance by using <u>ALL</u> of the following techniques:		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Coating of the storage and treatment areas – see examples	Not applicable Decontamination of equipment containing PCBs is not undertaken.
	b.	Implementation of staff access rules to prevent dispersion of contamination – see examples	As above
	c.	Optimised equipment cleaning and drainage – see examples	As above
	d.	Control and monitoring of emission to air – see examples	As above
	e.	Disposal of waste treatment residues – see examples	As above
	f.	Recovery of solvent when solvent washing is used	As above
	Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.		
TREATMENT OF WATER-BASED LIQUID WASTE			
52	Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.		
	Monitoring the waste input		
	Bioeliminability e.g. BOD, BOD-COD ratio, Zahn-Wellens test, biological inhibition potential		Not applicable Treatment of water-based liquid waste is not undertaken.
	Feasibility of emulsion breaking e.g. lab testing		As above
53	Reduce emissions to air of HCl, NH3 and organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:		
	a.	Adsorption – see S6.1	Not applicable

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		Treatment of water-based liquid waste is not undertaken.
	b.	Biofilter – see S6.1
	c.	Thermal oxidation – see S6.1.
	d.	Wet scrubbing – see S6.1
	BAT-AELs for channelled HCl and TVOC emissions to air from the treatment of water-based liquid waste (mg/Nm³) <i>Table 6.10 and its supporting notes. Monitoring requirements are outlined in BAT 8</i>	
	HCl	Not applicable Treatment of water-based liquid waste is not undertaken.
	TVOC	As above

