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Consulting Engineers Limited



**INTERTISSUE
INTERTISSUE BIOMASS BOILER
NON-TECHNICAL SUMMARY**

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1 INTRODUCTION

Intertissue Ltd. (herein referred to as Intertissue) is developing a biomass-fuelled boiler (the Facility) to combust wood biomass fuels (herein referred to as fuel) at the Intertissue Briton Ferry paper manufacturing and processing plant on Brunel Way, Baglan Energy Park, Briton Ferry, Neath, South Wales (the Installation).

The Installation is currently regulated under an existing environmental permit (Reference: BU2489IT granted on 30 January 2001) which was most recently varied on 22 February 2010. Intertissue is proposing to install a biomass boiler to provide steam to the manufacturing process to replace an existing boiler which combust natural gas as a fuel. The existing boiler will be retained to provide a back-up source of heat in case of unplanned shutdown of the biomass boiler.

To be able to operate the proposed biomass plant, a variation to the EP will be required from NRW. This document is a Non-Technical Summary of the information submitted in support of the application for the EP variation.

1.1 The Site

The Intertissue Briton Ferry site is located in the Baglan Bay within the Baglan Energy Park (BEP). The BEP covers an area of circa 180 hectares (ha) and since its construction in 2004 it has become a well-established modern industrial / business estate, which is occupied by a range of companies, including Intertissue.

The Intertissue site's surrounding context can be described as follows:

- The Baglan Brook water course is located immediately to the northeast, beyond which is a vacant development plot (that benefits from planning permission for a health centre and offices), and the offices / service depot occupied by Neath Port Talbot County Borough Council;
- Brunel Way is located immediately to the east, beyond which are business premises forming part of the wider BEP;
- An earth landscaping bund (including a belt of semi-mature trees) is located to the south, beyond which are railway lines associated with the neighbouring Baglan Bay Power Station (including associated overhead power lines) and vacant previously developed brownfield land (e.g. other parts of the former complex which are being promoted for a range of uses); and
- A track forming part of the Wales Coast Path is located immediately to the west and northwest, beyond which are sand dunes and salt marshes which in turn give way to the River Neath and Baglan Bay.

The Intertissue site occupies circa 32 ha of land, which was raised to create a level development platform prior to construction. The Installation comprises of a series of large interlinked buildings which extend to a height of circa 27 m (cows on the roof) together with a separate office block and supporting infrastructure that includes a security / weighbridge complex, areas of parking, internal circulation roadways, security and drainage infrastructure.

Access to the site is gained from the roundabout off Brunel Way which in turn provides a connection to the A48 / A474 and ultimately the M4. A road bridge crossing the railway line (to the south east of the paper mill site) was completed in April 2015. This forms part of the BEP link road and the Port Talbot to Swansea bus corridor. In addition, the Installation also benefits from its own railway siding which extend into the buildings.

As illustrated by the EP application drawings, the Facility would be located in the south western part of the site in an area enclosed (on three sides) by existing buildings, and covered in hard standing. Its location has been determined as a result of the need to locate the proposed development in close proximity to the building housing the paper machine's yankee dryer.

1.2 The Proposed Facility

The Proposed Facility will include the following:

- fuel reception area;
- fuel storage area;
- fuel handling systems;
- boiler housing, which contains the combustion unit, boiler, electrical room, control room and other process plant; and
- associated infrastructure including silo for wood pellet storage, vehicular and pedestrian access to the Facility and external hardstanding for vehicle manoeuvring (fuel deliveries will be segregated from the other working areas by clearly defined routes).

The Facility includes the fuel reception, fuel storage and handling, water, auxiliary fuel and air supply systems, furnace, steam boiler, facilities for the treatment of exhaust gases, on-site facilities for storage of residues, stack, devices and systems for controlling combustion operations, recording and monitoring conditions.

The nominal capacity of the Facility will be approximately 2.25 tonnes per hour (t/h) of fuel, with a nominal calorific value of 12.8 MJ/kg. It will have an estimated availability of around 8,200 hours per annum. Therefore, the plant will have a nominal design capacity of approximately 18,450 tonnes per annum.

The Facility will have a maximum capacity of up to 25,000 tonnes per annum. This will allow for variations in the net calorific value of the fuels being combusted (the range will be from 9.6 MJ/kg to 15.2 MJ/kg) and for the plant operating for more than the 8,200 hours per annum predicted. An indicative process schematic is presented in Figure 1.

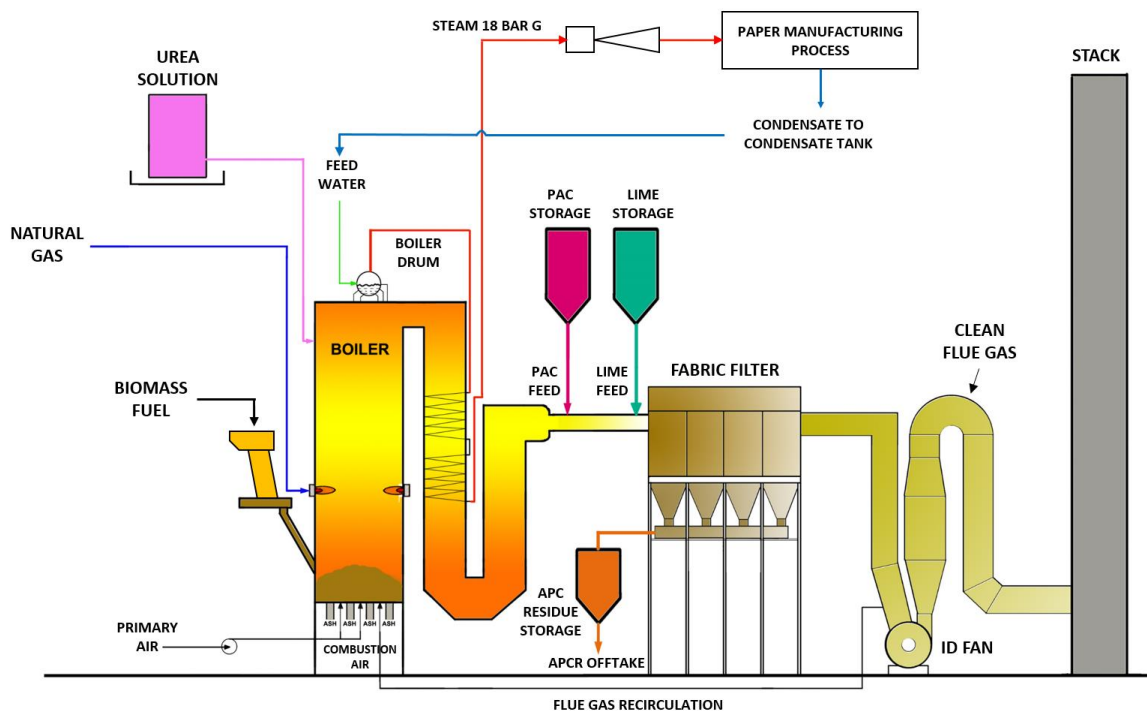


Figure 1 – Indicative process schematic

The Facility will be Directly Associated Activity to the paper manufacturing process.

1.3 Type of Variation

During pre-application discussions with the NRW Area Team it was indicated that the application would be a 'Substantial Variation' to the existing EP.

2 DETAIL OF THE FACILITY

2.1 Raw Materials

The principal raw materials used at the Facility will be:

- (1) lime;
- (2) activated carbon;
- (3) ammonia or urea;
- (4) natural gas from the existing Installation supply; and
- (5) other boiler treatment chemicals.

These will be supplied to standard specifications offered by main suppliers. All chemicals will be handled in accordance with COSHH Regulations as part of the quality assurance procedures and full product data sheets will be available on site.

Periodic reviews of all materials used will be made in the light of new products and developments. Any significant change of material, where it may have an impact on the environment, will not be made without firstly assessing the impact and seeking approval from the Environment Agency (EA).

2.2 Technology Selection

The processes have been designed against the background of a detailed assessment of the prevailing environmental conditions at the site, in order that the objectives of the Industrial Emissions Directive (IED) are met. Best Available Techniques would be employed at the Facility to minimise its impact on the local environment.

In particular:

- (1) All fuel and raw materials delivered to the Facility, and any residues generated by the Facility, will be handled and stored in a manner which avoids fugitive emissions.
- (2) A grate will be used to burn the fuels. This is a well proven system which is used in hundreds of similar installations in Europe. The combustion chamber design will include fully adjustable combustion air controls and automatic auxiliary burners.
- (3) The plant will achieve a residence time of two seconds after the last injection of combustion air at a temperature of more than 850°C, as required by the IED. This requirement is intended to ensure that combustion is complete and dioxins are destroyed.
- (4) The boiler will be designed to maximise energy recovery and minimise boiler deposits. Rapid cooling between 450°C and 250°C minimises the reformation of dioxins.
- (5) An ammonia or urea based reagent will be injected into the combustion chamber in a Selective Non-Catalytic Reduction (SNCR) system. This reduces emissions of nitrogen dioxide in an efficient manner and minimises emissions of nitrous oxide, which is a potent greenhouse gas.
- (6) Dry lime will be injected into the flue gases to remove acid gases. This will avoid the use of water and will maximise the recovery of heat from the flue gases, while efficiently removing the acid gases.
- (7) A multi-compartment fabric filter will be used to remove particulate matter.

2.3 Emissions

2.3.1 Emissions to Air

Emissions to atmosphere from the Facility will be released via a 30 metre high stack. The emissions to air from the Facility will comply with the emission limits required by Chapter 4 of the Industrial Emissions Directive (IED) and other relevant Air Quality Guidance.

A detailed air quality assessment has been completed which is presented in Annex 4 of the full application. Air quality impacts have been assessed for both normal and abnormal operation.

2.3.2 Emissions to Water and Sewer

The arrangements for the discharge of emissions to water and sewer from the Installation will not be amended through implementation of this variation.

All process effluents from the installation will be discharged to the to the long sea outfall to Swansea Bay in accordance with the Installation's existing Trade Effluent Consent.

Surface water run-off will be discharged into the surface water system prior to discharge into purpose built lagoons located on the northern and southern boundaries of the site. The lagoons discharge into the River Neath under an existing discharge consent.

2.4 Monitoring

The Facility will include a Continuous Emissions Monitoring System (CEMS) for the continuous monitoring of oxygen, carbon monoxide, hydrogen chloride, sulphur dioxide, nitrogen oxides, ammonia, VOCs, and particulates in the flue gases in the stack. Other pollutants will be monitored by spot measurements at regular intervals. The data will be recorded and operators will be alerted if emissions to air approach authorised limits.

There will be no changes to the arrangements of monitoring of emissions to water.

2.5 Management

The Installation is currently operated in accordance with an ISO 14001 accredited environmental management system. This will be maintained and adapted to incorporate the operation of the Facility.



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