

Natural Resources Wales Permitting Decisions

Shotton Mill Limited
(Shotton Paper Mill)

Decision Document

Application for a Substantial Variation

The application number is: PAN-029803

The permit variation number is: EPR/BT4886IT/V015

The operator is: Shotton Mill Limited

The Installation is located at: Shotton Paper Mill, Weighbridge Road, Shotton, Deeside, Flintshire, CH5 2LW

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise, we have accepted the applicant's proposals.

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Glossary of acronyms and definitions used in this document

AEL- Associated emission limit

AOX - Adsorbable organically bound halogens

BAT- Best Available Techniques

BRef - BAT Reference document

 LCP BRef - Large Combustion Plant BRef – Published 31st July 2017

 PP BRef – Production of Paper, Pulp and Board BRef - Published 26th September 2014

 WI BRef - Waste Incineration BRef - Published 12th November 2019

 WT BRef - Waste Treatment BRef - Published 10th August 2018

DAA - Directly associated activity

CEMS - Continuous emissions measurement systems

CHP – Combined heat and power

EED - Energy Efficiency Directive (2012/27/EU)

ELV - Emission limit value

EPR - Environmental Permitting Regulations (England and Wales) 2016 (as amended)

FPMP - Fire Prevention and Mitigation Plan

ETP - Effluent Treatment Plant

HRA - Habitats Regulations Assessment

IED - Industrial Emissions Directive (2010/75/EU)

MCP - Medium Combustion plant

MCPD - Medium Combustion Plant Directive

MRF - Materials recycling facility

MWth – rated thermal input (in mega watts)

NO_x - Oxides of nitrogen (NO plus NO₂, expressed as NO₂)

OCC - Old corrugated cardboard

PNEC-Predicted no effect concentration

RCF-Recycled Fiber

SAC - Special Area of Conservation

SO₂- Sulphur dioxide

SPA - Special Protection Area
SSSI - Site of Special Scientific Interest
WFD-Waste Framework Directive

DRAFT

1. Executive summary

1.1. Application summary

Shotton Mill Limited have applied to vary their environmental permit for Shotton Paper Mill (ref. EPR/BT4885IT) to reflect the change in production at the site from newsprint to the production of:

- containerboard from recycled fibre (750,000 tonnes per annum); and
- tissue paper from a mix recycled fibre and virgin fibre (70,000 tonnes per annum).

The primary activity of the permit remains under the same activity listed in schedule 1 part of the Environmental Permitting Regulations (EPR) 2016; Section 6.1 Part A(1)(b) Producing in an industrial plant, paper and board where the plant has a production capacity of more than 20 tonnes per day.

The changes in production will result in the following changes to the site and the permit:

- Inclusion of a new paper machine (PM3) for cardboard production and a new tissue mill for the production of tissue paper. This includes associated processes such as dryers, and acceptance and handling of wastepaper and virgin bales;
- Changes to the effluent treatment plant (ETP), including the addition of an anaerobic digestion plant for the treatment of effluent from the paper processing. The gas generated from the anaerobic digestion is used as fuel for two biogas engines (5.8 MWth each);
- The addition of a new combined heat and power plant which comprises of 2 x 64MWth gas turbines (each equipped with a 75 metre high stack) and a back-up boiler (comprising of 2 x 68 MWth boilers discharging emissions through one stack). The back-up boiler is subject to the provisions of Chapter III of the Industrial Emissions Directive 2010/75/EU; and
- Removal of the existing equipment from the permit associated with the old newsprint production including paper machines (PM1 and PM2) the de-inking

plant and boilers (comprising boilers 3 and 6 with thermal capacities of 68 MW and 38 MW respectively).

1.2. Our decision

We are minded to issue the variation for Shotton Paper Mill operated by Shotton Mill Limited

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.

2. Receipt of the application

The completed application was initially received on 16/07/2025 and the final submission on 22/12/2025. In order for us to be able to consider the application duly made, we needed more information. We requested the following:

- Additional information on noise impact assessment (NIA), including consideration of whether or not a planned new housing development in the locality should be included in the NIA as a future receptor;
- A copy of the Accident Management Plan and additional details on how the Environmental Management System will meet the requirements of BAT 1 of the Waste Treatment BRef (Waste Treatment BRef - Published 10th August 2018)
- More details on the Fire Prevention and Mitigation Plan; and
- More details on how the control systems will meet the full requirements of BAT 38 of the Waste Treatment BRef. (Waste Treatment BRef - Published 10th August 2018)

A letter requesting this information was sent to the applicant on 29/01/2026. Upon receipt of this information, on 17/02/2026, we were able to consider the application duly made. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

3. Confidential information

The applicant made a claim for no claim for commercial confidentiality, and we have not received information in relation to the application that appears to be confidential in relation to any party.

4. Legislation

The variation will be issued, under Regulation 20 of the 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 IED;
- subject to aspects of the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed; and
- Medium Combustion Plant Directive.

We address the legal requirements directly where relevant in the body of this document. NRW is satisfied that the decision on this application is consistent with its general purpose of pursuing the sustainable management of natural resources (SMNR) in relation to Wales and applying the principles of SMNR. In particular, NRW acknowledges that it is a principle of sustainable management to take action to prevent significant damage to ecosystems. We consider that, in issuing the variation a high level of protection will be delivered for the environment and human health through the operation of the Installation in accordance with the permit conditions. NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources

As the EPR regulator for Part A1 installations in Wales, NRW are required to determine any duly made Part A1 permit applications. This means that we must decide either to grant, or to refuse the variation based upon an objective assessment of the proposals against the detailed legal requirements of EPR. Our public participation statement¹

¹ [Natural Resources Wales / Public participation: how you can take part in our permit and licence consultations](#)

gives more information on what can, and cannot, be taken into account when making our permitting decision.

The application, and this decision document, only considers the permitting of the facility under EPR as described throughout the document. We only assess the installation and its impacts and cannot take into consideration indirect impacts which are not as a direct result of activity within the installation boundary.

Any proposed development and wider associated activities will be required to be compliant with all relevant and applicable law, for example, environmental law, health and safety law, planning law. This other legislation acts largely independently of EPR (although they may be inter-related). Such other matters are beyond both the scope of this document, and of our regulatory remit and expertise and are not relevant to our EPR permitting decision. Ensuring compliance with all other regulation and obtaining any required consents (such as planning permission) is the responsibility of those undertaking the development and is regulated by the relevant appropriate authority for each.

5. Consultation

5.1. Consultation on the Application

We have carried out consultation on the application in accordance with the Environment Permitting Regulations (EPR), our statutory Public Participation Statement (PPS) and our Regulatory Guidance.

A copy of the application was made available on the public register for anyone to view. We advertised the application to the public by a notice placed on our website directing people to the public register, advising them of how they could arrange for copies to be made if required and how they can provide comments.

We also consulted with the following bodies:

- Public Health Wales;

- Health and Safety Executive;
- Flintshire County Council Planning Department; and
- Flintshire County Council Environmental Health Department.

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

The consultation started 23/02/2026 and ended on 25/03/2026.

A summary of consultation comments and our response to the representations we received can be found in Annex 2. We have taken all relevant representations into consideration in reaching our decision.

5.2. Draft Permit Consultation

We are now carrying out consultation on our draft decision. This consultation will begin on 21/10/2026 and end on 18/11/2026.

6. Requests for information

Further information was requested during determination by way of three Schedule 5 Notices requiring the applicant to provide further information.

First Schedule 5 Notice

The first Schedule 5 Notice relating to Fire Prevention and Mitigation Plan and a statement on the cost benefit analysis for the combined heat and power plant in line with the Energy Efficiency Directive (2012/27/EU).

The Schedule 5 Notice was sent on 27/04/2025 with a deadline for response of 15/05/2026.

The applicant's initial response to the Schedule 5 Notice was provided on 15/05/2026. The additional information supplied did not satisfy the requirements of the Schedule 5

Notice and so additional information was requested on 13/08/2026. The applicant provided further information on 27/08/2026 which we considered satisfied the request of the Schedule 5 Notice.

Second Schedule 5 Notice

The second schedule 5 was relating to revisions to the air quality impact assessment.

The Second Schedule 5 Notice was sent on 29/05/2026 with a deadline for response of 12/06/2026, extended to 19/06/2026.

The applicant's response to the Second Schedule 5 Notice was provided on 19/06/2026. The additional information supplied satisfied the requirements of the Schedule 5 Notice.

Third Schedule 5 Notice

The third schedule 5 notice was relating to information demonstrating compliance/application of the BAT conclusions for the WT, P&P and LCP BRefs.

The third Schedule 5 Notice was sent on 22/07/2026 with a deadline for response of 12/08/2026. The additional information supplied satisfied the requirements of the Schedule 5 Notice.

Additional request for information

Several informal information requests were also made via email. These related to queries on the following;

- Risk from possible emissions of bioaerosols;
- Clarification of the responses to schedule 5 notices; and
- Information on adsorbable organically bound halogens present in the resin for wet tissue strength and the concentrations present before final discharge.

A copy of the information notices and e-mails requesting further information were placed on our public register as were the responses when received.

7. The Installation

7.1. The permitted activities

The regulated facility is currently an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations:

- Section 6.1 A(1)(b) - Producing in an industrial plant, paper and board where the plant has a production capacity of more than 20 tonnes per day.
- Section 1.1 Part A(1)(a) - Burning any fuel in an appliance with a rated thermal input of 50 MW_{th} or more
- Section 5.1 Part A(1)(b) -The incineration of non-hazardous waste in an incineration or co-incineration plant in a facility with a capacity exceeding 3 tonnes per hour.
- Section 5.4 Part A(1)(a)(i) - Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by biological treatment.

The site's main activity prior to the variation was the production of newsprint with a capacity of 400,000 tonnes per year (across two machines).

The previous permit (V013) had listed the following directly associated activities;

- Materials recycling facility (not subject to standard rules as >75kte) (Recovery Operations: R3, R4, R5 and R13)
- Wood recycling facility (Recovery Operations: R3, R4, R5 and R13)

7.2. Changes to the installation

The variation reflects the site's production changing from newsprint to containerboard production. The variation will not add any new activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations. However, the changes on site will result in the changes to the following activities:

- Two new process fall under the existing primary activity Section 6.1 A(1)(b) - Producing in an industrial plant, paper and board where the plant has a production capacity of more than 20 tonnes per day. These are:
 - New paper machine PM3 for the production of cardboard from recycled fibre, with an annual production capacity of 700,000 tonnes; and
 - New tissue mill for the production of tissue paper from virgin pulp and recycled fibre, with annual production capacity of 70,000 tonnes.
- Addition of a new CHP plant made up of 2 x 64 MWth natural gas turbines and a back-up boiler (comprising 2 x 68 MWth boilers) which fall under Section 1.1 Part A(1)(a) - Burning any fuel in an appliance with a rated thermal input of 50MW or more. The CHPs and back-up boiler are defined as a Large Combustion Plant under Chapter III of IED.
- Modifications to the Effluent Treatment Plant to process effluent from the new processes. The modifications include the installation of a new anaerobic digestion plant with biogas production for use in two gas engines for steam and electrical generation.

The following activities have been removed from the permit;

- Removal of activities associated with the old equipment associated with the previous newsprint production and combustion activities from the site including paper machines 1 and 2, the de-inking plant and the old boilers - boiler 3 (38 MWth) and boiler 6 (45 MWth).
- Directly associated activity - Materials recycling facility – This was not initially requested to be removed but has now been confirmed by the operator that this facility had closed and can now be removed from the permit.

The following existing activities will not change in this variation;

- The biomass plant (Section 5.1 Part A1 - waste incinerator) not changed as a result of the changes on site and will remain the same on the permit; however, a follow up NRW permit review is to be undertaken following this variation to assess the waste incinerator against the latest BAT conclusions for waste incineration (Waste Treatment BRef - Published 10th August 2018).
- Directly associated activity – Wood recycling facility

The following the variation the regulated facility will comprises the following activities listed in the permit (Table S1.1);

Part 2 of Schedule 1 to the Environmental Permitting Regulations

AR1 Section 6.1 A1 (b)-Producing in an industrial plant, paper and board where the plant has a production capacity of more than 20 tonnes per day.

AR2 Section 1.1 Part A1 (a)-Burning any fuel in an appliance with a rated thermal input of 50MW or more

AR3 Section 5.1 Part A1 (b)The incineration of non-hazardous waste in an incineration or co-incineration plant in a facility with a capacity exceeding 3 tonnes per hour.

AR4 Section 5.4 Part A1 (a)(i) Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by biological treatment.

Directly associated activities;

AR6 Emergency flaring from the anaerobic digestion plant (D10)

AR7 Discharge of Site Drainage

AR8 Storage and handling of virgin pulp (Bales)

Waste operations;

AR8 Wood Recycling facility (R3, R4, R5 and R13)

AR9 Old corrugated carboard and waste paper storage (R13)

Medium combustion plant

AR10 Two Biogas engines using biogas produced by the on-site anaerobic digestion plant

8. Operation of the installation

8.1. Operator competence

The applicant is the sole operator of the Installation. We are satisfied that the applicant is the person who will have control over the operation of the Installation the variation if issued; and that they will be able to operate the Installation so as to comply with the conditions included in the permit, if issued. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator².

Relevant Convictions

The applicant has declared they have no relevant convictions.

NRW's COLINS Database has been checked to confirm there are no relevant convictions. No relevant convictions were found.

8.2. Environmental Management System

The applicant has stated in the application that they will implement an Environmental Management System (EMS) that will meet the requirements for an EMS in our “How to comply with your environmental permit” guidance³

The applicant has submitted a summary of the EMS with their application. The EMS is certified to ISO14001 and integrates the requirements stipulated in the BAT conclusions for the Pulp, Paper and Board, Waste Treatment and Large Combustion Plant BRefs.

We have reviewed the application and are satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

² [RGN 1 Understanding the meaning of 'operator' \(naturalresources.wales\)](#)

³ [Natural Resources Wales / Guidance to help you comply with your environmental permit](#)

Accident management

The EMS includes an Accident Management Plan which the applicant has submitted as part of this application. We have reviewed this and are satisfied that appropriate controls are in place to help reduce the occurrence and impact of any accident that occur.

In order to ensure that the management system proposed by the applicant sufficiently manages the residual risk of accidents, permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents.

Fire Prevention and Mitigation

The facility will be operated in accordance with an approved Fire Prevention and Mitigation Plan which has been submitted as part of this application. We have reviewed this and are satisfied that appropriate controls are in place to help reduce the occurrence of fires and impact should one occur. We have assessed the following guidance

- FPMP against NRW's guidance on Fire Prevention and Mitigation and;
- The Confederation of Paper Industries Fire Prevention Plan

There are two parts where the fire plan does not meet the guidance:

- 1) Storage of waste wood - as this is an existing permitted activity which is not being changed as part of the variation and is associated with the waste incinerator the operator and NRW have agreed to address this aspect of the FPMP in the BRef review of the waste incinerator; and
- 2) Freeboard and waste stock piles in the OCC – the waste piles in the OCC will not meet the guidance on freeboard and size of the stacks. The operator has provide an outline of a deluge system linked to automatic detection system. Each bay will have at least one (or more) values connected to a deluge cabinet. The waste storage will have infrared and flame detection

system which will automatically trigger the valves to discharge if fire is detected. The system can also be manually operated if required.

In relation to 2), the operator has confirmed that they have consulted with their insurer and local fire service (North Wales Fire and Rescue Service) on the design of the deluge system.

We are satisfied with use of the automatic detection and deluge system mitigate the risk of fire spreading posed by the operator not maintaining the freeboard.

8.3. Operating techniques

8.3.1 Installation activities and assessment of Best Available Techniques

The applicant has described the proposed equipment and operating techniques and compared these against the relevant Best Available Techniques conclusions (BATc) which for an installation of this type is:

- Primary activity - Production of Pulp, Paper and Board – BATc published 26th September 2014.

The operator has also reviewed aspects of the activities at the site against the following BAT conclusions:

- Waste Treatment - BATc published 10th August 2018; and
- Large Combustion Plant – BATc published 31st July 2017.

The Waste Incineration BATc are related to the Biomass plant - Boiler 7. This is an existing operation that will not change as part of this variation. However, this substantial variation has triggered a review of this plant against the waste incineration BAT conclusions, but this is to be assessed as a separate variation – see Section 7.2 for more information.

8.3.2 Production of Pulp, Paper and Board

The primary activity of the site, the production of containerboard and tissues, falls under the Best Available Techniques for the Production of Pulp, Paper and Board BAT conclusions (BATc) published 26th September 2014.

The BAT conclusions are applicable for both the containerboard production (including paper machine 3) and the tissue mill. The operator has been reviewed against the relevant BAT conclusions for the production lines (containerboard from recycled fibre (RCF) and tissue from virgin pulp and broke (offcuts which are recycled back into the process)), and we are satisfied that they will carry out their activities in accordance with BAT. Assessment on how the applicant's proposal complies with the BAT conclusions is detailed in Annex 4 (issued as a separate document).

8.3.3 Waste Treatment

The site will have an effluent treatment plant (ETP) which includes an anaerobic digestion (AD) plant, that is subject to Section 5.4 Part A(1) a (i). The applicant has assessed the new ETP and AD plant against the BAT conclusions for waste treatment. This is detailed in the Annex 4 document of this decision document.

8.3.4 Combustion plants

The site will have the following combustion plants on site:

Combined heat and power (CHP) plant:

- 2 x gas turbines (Solar Turbines Titan T250 gas turbines), each with a rated thermal input of 64 MW and discharging through their own 75 metre high stack; and
- 2 x 68 MWth backup boilers discharging through a single, common 30 metre high stack.

Effluent treatment plant:

- 2 x biogas engines (MTU 20V4000GS units), each with a rated thermal input of 5.8 MW and discharging through 24-metre-high stack (with common windshield). The biogas engines are classed as medium combustion plants under Schedule 25A of EPR 2016 and the Medium Combustion Plant Directive (MCPD);
- Dryers: the tissue mill and the cardboard production have natural gas-fired burners for direct heating in the production processes:

- Tissue mill - 6MWth natural gas burner used for direct heating of the hot air hood; and
 - Drying section using 14 x 1.74 MWth natural gas burners for direct drying
- The dryers are exempted from the scope of the Medium Combustion Plant Directive (MCPD)⁴ via Article 2(d) as the processes involve direct heating.

A section 1.1 Part A1(a) activity was already included in the permit as the site previously had two combustion units - Boilers 3 and 6 (38 MWth and 45 MWth). These boilers have been removed from the permit and have been replaced by the new CHP plant.

8.3.4.1 Combined heat and power plant

The gas turbines each discharge through their own emission stacks (75 metres high) and have a rated thermal input of 64 MWth, giving an aggregated total rated thermal input of 128 MWth. The site has been designed with the possibility to add a third gas turbine, but for this variation only the two are considered. As the two turbines are more than 50 MWth they are considered to be a Large Combustion Plant (LCP) under the provisions of Chapter III of the Industrial Emissions Directive 2010. The applicant has assessed the operation of the CHP and backup boilers on site against the LCP BAT conclusions. The CHPs will have Continuous Emissions Measurement Systems (CEMS) installed.

The backup boilers however aggregate to 128MWth and discharge through a common stack; therefore, they are considered to be a Large Combustion Plant and subject to the provisions of Chapter III of the Industrial Emissions Directive 2010. The backup boilers are to operate only when the gas turbines are offline for repair or maintenance and are expected to run for no longer than 730 hours per year. As the backup runs less than 1,500 hours per year, under LCP Bref they are subject to periodic (6 monthly) monitoring rather than continuous monitoring.

The backup boilers LCP has been assigned the LCP identification number LCP694.

⁴ Medium Combustion Plant Directive (2015/2193/EU)

8.3.4.2 Other combustion units

The site will have two biogas engines (2 x 5.8MWth), emissions from which will emit through two 24 metre high stacks with a common windshield. The biogas engines are subject to Medium Combustion Plant Directive, and as such the relevant techniques, emission limits and permit conditions have been set in line with the requirements of MCPD and Schedule 25A of EPR.

As the new engines are MCPs, the site must adhere to the following operating techniques specific to MCPs (as detailed in Schedule 1, Table 1.2A of the permit):

- Each MCP must be operated in accordance with the manufacturer's instruction and records must be made and retained to demonstrate this.;
- The operator must keep periods of start-up and shut down of each MCP as short as possible; and
- There must be no persistent emission of 'dark smoke' as defined in Section 3(1) of the Clean Air Act 1993.

The site also has a series of dryers associated with the carboard and tissue production. The carboard production has 14 x 1.74 MWth natural gas fired burners for direct drying while the tissue production has a 6 MWth natural gas burner that heats the drying hood. As the dryers for both the carboard and tissue mills are direct heating, they are exempt from MCPD requirements.

We have reviewed the techniques proposed and consider them in line with them to represent BAT at this installation.

We have specified that the applicant must operate the permit in accordance with descriptions in the application. See section 12.4 of this document for more information on how we have incorporated the application/variation into the permit and how emission limit values have been set.

8.3.5 Efficient use of raw materials, water and energy

Having considered the information submitted in the application, we are satisfied that the applicant will ensure that raw materials, water and energy is used as efficiently as possible.

The operator will be required to report energy usage under condition 4.2 and Schedule 4 of the permit. The following parameters are required to be reported;

- Total Biomass Incinerated;
- Total Sludge Incinerated;
- Total Waste wood Incinerated;
- Total Wastes not otherwise specified on the list Incinerated;
- Thermal energy produced (steam);
- Waste heat utilised;
- Power generation;
- Containerboard production; and
- Tissue Production.

This will enable us to monitor energy recovery efficiency at the Installation. The site also has existing reporting parameters for the use of waste wood in biomass Boiler 7. These are not changing as a result of the variation, apart from updating the emission point reference from A20 (in V013) to A25 (V015).

8.3.6 Avoidance, recovery or disposal of wastes produced by the activities

Having considered the information submitted in the application, we are satisfied that the waste hierarchy referred to in Article 4 of the WFD will be applied to the generation of waste and that any waste generated will be treated in accordance with this Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of offsite using a method that minimises any impact on the environment. Permit condition 1.4.1 of the permit will ensure that this position is maintained.

9. The site

9.1. Site Plan

The applicant has provided an updated plan which we consider is satisfactory, showing the extent of the site of the facility and the new emission points.

The update plan will be included in the permit and the operator will be required to carry on the permitted activities within the site boundary.

9.2. Site Condition Report

The proposal does not include the addition of any land and so a Site Condition Report was not required to support this application.

The existing site condition report has been updated in-line with the H5 guidance reflecting the changes to the site as a result of the variation.

9.3. Site protection: potentially polluting substances and prevention measures

The operator has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED.

There are two areas where potential pollution of substance to ground or surface water could occur as a result of accidental spillage or emergency.

The first is from the spillage of polluting liquids through loss of primary containment located at the effluent treatment plant and the chemical store. The second through firewater from the waste bays, which is covered under fire prevention and mitigation plant.

The proposed variation will result in the storage of potentially polluting liquids from the chemical store and the new effluent treatment plant (ETP).

9.3.1 Effluent treatment Plant

The operator has carried out a Conceptual Design Report (*Shotton Mill ETP CIRIA C736 Design Assessment*), which includes containment risk assessment and outline of modelling (Tuflow), in line with CIRIA 736 Guidance.

The new ETP, including the anaerobic digestion plant, associated tanks and equipment is located within a large containment area. Instead of installing a localised secondary containment bund for the tanks and clarifiers of the ETP, the area around the ETP will be located within a spillway catchment. The catchment is designed to divert any spills, occurring as a result of the loss of primary containment towards one of the on-site lagoons (Lagoon 2a), which will act as a remote secondary containment for the ETP. Lagoon 2a is an existing infrastructure that has a concrete and a lining.

The report had concluded that a volume of 24,300 m³ was required to contain potentially polluting liquids stored at the site (which comprises of 110% of the largest tank (which is more than 25% of volume of all of the tanks)) and an additional 3,400 m³ for 8 day rainfall. The Lagoon (lagoon 2a) that acts as secondary containment will have a volume of 33,688 m³ and therefore have the capacity to hold the liquid in line with the requirements.

The bulk chemical tanks (for urea, sodium hydroxide, hydrochloric acid and phosphoric acid associated with the ETP) will be located within their own secondary containment bunds.

Based upon the information in the application we are satisfied appropriate measures will be in place to protect the site and its surroundings from polluting substances.

9.3.2 Chemical Stores

Both the containerboard and tissue mill activities will involve the storage of potentially polluting chemicals. Both chemicals stores (containerboard and tissue mill) will be located indoors with drainage to a sump as secondary containment measures. These have been built to the requirements outlined in CIRIA 736 and have appropriate volumes to contain potentially polluting liquids stored in the chemicals stores.

We are satisfied that the containment for the chemical storage within the buildings is sufficient to prevent accidental discharge to the environment in the event of loss of primary containment.

10. Environmental Risk Assessment

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, water, sewer and discharges to ground or groundwater, global warming potential and generation of waste. All these factors have been considered during the determination and the relevant risks from this proposal are discussed in this and other sections of this document.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of emissions from the Installation on human health and the environment and what measures we are requiring ensuring a high level of protection.

In line with our guidance, the applicant has provided an environmental risk assessment with the application which identifies and the sources of key risks from the variation, possible pathways and receptors. This risk assessment and further assessments provided by the applicant and/or completed by NRW will be discussed in further detail below.

10.1. Assessment of impact on air quality

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stacks and its impact on local air quality.

The applicant has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon human health in line with

relevant guidance⁵. These assessments predict the potential effects on local air quality from the Installation's stack emission.

The air impact assessments, and the dispersion modelling has been based on the Installation operating continuously at the relevant long-term or short-term emission limit values, i.e., the maximum permitted emission rate.

The applicant carried out an atmospheric dispersion modelling study to determine the impact of the release of potentially polluting substances on local air quality. For the impact of oxides of nitrogen (NO_x), the applicant modelled two scenarios to reflect the two operation types that occur on site. These are:

- 1) CHP operation – this is when the primary combined heat and power plant made up of the 2 x 64 MWth gas turbines are in operation. This reflects the normal operation of the site; and
- 2) Backup boiler operation – this is the scenario when the backup boiler (2 x 68 MWth emitting through a common stack) are in operation and the CHPs are offline for regular maintenance and/or repair.

The two modelling scenarios are mutually exclusive as the backup boilers to only run when run if the gas turbines are not operational. This limitation has been set out in the permit.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the applicant used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed by Natural Resources Wales modelling specialists to establish the robustness of the applicant's air impact assessment. The output from the model has then been used to inform further assessment of health impacts.

The applicant had modelled on the following identified emissions from the proposal for potential impact on human health:

⁵ [Air emissions risk assessment for your environmental permit - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit)

- Emissions of oxides of nitrogen (NO_x) for both short term (24 hour) and long term (annual) impacts; and
- Emissions of sulphur dioxide (SO₂) for 24 hour mean, 1 hour mean and 15-minute mean.

The modelling identified all the nearest sensitive human receptors that could be impacted from emissions from the site.

The applicant has calculated process contributions (PC) and predicted environmental concentrations (PEC) at locations within the immediate vicinity and all identified sensitive receptor locations. The modelling results for each pollutant will be discussed separately below.

Oxides of Nitrogen

Emissions of oxides of nitrogen (NO_x) were assessed against the long-term Air Quality Standard (AQS) of 40 µg/m³ (annual) and short-term AQS of 200 µg/m³ (hourly), not to be exceeded on more than 18 occasions in a calendar year.

The highest long-term process contribution to a human receptor (located at Burton, 2.5 km North East) receptor from emissions of NO_x was 0.34 µg/m³ or 0.84% of the long-term (annual) AQS under the CHP scenario and 0.21 µg/m³ or 0.52% of the AQS under the backup boiler operations.

The highest short-term process contribution was 5.58 or 2.8% of the short-term AQS under the CHP scenario and 6.36 µg/m³ or 3.18% under the back-up boiler scenario.

At sensitive receptor locations the maximum predicted long-term PC was less than 1%. Therefore, in accordance with the relevant guidance [Air emissions risk assessment for your environmental permit - GOV.UK](#) the long-term impacts from NO_x can be considered as insignificant. At sensitive receptor locations the maximum predicted short-term PC was <10 % of the short-term AQS.

Therefore, in accordance with the relevant guidance the short-term impacts from NO_x can be considered insignificant.

Sulphur dioxide

Emissions of sulphur dioxide were assessed against the short-term AQSs of 24 hour, 1 hour and 15 minutes means. The highest process contribution at the most sensitive receptor for 24 hour mean was 0.12 $\mu\text{g}/\text{m}^3$ (less than 0.1% of the AQS of 125 $\mu\text{g}/\text{m}^3$), the 1 hour mean was 0.51 $\mu\text{g}/\text{m}^3$ (less than 0.15% of the 1 hour mean AQS of 350 $\mu\text{g}/\text{m}^3$), and the highest 15 minute mean was 0.88 $\mu\text{g}/\text{m}^3$ (0.33% of the 15 minute mean AQS of 266 $\mu\text{g}/\text{m}^3$). As the highest process contribution of sulphur dioxide emissions are less than 10% of the sulphur dioxide AQSs, the emissions screen out as insignificant.

10.1.1 Emission limits

We have decided that emission limits should be set for the parameters listed in the permit.

10.1.1.1 Combined heat and power

The following substances have been identified as being emitted in significant quantities and Emission Limit Values (ELVs) based on BAT have been set for those substances.

These are as follows;

Emission Point	Source	Parameter	Emission limit	Monitoring continues or periodic
A26 [Point A26 on site plan in Schedule 7]	LCP XXX Gas Turbine 1 Stack (64MW _{th} Gas Turbine)	Oxides of Nitrogen	30 mg/m ³	Continues
			30 mg/m ³	Continues
		Sulphur dioxide	No limit set	Continues
		Carbon Monoxide	30 mg/m ³	Continues
A27 [Point A27 on site plan in Schedule 7]	LCP YYY Gas Turbine 2 Stack (64MW _{th} Gas Turbine)	Oxides of Nitrogen	30 mg/m ³	Continues
			30 mg/m ³	Continues
		Sulphur dioxide	No limit set	Continues
		Carbon Monoxide	30 mg/m ³	Continues
A28 [Point A28 on site plan in Schedule 7]	LCP694 - 2 x 68MW _{th} backup boilers through a single stack	Oxides of Nitrogen	60 mg/m ³	periodic

Sulphur dioxide	No limit set	periodic
Carbon monoxide	15 mg/m ³	periodic

As the back-up boiler is indented to operate less than 1500 hours per year only periodic (6-monthly) monitoring is required under LCP BRef. The main gas turbines/CHP are subject to CEMS.

10.1.1.2 Biogas engines

The ELVs for sulphur dioxide and oxides of nitrogen for the two biogas engines have been set in line with the relevant limits as set out in the Medium Combustion Plant Directive.

It is considered that the ELVs or technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.

Based upon the information in the application and the measures that will be imposed by the permit we are satisfied that the appropriate measures will be in place to protect air quality for the environment and human health.

10.1.2 Bioaerosols

As the variation includes the addition of an anaerobic digestion plant, consideration was made as to whether or not emissions of bioaerosols would pose a potentially significant risk to human health. The risk of bioaerosol emissions were deemed minimal and decided not to address emissions of bioaerosol release further for the following reasons:

- The anaerobic digestion plant is a sealed unit, with the only source of emissions from plant coming via the biogas boilers or the emergency flares. As such there is no risk of bioaerosols emissions from the plant; and
- The only potential exposure pathway is via the open aeration tanks but have screened this out on the following basis;

- Flash aeration tanks have a freeboard of 1.2-1.4m, decreasing the likelihood of dispersion.
- Mixer/aeration is designed results in rolling circulation rather than vertical jetting, thereby decreasing the potential of dispersal.
- ETP is located within the centre of the site. Therefore, likelihood of aerosols leaving the site boundary is minimal.

10.2. Assessment of impact to surface and ground water

The existing permitted installation activities includes a direct discharge to surface water (River Dee) listed on the permit as emission point W1. There is no proposed discharge to ground water and there is no discharge to sewer.

The variation will not add any new discharge points to surface water. There are, however, some changes to the existing emission parameters for the discharge point, and we have added some new parameters that were not included in the previous version of the permit.

The process effluent is treated at the on-site effluent treatment plant and then sent to the on-site lagoon (Lagoon 3). The effluent in the lagoon is held and tested before it is pumped via the white sand gutter to the River Dee

10.2.1 Flow rates

There are no changes to the flow rates (total flow rate, the maximum daily flow or the maximum tidal flow) of the discharge to the Dee (via the White sands gutter).

10.2.2 Water discharge concentration.

The following changes to existing parameters have been made:

- We have imposed emission limit values (ELVs) on chemical oxygen demand (COD), total phosphorus and total nitrogen in line with the requirements of the waste treatment BAT conclusions. These were existing permitted substances that had previously not been limited in the permit. As such the emissions limits

represent a more stringent control and improvement over what was previously allowed.

The following substance has been added to the permit;

- Absorbable organically bound halogens (AOX): AOX monitoring has been added as required by the Paper, Pulp and Board (PP) BATc, for mills that use AOX based additives in the production of wet strength tissue and was not present on the previous permitted activities. The operator has confirmed that an epichlorohydrin based resin is used for production of kitchen towel products, which is 20% of the total production of tissue paper. The AOX based resin use in production is not a listed priority hazardous substance. The operator has confirmed that the concentration in the final effluent is less than 0.8 µg/l, which is less than the limit of detection of 10 µg/l. Epichlorohydrin has a predicated no effects concentration PNEC of 1.06 µg/l (marine) to 10.6 µg/l (freshwater) . As the concentration of the substance is less than the PNEC (used as an environmental quality standard in the absence of one) before discharge to estuarine waters, in line with the H1 guidance for discharge to estuarine waters, no further assessment is required and the emission screen out⁶.
- Phenol index - this has been added as required by the Waste Treatment BRef. Phenol and phenol-based derivatives were previously monitored and reported through the annual H1 hazardous priority substance reporting. The variation adds this as a specific requirement for phenol index monitoring and a limit at either BAT-AEL or if a priority hazardous substance, no higher than the screening threshold (as previously permitted).

10.2.3 Annual discharge limits

PP BRef has BAT associated emission limits in kg of substance per tonne of product for annual discharge. The however these will not increase the loading of these substance to surface water over the previous permitted levels for the following reasons;

⁶ [Surface water pollution risk assessment for your environmental permit - GOV.UK](#) (Screening tests for discharges to coastal and estuarine waters)

- Change in production from newsprint, with deinking, to containerboard and tissue production has result in the change of applicable BAT-AELS. The site is now subject to Table 18 of the PP BATc. The limits are more stringent than the previous applicable BAT-AEL (Table 19) for newsprint with deinking.
- Due to increase in production from 400,000 tonnes per year to 820,000 tonnes per year the limits for total suspended solids, total nitrogen and total phosphorus, substance have been tightened further to ensure that the total loading (kg/year) of these substances will not increase over what was permitted in previous variation.

For more details on how these are implemented to the permit see Section 12.4.2

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent pollution of ground and surface

10.3. Fugitive emissions

The applicant has identified the following potential fugitive emissions in their environmental risk assessment:

- Loss of containment; and
- Emergency flaring of biogas when the biogas engines are unavailable.

The application details measures which will be in place for preventing and minimising fugitive emissions.

Details containment measures adopted at the site are discussed in section 9.3

Emergency flaring of biogas will only occur during unusual circumstances when the biogas engines are not available. The operator anticipates that this will occur at most for no more than 100 hours per year.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise fugitive emissions and to prevent pollution from fugitive emissions.

Permit condition 3.2.1 requires that emissions of substances not controlled by emission limits (i.e., fugitive emissions) shall not cause pollution. Condition 3.2.2 requires that a management plan shall be developed if pollution is subsequently identified.

10.4. Assessment of odour impact

There are sensitive receptors within the vicinity of the installation. The closest receptor is 2.1 km south west of the site, with other receptors being located 2.5 km north west and 2.4 km south east.

The applicant has identified the following sources of odour in their environmental risk assessment:

- Odours from waste received; and
- Odour emissions from the effluent treatment plant.

However the risk from odour was deemed low for the following reasons;

- The waste received is not odorous in nature and non-conforming waste is returned (as per the operator's waste acceptance procedures);
- The variation is not adding any new waste codes. The waste accepted on site will be the same as what is currently permitted and as such would not increase the risk of odour over that which is posed by the existing permitted site;
- The effluent treatment plant is a sealed unit and is equipped with a desulphurisation plant that scrubs hydrogen sulphide (H₂S) out of the gas stream; and
- The site is located 2-2.8 km from the nearest sensitive residential receptors.

We agree with the operator's conclusion that the risk from odour arising from the site is low.

The application details measures which will be in place for preventing and minimising odour pollution. Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of odour.

Condition 3.3.1 in the permit will also require that emissions from the activities are free from odour at levels likely to cause pollution outside the site. We are satisfied that this will be sufficiently protective in conjunction with the measures described by the applicant for minimising odour at the installation.

10.5. Noise and vibration assessment

There are sensitive receptors within the vicinity of the installation:

- Residential area in Burton, located 2 km north of the installation;
- Residential area in Puddington, located 2.5 km north east of the installation;
- Residential areas to the south east including the new housing development “Gateway development” located 2.1 km from the installation;
- Residential area in Shotwick located 2.8 km east of the installation; and
- Connah’s Quay, located 2.1 km South West.

The applicant has identified the following sources of noise in their environmental risk assessment:

- Existing Biomass plant (Boiler 7) and associated facilities;
- New Combined Heat and Power plant;
- Paper Machine Building – including paper machine and associated activities;
- Tissue machine and associated activities; and
- Effluent Treatment Facility – new treatment plant, AD and biogas plant.

The materials recycling facility (MRF) was included in the applicant’s noise impact assessment (NIA) but has since ceased operation. The majority of the activities associated with the paper machine and tissue machine are to occur indoors. The combined heat and power facility (gas turbine and backup boilers) are to be enclosed within a building.

The operator submitted an NIA carried out to BS4142 standard, and in-line with the guidance [Method implementation document \(MID\) for BS 4142 - GOV.UK](#).

The NIA concluded that the highest impact at a sensitive receptor location was +2dB over background (low risk) with the rating level at all other receptors being below the background (La90) level. As such the variation is unlikely to have an adverse impact at the nearest residential receptors.

In addition, a NIA done in 2021 (although limited to daytime runs) when the site was still operational as a newspaper production facility prior to it's shut down. The impact results (within the limited scope and with a slightly different set of sensitive receptors) are within 1-2 dB of the results generated by the current NIA, and as such, the variation is unlikely to cause noise impact over and above the noise previously generated at the site.

Given the low impact over background, and the low change relative change in impact compared to the site's previous operation, we are satisfied that the variation is unlikely to cause any significant impacts.

The application details measures which will be in place for preventing and minimising noise and/or vibration.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of noise and vibration.

Conditions 3.4.1 of the permit requires noise from the activities to be below that which could cause pollution outside the site. We are satisfied that this will be sufficiently protective in conjunction with the measures described by the applicant for minimising noise at the installation.

10.6. Global warming potential

Emissions of carbon dioxide (CO₂) and other greenhouse gases differ from those of other pollutants in that, except at gross levels, they have no localised environmental impact. Their impact is at a global level and in terms of climate change.

Global Warming Potential (GWP100) emissions as carbon dioxide equivalents (CO₂e) have estimated for the proposed facility by the applicant in accordance the relevant guidance⁷.

11. Impact on European Sites, SSSIs and non-statutory sites

The applicant has used the relevant screening distance criteria to identify relevant protected conservation sites which could be at risk from the proposal.

For European Sites, a screening distance of 15 km was used, which is the relevant screening distance for a site with a combustion plant >50MWth (backup boiler). For Sites of Special Scientific Interest (SSSIs) and non-statutory conservation sites, a screening distance of 2 km was used. We are in agreement with the screening distances used.

A full assessment of the variation application and its potential to affect the identified sites identified has been carried out as part of the permit determination process. European sites, SSSIs and non-statutory conservation sites will be discussed separately below.

11.1. European Sites

The following European Sites are located within 15 km of the installation:

- Dee Estuary/ Aber Dyfrdwy (UK0030131) (Wales and England) (SAC)
- Dee Estuary/ Aber Dyfrdwy (UK9013011) (Wales and England) (SPA)
- Dee Estuary/ Aber Dyfrdwy (UK0030131) (Wales and England) (RAMSAR)

⁷ [Assess the impact of air emissions on global warming - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/assess-the-impact-of-air-emissions-on-global-warming)

- River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC
- Deeside and Buckley Newt sites (UK0030132)
- Halkyn Mountain / Mynydd Helygain (UK0030163)
- Mersey Estuary (UK9005131) (England)
- Alyn Valley Woods / Coedwigoedd Dyffryn Alun (UK0030078)

A Habitat Regulations Assessment (HRA) was completed to assess the potential to affect any of the sites identified. In light of the conclusions of an appropriate assessment and taking account of the advice received from NRW's protected sites advisors, it has been established that the project will not adversely affect the integrity of any European Site, taking into account any conditions or restrictions as applicable, either alone or in-combination with other plans and projects (as documented in section 4 of OGN 200 Form 1, and section 5 if applicable). The full assessment is available to view on the public register [here](#).

11.2. Sites of Special Scientific Interest (SSSI)

The following SSSIs are located within 2 km of the installation:

- Inner Marsh Farm SSSI
- Shotton Lagoons and Reedbeds SSSI
- Dee Estuary / Aber Afon Dyfrdwy (Also a SAC)
- Afon Dyfrdwy (River Dee)

As a Section 28G Authority as defined in the Countryside Rights of Way Act 2000 permitting teams within NRW has a legal duty, under Section 28I of the Wildlife and Countryside Act 1981, to consult with NRW for formal advice when permitting an activity which has been determined to be likely to damage the features of a SSSI.

To determine if consultation is required, a SSSI Assessment was completed. The assessment concluded that the proposed permission is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest.

A copy of the assessment is available to view on the public register [here](#).

11.3. Non-statutory conservation sites

The following relevant non-statutory sites are located within 2 km of the installation:

- Shotton Steelworks Local Wildlife Site (LWS) – located 10 metres south of the installation.

An air emissions risk assessment was completed for the Shotton Steel Works LWS and shows under worst case scenario (the site at full production and all emissions at the highest emission limit) the process contributions of the atmospheric concentration of NO_x and SO₂ were below 100% of the relevant critical levels, and deposition of nutrient nitrogen and acidification as a result of the emission were below 100% of the relevant critical loads, as follows

- Process contribution of long-term atmospheric NO_x was 4.53 µg/m³ which is 15.10% of the long-term critical level of 30 µg/m³ and the short-term process contribution was 36.2 µg/m³ which is 48.27% of the lower short-term critical level of 75 µg/m³;
- The process contribution of atmospheric sulphur dioxide was 0.22 µg/m³ or 1.09% of the critical level;
- The process contribution of nitrogen deposition was 0.46 kgN/Ha/year or 4.6% of the critical load of 10 kgN/Ha/year; and
- Acidification had a process contribution of 0.06 Keq/Ha/Year (1.15% of the applied acid critical load).

As the process contributions screen out at less than 100% for non-statutory conservation sites, the emissions screen out and no further assessment was required.

Based upon the information in the application we are satisfied that there will be no adverse impact to the non-statutory conservation sites identified.

12. The Permit Conditions

12.1. Updating permit conditions during consolidation

We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permit(s).

The operator has agreed that the new conditions are acceptable.

12.2. Use of bespoke conditions

Based on the information in the application, we consider that we need to impose conditions other than those in our permit template, which was developed in consultation with industry having regard to the relevant legislation.

12.3. Incorporating the variation

We have specified that the applicant must operate the permit in accordance with descriptions in the application, including additional information received as part of the determination process.

These descriptions have been specified in the Operating Techniques table (Table S1.2) in the permit.

12.4. Emission Limits

Article 14(3) of IED states that BAT conclusions shall be the reference for permit conditions. Article 15(3) further requires that under normal operating conditions; emissions do not exceed the emission levels associated with the best available techniques as laid down in the decisions on BAT conclusions.

BAT conclusions set out specific limits that the operator must comply with. Modelling has been used to demonstrate that the operator will be able to comply with the emission limits described as BAT.

12.4.1 Point Source to Air

Combined Heat and Power plant

We have set the emission limits for the combined heat and power plant. The limits for the gas turbines and the backup boilers have been set in line with the BAT-AELs for LCP BRef.

Waste Incinerator (emission point A25 (formerly A20))

Assessment of Boiler 7 against with BRef for Waste Incineration is being assessed in a parallel application.

However, we have changed the emissions limit for NO_x from 200 mg/m³ to the BAT-AEL (limit for sites without selective non-catalytic reduction equipment fitted) of 180 mg/m³. This limit will be reviewed in more detail in the BRef review of the site (PAN-032826).

Biogas Engines

The biogas engines have emission limits for oxides of nitrogen of 190 mg/m³ in line with the requirements of the MCPD. Sulphur dioxide was set at 15 mg/m³ as this was the limit proposed by applicant and used for the air quality assessment.

Other emissions

Emission limits are not set for the dryers associated with the carboard and tissue production as these dryers carry on direct heating and are therefore exempt from the requirements of MCPD.

The site has dust removal/extraction; however, as there is no BAT-AEL for dust emission from tissue production, we have not put a limit on these emissions.

For the emergency flare, have not set an emission limits as the flare is for use in emergency situations only (less than 100 hours per year).

12.4.2 Surface water

The permit has an existing point source discharge to the River Dee (W1) for process water. The treated effluent is discharged to the lagoon and held prior to discharge to the River Dee.

The emission limits in Table S3.2 of the permit has been amended as follows

- Emission limits for chemical oxygen demand (COD), total phosphorus, total nitrogen. These were in the previous permit (V013) but did not have any limits in place. The limits have been set to the BAT-AEL from the waste treatment BATc.
- Limit for absorbable organic halogen (AOX) has been set at the limit of detection (10 µg/l) for the applicable monitoring technique as set out in the BAT conclusions for paper and pulp.

The annual limits in Table S3.4 have been revised with tighter limits. The reason for this are as follows;

- The previous version of the permit included a de-inking plant, which was subject to the BAT-AELs listed in Table 19 in the Paper Pulp, and Board BAT conclusions, but as there is no longer a de-inking plant at the site, the new containerboard and tissue making activities are subject to the limits set out in Table 18 of the BAT conclusions;
- Some limits in the permit have been set tighter than the upper limit in Table 18 (but still below the lower limit). The reason for this is so that the total loading of substances (kg/year) remains at the same level as it was previously (as the combined production capacity of containerboard and tissue is 820,000 compared tonnes per year to the previous 400,000 tonnes per year);
- Addition of annual average limits for adsorbable organically bound halogens have been set in line with BAT-AEL. The actual predicted loading in the discharge is far below the BAT-AEL.

Substance	Yearly average kg/t			
	Lower BAT Table 18	Upper BAT Table 18	Limits set in V015	Previous permitted level (V013)

Chemical oxygen demand (COD)	0.03	1.4	1.4	3
Total suspended solids	0.02	0.2	0.14	0.3
Total Nitrogen	0.008	0.09	0.049	0.1
Total Phosphorus	0.001	0.005	0.0048	0.01
AOX Adsorbable organically bound halogens	0.05		0.05	N/A

All the other emission parameters remain the same.

12.5. Monitoring

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 of the permit using the methods and to the frequencies specified in those tables. These monitoring requirements have been imposed in order to demonstrate compliance with the emissions limits in the permit.

For emissions to air, the methods for continuous and/or periodic monitoring are in accordance with [Natural Resources Wales / Guidance to help you comply with your environmental permit](#)) and/or in line with BAT requirements set out in Paper, Pulp and Board (PP) Bref, large combustion plant (LCP) BRef and waste treatment (WT) BRef. Monitoring frequencies have also been considered in line with BAT requirements.

Based on the information in the application and the requirements set in the conditions of the permit we are satisfied that the monitoring techniques, personnel and equipment employed by the Operator will have either MCERTS certification or MCERTS accreditation as appropriate.

12.5.1 Large combustion Plant

We have included requirements for periodic monitoring for the backup boiler as it is to run for fewer than 1500 hours per year, and as such is only required for 6-monthly reporting under the LCP-BAT.

The Combined Heat and Power plant will have continuous monitoring in line with Chapter III of IED and the LCP BRef.

We are satisfied that these monitoring measures will comply with the standard.

12.5.2 Anaerobic digestion plant

We imposed process monitoring for the anaerobic digestion plant as required by BAT 38 of the waste treatment BRef for the following parameters:

Process	Parameter
Digester Feed	pH
	Alkalinity
	Hydraulic and organic loading rates
Digester	Volatile fatty acids (VFA)
	Operating temperature
	Liquid and foam levels
Biogas from digesters	Flow
	Methane
	Hydrogen Sulphide H ₂ S
	Pressure
	Carbon Dioxide

Although the emergency flare is not expected to run more than a 100 hours per year, we have put requirements for monitoring of emissions if the flare runs for than 10% of the year (860 hours).

12.5.3 Water discharge

The only new monitoring requirement are as follows;

- Absorbable organic halogens AOX - We have specified that the monitoring technique used should be EN ISO 9562:2004 as this is required by BAT conclusion 10(g) of the PP BATc.
- Phenol index - This is required monitoring parameter under the WT BRef for water treatment of liquid waste (effluent treatment). The site was previously

reporting phenol and phenol based derivatives as part of the annual water framework directive screening report. As the site was already carrying out monitoring for phenol and had effluent treatment, the addition of the monitoring is a new requirement for an already existing parameter present in the discharge.

12.6. Reporting

We have specified the reporting requirements in Schedule 4 of the Permit to ensure data is reported to enable timely review by Natural Resources Wales to ensure compliance with permit conditions and to monitor the efficiency of material use and waste recovery at the installation.

We have updated the reporting forms to reflect the new emissions points and the changes to monitoring requirements as a result of changes on site and requirements under the relevant BAT conclusions.

12.7. Raw Materials

We have specified limits and controls on the use of raw materials and fuels.

12.8. Waste Types

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

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

No new waste codes or types are being added to the permit. The waste used for the corrugated cardboard and/or tissue mill will fall under the same categorise and waste codes as the wastes previously accepted for the newspaper print. The operator has outlined in their BATOT and the fire prevention and mitigation plan how they will minimise the risk of impact from the storage and use of these wastes.

We made these decisions with respect to waste types in accordance with the *Guidance on the classification and assessment of waste - Technical Guidance WM3* and the WT BRef.

12.9. Pre-operational conditions

Based on the information in the application, we consider that we need to impose pre-operational conditions. Details of the pre-operational conditions used can be found in Annex 1.

The pre-operational conditions were set for the following reasons;

PO1 to PO3 – These pre-operational conditions are for aspects of the large combustion plant that have not yet been finalised but are required before operation starts. These are as follows;

- Other than normal operating condition report (OCNOC) for the combined heat and power plant. The operator currently has one for the existing biomass boiler (boiler 7) but does not have details on the new CHP (as required by BAT 11 of the LCP BRef).
- The minimum start-up and shut-down loads, required for table S1.5 in the permit
- Dry Low NOX Dry Low NOx effective definitions, required for table S1.6 for the gas turbines.

PO4 – This pre-operational condition was set for the operator to provide a finalised version of the management plans of the anaerobic digestion plant and provide confirmation that the systems are in place.

12.10. Improvement conditions

Based on the information on the application, we consider that we need to impose improvement conditions. Details of the improvement conditions used can be found at Annex 2. The improvement conditions were set for the following reasons;

IC8 – This improvement condition is for test parameters under full loading. As the plant is not yet full commissioned this was set out as an improvement condition to satisfy the BAT 2 of the LCP BRef

IC9 – This improvement condition was put in place for the operator to finalise the details on how the site operation complies with BAT 5 of the WT BRef.

13. OPRA

The OPRA score has changed as a result of this variation. The new agreed score is now 304 (was 273) This will form the basis for ongoing subsistence fees.

DRAFT

ANNEX 1: Pre-Operational Conditions

Table S1.4 Pre-operational measures for future development

Reference	Operation	Pre-operational measures
PO1	Commissioning of the combined heat and power plant, LCPXXX, LCPYYY and LCP694	At least two weeks before commissioning of the combined heat and power plant, the operator should submit a finalised Other than normal operating condition report (OTNOC). The regulator must confirm acceptance in writing before the activity begins.
PO2	Commissioning of the combined heat and power plant, LCPXXX, LCPYYY and LCP694	MSUL and MSDL At least two weeks before commissioning of the combined heat and power plant, the operator shall submit a written report to Natural resources Wales for assessment and written approval to define the minimum start-up and shut-down loads. The report shall include a written justification of the “minimum start-up load (MSUL)” and “minimum shut-down load (MSDL)”, for each unit within the LCP as required by the Implementing Decision 2012/249/EU in terms of: i. the output load (i.e. electricity, heat or power generated) (MW); and ii. this output load as a percentage of the rated thermal output of the combustion plant (%).
PO3	Commissioning of the combined heat and power plant, LCPXXX, LCPYYY and LCP694	At least two weeks before commissioning of the combined heat and power plant, the operator shall submit a written report to Natural Resources Wales for assessment and written approval to define when dry low NOx operation is effective. The report shall include: - an output load or operational parameters to justify when the dry low NOx operation is effective. - the NOx profile through effective dry low NOx to 70% and then to full load.

Table S1.4 Pre-operational measures for future development

Reference	Operation	Pre-operational measures
PO4	Commissioning of anaerobic digestion Plant	The operator shall not commence operation of the new anaerobic digestion activity until they have submitted written confirmation to the regulator that the site is fully prepared for operation. This confirmation must demonstrate that: Safety systems (including emergency flare, methane detection and alarm systems, and fire prevention measures) are operational. Management systems, staff training, and monitoring arrangements required by the permit are implemented. The regulator must confirm acceptance in writing before the activity begins.

ANNEX 2: Improvement Conditions

Table S1.3 Improvement programme requirements

IC8	The Operator shall submit a Report in accordance to BAT 2 of the Large combustion plant BRef conclusions (published 2017), outlining the net electrical efficiency and/or the net total fuel utilisation and/or the net mechanical energy efficiency of the gasification, IGCC and/or combustion units by carrying out a performance test at full load. If for technical reasons the performance test cannot be carried out with the unit operated at full load for the heat supply, the test can be supplemented or substituted by a calculation using full load parameters.	Within 9 months of commissioning of the combined heat and power plant
IC9	The Operator shall submit a report outlining how the site will implement measures that comply with BAT 5 of the waste treatment BRef (published 2018)	Within 3 months of issue date of variation V015

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ANNEX 3

1. Advertising and consultation on the Application

The application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. Responses to this consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex.

Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from Public Health Wales	
Brief summary of issues raised:	Summary of action taken / how this has been covered
No public health concerns on the basis that NRW assess BAT, Noise, Odour and Fire prevention	BAT, Noise, Odour and Fire prevention have been assessed against the guidance. See relevant section in the document on how these were assessed.

Consultation Responses from Members of the Public and Community Organisations

No response from members of the public or Community Organisations were raised during the initial consultation.

Response Received from	
Brief summary of issues raised:	Summary of action taken / how this has been covered
None	N/A

Representations from Local MP, Assembly Member (AM), Councillors and Parish / Town / Community Councils

Response Received from	
Brief summary of issues raised:	Summary of action taken / how this has been covered
None	N/A

Representations from Community and Other Organisations

Response Received from	
Brief summary of issues raised:	Summary of action taken / how this has been covered
None	N/A

Representations from Individual Members of the Public

Response Received from	
Brief summary of issues raised:	Summary of action taken / how this has been covered
None	N/A

2. Advertising and consultation on the draft decision

TBC after draft decision

ANNEX 4

Annex 4 on BAT conclusions is provided in the document: PAN-029803 Decision document Annex 4 BAT assessment (BRef Review).

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