Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Western Bio-Energy Limited

Western Wood Energy Plant - Margam
Longlands Lane
Port Talbot
SA13 2NR

Variation number

EPR/ZP3939GL/V006

Permit number

EPR/ZP3939GL

Western Wood Energy Plant - Margam
Permit number EPR/ZP3939GL

Introductory note

This introductory note does not form a part of the permit

This permit controls the operation of a waste co-incineration plant. The permit implements the requirements of the EU Directives on Industrial Emissions and Waste.

The main features of the permit are as follows:

Furnace Technology	Moving Grate
Number of lines	1
Fuel/Waste	Permitted to accept waste and non-waste biomass which is exempt from the incineration requirements of Chapter IV of the Industrial Emissions Directive
Stack height	55 m
Permitted plant capacity	160, 000 tonnes per year
Energy Generated Gross electrical efficiency	14 MW_e At least 29 %
Heat exported	N/A – electricity generation only

The Western Wood Energy Plant is a co-incineration power plant for the generation of electrical power by the combustion of biomass. The plant has a capacity for burning approximately 160,000 tonnes of biomass per annum which provides 14 MWe of electrical power export to the National Grid network. The plant is permitted to consume both virgin wood biomass material and waste wood biomass. All waste biomass meets the definitions given in Article 3 point 31 of the industrial emissions Directive and so is exempt under Article 42(2) from Chapter IV of the Directive (*special provisions for waste incineration plants and waste co-incineration plants*).

The plant comprises a single travelling grate combustor unit which receives chipped biomass fuel introduced by conveyor and spreader stoker arrangement. A log chipper is permitted on site for fuel preparation. Hot gases from the combustor unit are passed through a boiler to generate high pressure steam which in turn is used to drive a turbine which generates the electrical power for export to the Grid. The steam exiting from the turbine is condensed via an air cooled condenser before being returned to the boiler unit. The exhaust combustion gases are cleaned in flue gas treatment plant using a coarse ash separator and fabric bag filters prior to discharge from a 55 metre chimney. The plant has a total thermal input capacity of 47.5 MW_{th}. This co-incineration plant is also a Medium Combustion Plant <50MW and Schedule 25A of the Environmental Permitting Regulations apply.

The main emissions to air are combustion gases resulting from the biomass combustion process. These contain pollutants including oxides of nitrogen(NO_X), carbon monoxide (CO) and particulate, at or below limits set by the environmental permit. Spent process water from the activities is initially treated by an on site effluent treatment plant prior to discharge to a Welsh Water sewer under the terms of a trade effluent discharge consent. Surface storm water is collected from roofs and hard standing areas of the site via oil interceptors, prior to discharge to an off-site ditch which drains to an adjacent marshland area. Bottom ash and fly ash are collected separately for off site treatment / disposal.

The plant is located close to the nearby integrated Steel Works and BOC Gases Plant at the eastern side of the Margam suburb of Port Talbot. Eglwys Nunydd Reservoir and Margam Moor SSSI sites lie approximately 1.0 km to the south of the site. The M4 motorway lies approximately 500m to the east of the site.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit

Description	Date	Comments
Application received EPR/ZP3939GL/A001	Duly made 16/09/08	
Additional information requested	11/09/08	Received 03/10/08
Additional information submitted		Received 21/10/08
Additional information requested	27/11/08	Received 23/12/08 and 17/02/09
Permit determined EPR/ZP3939GL	18/08/09	Permit issued
Environment Agency led variation determined	04/03/13	Environment Agency led variation to implement changes introduced by IED
Transfer application EPR/QP333WH/T001	Duly made 12/08/14	Application to transfer the permit in full to PX Limited from Western Bio-Energy Limited
Transfer application EPR/QP333WH/T001 determined	01/10/14	Full transfer of permit complete
NRW led variation determined EPR/ZP3939GL/V002	01/06/16	NRW led variation to change permit number back to original
Transfer application EPR/ZP3939GL/T003	Duly made 14/10/19	Application to transfer the permit in full to Western Bio-Energy Limited from PX Limited
Transfer application determined EPR/ZP3939GL/T003	22/10/19	Full transfer of permit complete
Minor technical variation application EPR/ZP3939GL/V004	Duly made 23/10/19	Minor technical variation to add two waste codes to permit

Status log of the permit		
Description	**Date**	**Comments**
Minor technical variation determined EPR/ZP3939GL/V004	04/11/19	Minor technical variation complete
Variation application PAN-011056	Duly made 26/01/21	Normal Variation to add SNCR for NO_X control and addition of EWC codes.
Additional information requested	18/01/21	Received 25/01/21, 26/01/21
Schedule 5 Notice requiring further information	19/02/21	
Schedule 5 response received from applicant	25/03/21	04/03/21, 05/03/21, 25/03/21
Variation determined EPR/ZP3939GL/V005 (PAN-011056)	26/04/21	Varied permit issued.
Regulation 61 Notice sent to the Operator	15/06/21	Issue of a Notice under Regulation 61(1) of the EPR. Natural Resources Wales initiated review and variation to vary the permit following the publication of the revised Best Available Techniques (BAT) Reference Document (BRef) for Waste Incineration.
Regulation 61 Notice response	09/12/21	Response received from the Operator.
Natural Resources Wales letter to the operator	25/08/22	Requiring further information in response to Regulation 61 Notice sent 15/06/21.
Further response from operator to Regulation 61 Notice and associated letter	08/12/22	Additional response received from the operator.
Natural Resources Wales letter to the operator	16/02/23	Explaining the permit review process.
Letter from operator	10/05/23	Further representation from operator
Natural Resources Wales initiated variation determined EPR/ZP3939GL/V006 [PAN-020876]	31/10/23	Varied and consolidated permit issued to operator in modern condition format.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number
EPR/ZP3939GL

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/ZP3939GL/V006 authorising

Western Bio-Energy Limited ("the operator"),

whose registered office is

Longlands Lane
Margam
Port Talbot
SA13 2NR

company registration number **04622111**

to operate an installation that is both a co-incineration and medium combustion plant at:

Western Wood Energy Plant – Margam
Longlands Lane
Margam
Port Talbot
SA13 2NR

to the extent authorised by and subject to the conditions of this permit.

Signed	Date
Anna Griffiths	**31 October 2023**

Senior Specialist Advisor – Installations and RSR Permitting

Authorised on behalf of Natural Resources Wales

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

(a) take appropriate measures to ensure that energy is recovered with a high level of energy efficiency and energy is used efficiently in the activities.

(b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.2.2 The operator shall review the viability of Combined Heat and Power (CHP) implementation at least every four years, or in response to any of the following factors, whichever comes sooner:

(a) new plans for significant developments within 15 km of the installation;

(b) changes to the Local Plan;

(c) changes to the UK CHP Development Map or similar; and

(d) new financial or fiscal incentives for CHP; and

(e) Any work on the installation steam system which could facilitate or enable cost effective installation of steam and/or hot water pass-out connections such that opportunities for the further use of waste heat may be capitalised upon should they become practicable.

The results shall be reported to Natural Resources Wales within two months of each review, including where there has been no change to the original assessment in respect of the above factors

1.2.3 The operator shall provide and maintain steam and/or hot water pass-outs if a review of CHP implementation or readiness identifies viable CHP opportunities, as required in writing by Natural Resources Wales and according to a timescale set by Natural Resources Wales.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.1.2 Waste authorised by this permit shall be clearly distinguished from any other waste on the site.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2a, unless otherwise agreed in writing by Natural Resources Wales.

(b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2a or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

2.3.2 The activities shall be operated using the techniques and, in the manner, described in schedule 1, table S1.2b.

2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.4 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.2; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.3.5 Waste that has been separately collected for the purpose of preparing for re-use or recycling shall not be accepted unless they are unsuitable for recovery by recycling.

2.3.6 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

2.3.7 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by Natural Resources Wales.

2.4.2 Except in the case of an improvement which consists only of a submission to Natural Resources Wales, the operator shall notify Natural Resources Wales within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.5 Additional samples shall be taken and tested and appropriate action taken, whenever:

(a) disposal or recovery routes change; or

(b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

3.1.4 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination

3.2 Emissions limits and monitoring for emission to air for co-incineration plant

3.2.1 The limits for emissions to air apply as follows:

(a) The limits in table S3.1 shall not be exceeded.

3.2.2 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that;

(a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages of the emission limit values:

- Carbon monoxide 10%
- Sulphur dioxide 20%
- Oxides of nitrogen (NO & NO_2 expressed as NO_2) 20%
- Particulate matter 30%
- Total organic carbon (TOC) 30%
- Hydrogen chloride 40%
- Hydrogen fluoride 40%
- Ammonia 40%
- Mercury (Hg) 40%

(b) valid hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.2.2 (a).

(c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete hour period, the hourly average shall in any case be considered valid if measurements are available for a minimum of 40 minutes during the hour. The number of hourly averages so validated shall not exceed 5 per day.

(d) daily average values shall be calculated as follows: the average of valid hourly averages over a calendar day or as agreed with Natural Resources Wales. The daily average value shall be considered valid if no more than three hourly average values in any day have been determined not to be valid;

(e) no more than ten daily average values per year shall be determined not to be valid:

3.3 Emissions of substances not controlled by emission limits

3.3.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.3.2 The operator shall:

(a) if notified by Natural Resources Wales that the activities are giving rise to pollution, submit to Natural Resources Wales for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.3.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.4 Odour

3.4.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.4.2 The operator shall:

(a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to odour, submit to Natural Resources Wales for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.5 Noise and vibration

3.5.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.5.2 The operator shall:

(a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration, submit to Natural Resources Wales for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.6 Monitoring

3.6.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1, S3.2 and S3.3;

(e) process monitoring specified in table S3.4;

(g) residue quality in table S3.5

3.6.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.6.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.6.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by Natural Resources Wales. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

3.6.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 and S3.3 unless otherwise agreed in writing by Natural Resources Wales.

3.7 Fire

3.7.1 The operator shall manage and operate the activities in accordance with a written fire prevention and mitigation plan using the current, relevant fire prevention and mitigation plan guidance.

3.7.2 The operator shall:

(a) if notified by Natural Resources Wales that the activities could cause a fire risk, submit to Natural Resources Wales a fire prevention and mitigation plan which identifies and minimises the risks of fire;

(b) operate the activities in accordance with the fire prevention and mitigation plan, from the date of submission, unless otherwise agreed in writing by Natural Resources Wales.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

4.1.3 The operator shall maintain a record of the type and quantity of fuel used and the total annual hours of operation for each MCP.

4.1.4 The operator shall maintain a record of any events of non-compliance and the measures taken to ensure compliance is restored in the shortest possible time

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production / treatment data set out in schedule 4 table S4.2; and

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by Natural Resources Wales, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to Natural Resources Wales, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to Natural Resources Wales using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

4.3.1 (a) In the event that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

(i) inform Natural Resources Wales,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents;

(b) in the event of a breach of any permit condition the operator must immediately—

(i) inform Natural Resources Wales, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

(d) In the event of activation of the emergency release valve the operator must inform Natural Resources Wales immediately

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Any information provided under condition 4.3.1 (d) shall be confirmed by sending the information listed in part (a), of schedule 5 to this permit within the time period specified in that schedule.

4.3.4 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.

4.3.5 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.6 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) Natural Resources Wales shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.7 Natural Resources Wales shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.3.8 Where the operator has entered into a climate change agreement with the Government, Natural Resources Wales shall be notified within one month of:

(a) a decision by the Secretary of State not to re-certify the agreement;

(b) a decision by either the operator or the Secretary of State to terminate the agreement; and

(c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	**Description of specified activity**	**Limits of specified activity**
S5.1 A1 (b) and Schedule 25A Medium Combustion Plant	The incineration of non-hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 3 tonnes per hour: Co-incineration of biomass on a single co-incineration line in a travelling grate combustor for the production of steam and electricity. This activity is also a medium combustion plant of 47.5MW_{th} as detailed in Schedule 8 of this permit	From receipt and combustion of biomass fuels, to production and supply of steam / electricity, emission of exhaust gas and disposal of waste arising. Biomass includes waste biomass as defined in Article 3(31) of the IED and the combustion of which is therefore exempt from the requirements of Chapter IV of the Industrial Emissions Directive 2010/75/EU (Article 42(2)). Non-waste fuels as specified in Table S2.1 of this permit. Waste fuel types and quantities as specified in Table S2.2 of this permit.
Directly associated activity		
Electricity Generation	Generation of approximately 14 MWe electrical power using a steam turbine from energy recovered from the flue gases.	From transfer of steam to turbines, generation of electricity and its transfer to the National Grid or for use on site.
Water treatment plant	Treatment of incoming mains water by reverse osmosis to provide replacement feed water for the boiler plant.	From transfer of mains water and receipt of raw materials to the reverse osmosis plant to discharge of regeneration effluent to the site effluent collection system and delivery of treated water to the boiler plant.
Storage and preparation of virgin and IED Chapter IV exempt waste biomass fuel	Sampling, segregation, chipping and preparation of biomass fuels for supply to combustor unit. **R13**: Storage of exempt waste biomass pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)	From receipt of biomass fuels to the transfer of prepared fuel loads to the combustor unit.
Storage of supplementary firing fuel	Storage of light fuel oil for supplementary firing within bunded storage tank.	From receipt of fuel to transfer of fuel to combustor unit.
Storage and transfer of ash wastes.	Collection and storage of bottom and fly ash residues for subsequent disposal or recovery.	From transfer of individual ash streams from the combustor unit via transport equipment to ash storage to loading of covered road transport vehicles for transfer off site.
Diesel fire pump	Fire pump 0.104 MW_{th}	Emergency fire response and testing only

Table S1.2a Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to sections 2.1 and 2.2 in the Application.	16/09/08
Application	The response to questions 1, 2, 4, 5, 7,13,15, 16,17,18 and 20 of the Schedule 4 Notification for the original application, now considered part of this application.	16/09/08
Receipt of additional information to the application	Information relating to bag filter abatement equipment and operation of wood chipping plant.	21/10/08
Response to further information request dated 27/11/08	Information relating to supply sources of waste wood and biomass fuels. Operating procedures relating to the control and acceptance of incoming biomass fuels to the site.	17/02/09
Variation Application PAN-011056 (V005)	Application Form C2, C3, and supporting information submitted in respect of questions on those forms.	23/07/20
Response to further information request dated 18/01/21	Waste acceptance procedures WBEF 01, WBEF 02, WBEF 03 and WBEF 04 and explanation of waste types proposed under “99” codes	25-26/01/21
Response to Schedule 5 Notice dated 19/02/21	Justification of various matters including co-incineration status, BREF applicability, correct waste codes, and SNCR commissioning plan.	04/03/21
SNCR commissioning and optimisation report provided in response to Improvement Condition IC 9	SNCR report dated September 2021	26/10/21
Fire prevention and mitigation plan provided in response to Improvement Condition IC 10	Full FPMP report, reference 2203/FPMP dated 26th October 2021	26/10/21
Response to regulation 61(1) Notice – request for information dated 15/06/2021	All parts of responses received	09/12/21 08/12/22 10/05/23

Table S1.2b Operating techniques for Medium Combustion Plant as detailed in Schedule 8
Description
Each MCP must be operated in accordance with the manufacturer’s instructions 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
There must be no persistent emission of ‘dark smoke’ as defined in section 3(1) of the Clean Air Act 1993

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC11	The operator shall carry out a review of hydrogen chloride (HCl) and hydrogen fluoride (HF) emissions over a period and frequency agreed with Natural Resources Wales. It shall include a review of previous HCl performance based on monitoring results and additional monitoring campaign(s) as deemed necessary, which may include fuel analysis as	18 months from date of variation V006 issue or otherwise agreed in

Table S1.3 Improvement programme requirements		
	well as emissions. The operator shall submit a report to Natural Resources Wales with an analysis of whether the emissions of HCl and HF from the plant can be proven to be low and stable, and whether any higher results can be correlated with particular fuel types or composition. The operator will report whether any further action is required to achieve the new HCl emission limit of 150 mg/m^3 (average of 3 samples of at least 30 minutes each), and whether an emissions target value of 35 mg/m^3 is achievable by fuel selection. The operator will report whether an HF emissions target value of 1.5 mg/m^3 (average of 3 samples of at least 30 minutes each) is achievable by fuel selection.	writing with Natural Resources Wales
IC12	The operator shall perform a study to determine the extent to which the operation of the current systems in place at the plant to control combustion and minimise NO_X and CO emissions can be further optimised such that emissions are reduced as far as possible below 250 mg/Nm^3 (both NO_X and CO) as a daily average, without significantly increasing emissions of other pollutants or having a significant negative effect on plant operation, reliability or bottom ash quality. The study shall be based on the results of trials carried out at the installation. A written report of the study shall be submitted to Natural Resources Wales which shall include but not necessarily be limited to the following: • A brief description of the currently installed measures at the installation to minimise NO_X and CO emissions, including details of how the urea reagent dosing system responds to emissions monitoring data and historic data which illustrates the current achievable level of daily NO_X and CO emissions. • The results of trials conducted to further reduce daily average NO_X and CO emissions using currently installed measures, including: o a description of the parameters that were varied during the trial e.g. ammonia or urea feed rates, physical form of urea injected, air flows, other combustion control parameters, and the range over which they were varied o the levels of NO_X achieved and associated levels of CO, ammonia and nitrous oxide emissions and reagent consumption o observed effects and predicted long-term impacts on plant operation, reliability and maintenance regime o any changes to the composition of the bottom ash and boiler ash and the implications of those changes for the ability to process and use the ash, as well as for the pollution potential of the ash both during processing and its subsequent use as a secondary aggregate o any other relevant cross-media effects The report shall also include a description of the extent to which current systems in place at the plant to minimise NO_X and CO emissions can be optimised on a permanent basis, including justification and an implementation plan where relevant.	18 months from date of variation V006 issue or otherwise agreed in writing with Natural Resources Wales
IC13	The operator shall submit an Other than normal operating conditions (OTNOC) management plan to Natural Resources Wales for approval. The OTNOC management plan shall be produced in line with all relevant current guidance provided by Natural Resources Wales to the operator and shall consider the requirements of the following (indirectly relevant) BAT conclusions of the Waste Incineration BREF Document (EU 2019), and Large Combustion plant BREF document (EU 2021): • WI BAT 1 (xxiv) – BAT is also to incorporate the following features in the EMS:	18 months from date of variation V006 issue or otherwise agreed in writing with Natural Resources Wales

Table S1.3 Improvement programme requirements
(xxiv) for incineration plants, an OTNOC management plan (see BAT 18)   - WI BAT 5 – BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC   - WI BAT 18 – In order to reduce the frequency of the occurrence of OTNOC and to reduce emissions to air and, where relevant, to water from the incineration plant during OTNOC, BAT is to set up and implement a risk based OTNOC management plan as part of the environmental management system (BAT 1) that includes all of the following elements: - Identification of potential OTNOC (e.g. failure of equipment critical to the protection of the environment ('critical equipment')), of their root causes and of their potential consequences, and regular review and update of the list of identified OTNOC following the periodic assessment below;   - Appropriate design of critical equipment (e.g. compartmentalisation of the bag filter, techniques to heat up the flue-gas and obviate the need to bypass the bag filter during start-up and shutdown, etc.);   - Set-up and implementation of preventative maintenance plan for critical equipment (see BAT 1(xii))   - Monitoring and recording of emissions during OTNOC and associated circumstances (see BAT 5)   - Periodic assessment of the emissions during OTNOC (e.g. frequency of events, duration, amount of pollutants emitted) and implementation of corrective actions if necessary.   - LCP BAT 10 – BAT is to set up and implement a management plan as part of the EMS, commensurate with the relevance of potential pollutant releases, that includes the following elements: - LCP BAT 11 – BAT is to appropriately monitor emissions to air and/or to water during OTNOC.   - appropriate design of the systems considered relevant in causing OTNOC that may have an impact on emissions to air, water and/or soil;   - set-up and implementation of a specific preventive maintenance plan for these relevant systems;   - review and recording of emissions caused by OTNOC and associated circumstances and implementation of corrective actions if necessary;   - periodic assessment of the overall emissions during OTNOC (e.g. frequency of events, duration, emissions quantification/estimation) and implementation of corrective actions if necessary   The OTNOC management plan shall be submitted to Natural Resources Wales for approval by the date specified.

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Light Fuel Oil for supplementary firing in combustor	Less than 0.1% w/w sulphur content.
Virgin wood biomass	From approved suppliers in accordance with specific contract for supply.

Table S2.2 Permitted waste types and quantities for co-incineration	
Maximum quantity	160,000 Tonnes per year
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 03	Plant-tissue waste
02 01 07	Wastes from forestry
02 03	**Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 03 04	Materials unsuitable for consumption or processing. *Further limitation: only materials where their incineration is exempt from the requirements of Chapter IV of the Industrial Emissions Directive 2010/75/EU*.
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	**Wastes from wood processing and the production of panels and furniture**
03 01 01	Waste bark and cork
03 01 05	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04*. *Further limitation: only materials where their incineration is exempt from the requirements of Chapter IV of the Industrial Emissions Directive 2010/75/EU*: V*irgin and untreated non-virgin timber offcuts, shavings, chippings and sawdust from the processing of virgin and non-virgin timber – excluding particle board waste)*.
03 01 99	Wastes not otherwise specified. *Further limitation: only materials where their incineration is exempt from the requirements of Chapter IV of the Industrial Emissions Directive 2010/75/EU*: *Non-hazardous waste wood fibre and pellets).*
03 03	**Wastes from pulp, paper and cardboard production and processing**
03 03 01	Waste bark and wood
15	**WASTE PACKAGING, ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	**Packaging (including separately collected municipal packaging waste)**
15 01 03	Wooden packaging. *Further limitations: only materials where their incineration is exempt from the requirements of Chapter IV of the Industrial Emissions Directive 2010/75/EU and is in accordance with permit condition 2.3.4*.: *Clean waste wood from non-returnable pallets.*
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 05	**Wastes from aerobic treatment of solid wastes**
19 05 01	Non-composted fraction of municipal and similar wastes. *Further limitation: only materials where their incineration is exempt from the requirements of Chapter IV of the Industrial Emissions Directive 2010/75/EU*: *Oversize arboricultural cuttings removed from pre-composting collections, consisting of non-hazardous virgin wood only*.

Table S2.2 Permitted waste types and quantities for co-incineration	
Maximum quantity	160,000 Tonnes per year
19 12	**Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 07	Wood other than that mentioned in 19 12 06*.
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	**Separately collected fractions (except 15 01)**
20 01 38	Wood other than that mentioned in 20 01 37*. *Further limitations: only materials where their incineration is exempt from the requirements of Chapter IV of the Industrial Emissions Directive 2010/75/EU and is in accordance with permit condition 2.3.4*.

Schedule 3 (a) – Emissions and monitoring effective until 31 October 2024

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 2]	Biomass co-incinerator	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	250 mg/m^3	Daily average	Continuous	MCERTS (1)
		Oxides of nitrogen (NO and NO_2 expressed as NO_2)	250 mg/m^3	95% of validated hourly averages within a calendar year do not exceed 200% of daily ELV	Continuous	MCERTS (1)
		Oxides of nitrogen (NO and NO_2 expressed as NO_2)	300 mg/m^3	Periodic sample over a minimum 1 hour period (2)	Bi-annually	EN 14792
		Particulate matter	10 mg/m^3	Daily average	Continuous	MCERTS (1)
		Particulate matter	10 mg/m^3	95% of validated hourly averages within a calendar year do not exceed 200% of daily ELV	Continuous	MCERTS (1)
		Particulate matter	15 mg/m^3	Periodic sample over a minimum 1 hour period (2)	Bi-annually	EN 13284-1 & and MID for EN 13284-1
		Carbon monoxide (CO)	250 mg/m^3	Daily average	Continuous	MCERTS (1)
		Carbon monoxide (CO)	250 mg/m^3	95% of validated hourly averages within a calendar year do not exceed 200% of daily ELV	Continuous	MCERTS (1)
		Carbon monoxide (CO)	250 mg/m^3	Periodic sample over a minimum 1 hour period (2)	Bi-annually	EN 15058
		Ammonia (NH_3)	10 mg/m^3	Periodic sample over a minimum 1 hour period (2)	Bi-annually	EN ISO 21877
		Nitrous oxide (N_2O)	No limit set	Periodic sample over a minimum 1 hour period (2)	Bi-annually	EN ISO 21258
		Sulphur dioxide (SO_2)	No limit set	Periodic sample over a minimum 4 hour period (2)	Bi-annually	EN 14791
		Hydrogen Chloride (HCl)	No limit set	Periodic sample over a minimum 1 hour period (2)	Bi-annually	EN 1911

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Cadmium & thallium and their compounds (total)	No limit set	Periodic sample over a minimum 30 minute, maximum 8 hour period (2)	Bi-annually	EN 14385 and MID for EN 14385
		Mercury and its compounds	No limit set	Periodic sample over a minimum 30 minute, maximum 8 hour period (2)	Bi-annually	EN 13211
		Metals (antimony [Sb], arsenic [As], lead [Pb], chromium [Cr], cobalt [Co], copper [Cu], manganese [Mn], nickel [Ni] and vanadium [V] and their compounds (total))	No limit set	Periodic sample over a minimum 30 minute, maximum 8 hour period (2)	Bi-annually	EN 14385 and MID for EN 14385
		Dioxins / furans (I-TEQ)	No limit set	Periodic sample over a minimum 6 hour, maximum 8 hour period (2)	Bi-annually	EN 1948: Parts 1, 2 and 3 & MID for EN 1948
A2 [at the northwest corner of the wood chip storage building]	Exhaust from diesel engine of log chipper	No parameters set	No limit set	-	-	-
A3	Diesel fire pump	No parameters set	No limit set	-	-	-

Notes:

(1) Continuous monitoring equipment shall be calibrated either to EN 14181 or as follows:

- Zero and Span checks shall be carried out on the CEMs at the manufacturers recommended frequency, but at intervals no longer than seven days.
- The results of these checks shall be recorded and the trends produced shall be used to monitor instrument drift.
- The results of periodic monitoring following the reference methods specified in Table S3.1 shall be compared with CEM data for the same period to check CEM calibration.
- Calibration of the CEMs shall be carried out if there is significant discrepancy between the periodic monitoring and the CEMs data.

(2) Periodic monitoring shall be performed when the boiler is operating at a minimum MCR of 60% and when a typical combination of biomass fuel (virgin and non-virgin)is being combusted in the unit.

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 on site plan in schedule 7. Emission to ditch draining to adjacent marshland area.	Collected surface water drainage discharged from site collection tank	Oil or grease	No limit set. Uncontaminated surface water free of visible oil or grease	Periodic visual inspection	Weekly	Permanent sampling access not required

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method
S1 on site plan in schedule 7. Emission to Welsh Water sewer discharging to Port Talbot Waste Water Treatment Works	Site effluent treatment plant	No parameters set	No limit set	-	-	Note that trade effluent consent separately specifies any monitoring required by sewerage undertaker

Table S3.4 Process monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Combustion Chamber of combustor unit.	Combustion chamber temperature (°C)	Continuous	Traceable to national standards	Or as otherwise agreed in writing with Natural Resources Wales

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
A1 [Point A1 on site plan in schedule 7)	Exhaust gas temperature	Continuous	Traceable to national standards	Or as otherwise agreed in writing with Natural Resources Wales
	Exhaust gas water content (1)	Continuous	EN 15267-3	Or as otherwise agreed in writing with Natural Resources Wales
	Exhaust gas oxygen content	Continuous	EN 15267-3	Or as otherwise agreed in writing with Natural Resources Wales
	Exhaust gas flow rate	Continuous	EN 15267-3	Or as otherwise agreed in writing with Natural Resources Wales

1. Note 1: By calculation from wet and dry exhaust gas oxygen monitoring values.

Table S3.5 Residue Quality				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Bottom Ash	Total Organic Carbon (TOC)	Quarterly	BS EN 14899 and either BS EN 13137 or BS EN 15936	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'. Or as Otherwise agreed in writing with Natural Resources Wales
	Metals (1)	Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	Or as otherwise agreed in writing with Natural Resources Wales
	Dioxins, furans and dioxin-like PCBs	Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	Or as otherwise agreed in writing with Natural Resources Wales

Table S3.5 Residue Quality				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Fly ash	Metals (1)	Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	Or as otherwise agreed in writing with Natural Resources Wales
	Dioxins, furans and dioxin-like PCBs	Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	Or as otherwise agreed in writing with Natural Resources Wales

1. Note 1: The following metals (including their compounds) shall be monitored: Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, and Zinc.

Schedule 3 (b) – Emissions and monitoring effective from 1 November 2024

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	Biomass co-incinerator	Particulate matter	20 mg/Nm^3	1-hr average	Continuous	EN 14181 and EN 17255 and EN13284
		Particulate matter	10 mg/Nm^3	daily average	Continuous	EN 14181 and EN 17255 and EN13284
		Oxides of nitrogen (NO and NO_2 expressed as NO_2)	500 mg/Nm^3	1-hr average	Continuous	EN 14181 and EN 17255
		Oxides of nitrogen (NO and NO_2 expressed as NO_2)	250 mg/Nm^3	daily average	Continuous	EN 14181 and EN 17255
		Carbon monoxide	500 mg/Nm^3	1-hr average	Continuous	EN 14181 and EN 17255
		Carbon monoxide	225 mg/Nm^3	daily average	Continuous	EN 14181 and EN 17255
		Total Organic Carbon (TOC)	30 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	EN 12619
		Hydrogen chloride	150 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	EN 1911
		Hydrogen fluoride	No limit set	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	CEN TS 17340
		Sulphur dioxide	No limit set	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	EN 14791
		Ammonia (NH_3)	10 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	EN ISO 21877

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Nitrous oxide (N_2O)	No limit set	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	EN ISO 21258
		Cadmium & thallium and their compounds (total)	0.03 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	EN 14385
		Metals (antimony [Sb], arsenic [As], lead [Pb], chromium [Cr], cobalt [Co], copper [Cu], manganese [Mn], nickel [Ni] and vanadium [V] and their compounds (total))	0.45 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	EN 14385
		Mercury and its compounds	0.03 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each (1)	Bi-annually	EN 13211
		Dioxins / furans (I-TEQ)	0.09 ng/Nm^3	Periodic over minimum 6 hours, maximum 8 hour period	Bi-annually	Relevant parts of EN 1948
		Exhaust gas temperature	No limit set	1-hr average and daily average	Continuous	Traceable to national standards
		Exhaust gas pressure	No limit set	1-hr average and daily average	Continuous	Traceable to national standards
		Exhaust gas flow	No limit set	1-hr average and daily average	Continuous	EN 16911-2
		Exhaust gas oxygen content	No limit set	1-hr average and daily average	Continuous	EN 14181 and EN 17255
		Exhaust gas water vapour content	No limit set	1-hr average and daily average	Continuous	EN 14181 and EN 17255
A2 [at the northwest	Exhaust from diesel engine of log chipper	No parameters set	No limit set	-	-	-

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
corner of the wood chip storage building]						
A3	Diesel fire pump	No parameters set	No limit set	-	-	-

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 on site plan in schedule 7. Emission to ditch draining to adjacent marshland area.	Collected surface water drainage discharged from site collection tank	Oil or grease	No limit set. Uncontaminated surface water free of visible oil or grease	Periodic visual inspection	Weekly	Permanent sampling access not required

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
S1 on site plan in schedule 7. Emission to Welsh Water sewer discharging to Port Talbot Waste Water Treatment Works	Site effluent treatment plant	No parameters set	No limit set	-	-	Note that trade effluent consent separately specifies any monitoring required by sewerage undertaker

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Combustion Chamber of combustor unit.	Combustion chamber temperature (°C)	Continuous	Traceable to national standards	As agreed in writing with Natural Resources Wales.
Co-incineration plant	Gross electrical efficiency[1] or Gross energy efficiency[2]	within 6 months of any modification that significantly affects energy efficiency	Performance test at full load	Recovery with a high level of energy efficiency as required by permit condition 1.2.1(a) and as may be agreed in writing with NRW. In any case of no lower than: • 20 % for Gross electrical efficiency[1] • 72 % for Gross energy efficiency[2]

Note 1: Gross electrical efficiency only applies to plants or parts of plants producing electricity using a condensing turbine

Note 2: Gross energy efficiency only applies to plants or parts of plants producing only heat or producing electricity using a back-pressure turbine and heat with the steam leaving the turbine

Table S3.5 Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit (including unit)**	**Monitoring frequency**	**Monitoring standard or method***	**Other specification**
Bottom Ash	TOC	3%	Quarterly	BS EN 14899 and either BS EN 13137 or BS EN 15936	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'.

Table S3.5 Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit (including unit)**	**Monitoring frequency**	**Monitoring standard or method***	**Other specification**
Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds	No limit set	Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
	Dioxins/furans and dioxin-like PCBs				
	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route		
Fly ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds	No limit set	Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
	Dioxins/furans and dioxin-like PCBs				
	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route		

*Or other equivalent standard as agreed in writing with Natural Resources Wales

Schedule 4 (a) – Reporting until 31 October 2024

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Continuously monitored parameters as required by condition 3.6.1.	A1	Quarterly	1 January, 1 April, 1 July & 1 October
Emissions to air periodically monitored parameters (extractive) as required by condition 3.6.1.	A1	Annually	1 January
TOC as required by condition 3.6.1.	Bottom Ash	Annually	1 January
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, Dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.6.1	Bottom Ash	Annually	1 January
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, Dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.6.1	Fly Ash	Annually	1 January

Table S4.2: Annual production/treatment

Parameter	Units
Total virgin biomass combusted	tonnes
Total waste biomass combusted	tonnes
Electrical energy exported to national grid	KWh / MWh
Electrical energy used on installation	KWh / MWh

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Supplementary fuel oil consumption	Annually	Litres
Water consumption	Annually	m^3
Bottom ash residue	Annually	Tonne
Fly ash residues	Annually	Tonne
Average calorific value of biomass fuel consumed (wet basis)	Annually	MJ/Kg
Number of start up and shut down periods	Annually	Number of events
Bag filter bypass events and accumulated time	Annually	Number of events and total accumulated time (minutes)
Number of loads of incoming biomass that are rejected as being outside of agreed specification	Annually	Number of individual delivery loads
Urea consumption	Annually	Kg

Table S4.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	Form Air 1 (Continuous monitoring) or other form as agreed in writing by Natural Resources Wales	01/05/09
Air	Form Air 2 (Periodic monitoring) or other form as agreed in writing by Natural Resources Wales	01/05/09
Water usage	Form Water Usage 1 or other form as agreed in writing by Natural Resources Wales	01/05/09
Energy usage	Form Energy 1 or other form as agreed in writing by Natural Resources Wales	01/05/09
Waste	Form Waste 1 or other form as agreed in writing by Natural Resources Wales	01/05/09
Other performance indicators	Form Performance 1 or other form as agreed in writing by Natural Resources Wales	01/05/09

Schedule 4 (b) - Reporting from 1 November 2024

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.6.1.	A1	Quarterly	1 January, 1 April, 1 July & 1 October
TOC as required by condition 3.6.1.	Bottom ash	Quarterly	1 January, 1 April, 1 July & 1 October
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds. Dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.6.1	Bottom ash	Quarterly	1 January, 1 April, 1 July & 1 October
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.6.1	Bottom ash	Before use of a new disposal or recycling route	-
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compound. Dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.6.1	Fly ash	Quarterly	1 January, 1 April, 1 July & 1 October
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.6.1	Fly ash	Before use of a new disposal or recycling route	-

Table S4.2: Annual production/treatment	
Parameter	**Units**
Total virgin biomass combusted	tonnes
Total waste biomass combusted	tonnes
Electrical energy produced	KWh / MWh
Thermal energy exported for use	KWh / MWh
Electrical energy exported	KWh / MWh
Electrical energy used on installation	KWh / MWh
Process thermal energy utilised by the installation	KWh / MWh

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Annual report as required by condition 4.2.2	Annually	-
Electrical energy exported, imported and used at the installation	Annually	KWh/tonne of waste co-incinerated
Supplementary fuel oil consumption	Annually	Kg/tonne of waste co-incinerated
Bottom ash residue	Annually	Tonnes and tonnes/tonne of waste co-incinerated
Fly ash residues	Annually	Tonnes and tonnes/tonne of waste co-incinerated
Average calorific value of biomass fuel consumed (wet basis)	Annually	MJ/Kg
Urea consumption	Annually	Kg / tonne of waste co-incinerated
Water Consumption	Annually	m^3 / tonne of waste co-incinerated
Number of start up and shut down periods and accumulated time.	Annually	No. of occasions and cumulative hours for calendar year
Bag filter bypass events and accumulated time	Annually	No. of occasions and cumulative hours for calendar year
Number of loads of incoming biomass that are rejected as being outside of agreed specification.	Annually	Number of individual delivery loads

Table S4.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Annual report required by condition 4.2.2	No specific format specified	N/A
Air	For CEMS monitoring data - In the format indicated in forms air 1-8 as a direct output from Data Acquisition and Handling system. For other monitoring results – Form air 9. Or other forms as agreed in writing by Natural Resources Wales	31/10/23
Residue Quality	Form residue 1 and 2 or other form as agreed in writing by Natural Resources Wales	31/10/23
Water usage	Form water usage 1 or other form as agreed in writing by Natural Resources Wales	31/10/23
Energy usage	Form energy 1 or other form as agreed in writing by Natural Resources Wales	31/10/23
Other performance indicators	Form performance 1 or other form as agreed in writing by Natural Resources Wales	31/10/23
Waste Subject to Conditions 4.2.5	Waste tonnage return form from Natural Resources Wales or other form as agreed in writing by Natural Resources Wales	N/A

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	**ZP3939GL**
Name of operator	
Location of Facility	**Western Wood Energy Plant – Margam, Longlands Lane, Margam, Port Talbot, SA13 2NR**
Time and date of the detection	

(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a permit condition	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) In the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment:	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

"accident" means an accident that may result in pollution.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"authorised officer" means any person authorised by Natural Resources Wales under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"bi-annually" means twice per year with at least five months between tests.

"bottom ash" means ash falling through the grate and/or transported by the grate.

"*CEM*" means Continuous emission monitor.

"CEN" means Commité Européen de Normalisation.

"DAHS" means data handling and acquisition system and includes software and hardware.

"Daily average emissions limit value" means the average of at least 21 valid hourly averages.

"*dioxin and [furan(s)]*" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

*"disposal" or "D" m*eans any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"emissions to land" includes emissions to groundwater.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit**.**

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"Fly ash" means ash entrained with the flue gases and subsequently collected and removed from the co-incineration process the flue gas treatment plant comprising of cyclone and fabric filter.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"hazardous property" has the meaning in Annex lll of the Waste Framework Directive.

"Industrial Emissions Directive, or IED" means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

"ISO" means International Standards Organisation.

"LCP BAT conclusions" *means* Commission Implementing Decision (EU) 2021/2326 of 30 December 2021 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for Large Combustion Plants.

'*List of Wastes'* means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

*"*Medium Combustion Plant*" or "*MCP*" means a combustion plant with a rated thermal input equal to or greater than 1 MW but less than 50 MW.*

"Medium Combustion Plant Directive" or "*MCPD*" means Directive 2015/2193/EU of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from medium combustion plants.

"normal operation" consists of any operation of the plant other than that as defined as "OTNOC" unless otherwise agreed in writing with Natural Resources Wales.

"Operating hours" means the time, expressed in hours, during which a combustion plant is operating and discharging emissions into the air, excluding start-up and shut-down period.

"OTNOC" means other than normal operating conditions. OTNOC consists of start-up and shut-down only, unless additional definitions are agreed in writing with Natural Resources Wales.

"*PCB*" means Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in the table below.

"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"*shut down*" is any period where the plant is being returned to a non-operational state and there is no waste being burned, load less than 60% of maximum continuous rating as described in the application or agreed in writing with Natural Resources Wales.

"*start up*" is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste fuel has been fed to the plant in sufficient quantity to cover the grate and to initiate steady-state conditions and minimum load of at least 60% of maximum continuous rating as described in the application or agreed in writing with Natural Resources Wales.

"TOC" means Total Organic Carbon. In respect of releases to air, this means the gaseous and vaporous organic substances, expressed as TOC. In respect of Bottom Ash, this means the total carbon content of all organic species present in the ash (excluding carbon in elemental form).

"Virgin wood biomass" means:

(a) Whole trees and the woody part of trees including branches and bark derived from forestry works, woodland management, tree surgery and other similar operations (it does not include clippings or trimmings that consist of primarily foliage).

(b) Virgin wood processing (e.g. wood offcuts, shavings or sawdust from sawmills) or timber product manufacture dealing in virgin timber.

"Waste code" means the six digit code referable to a type of waste in accordance with the list of wastes established by Commission Decision 2000/532/EC as amended from time to time (the 'List of Wastes Decision') and in relation to hazardous waste, includes the asterisk.

"Waste Framework Directive" or *"WFD"* means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

"WI BAT conclusions" means Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for Waste Incineration.

"year" means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

(a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3 % dry for liquid and gaseous fuels, 6% dry for solid fuels;

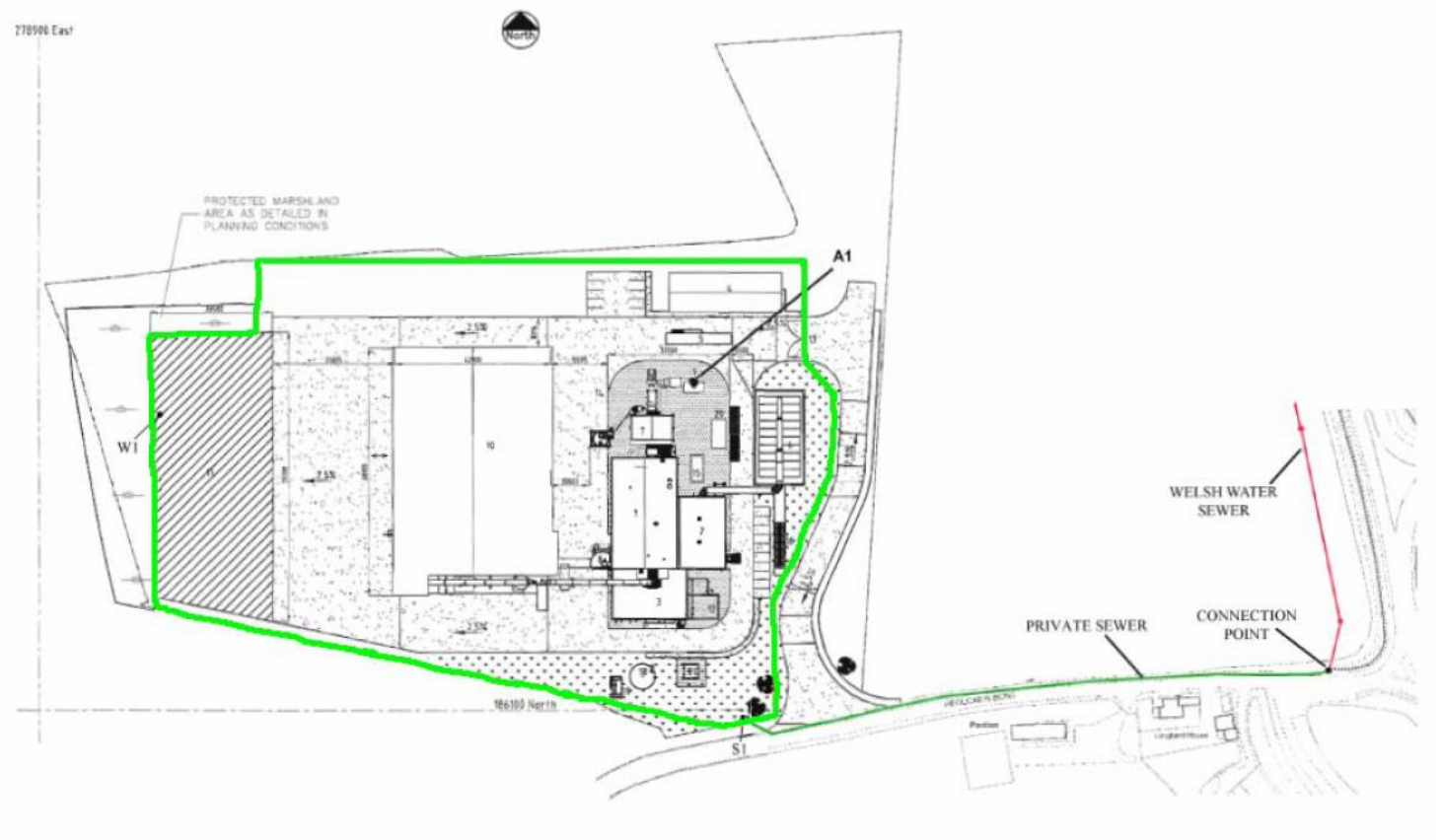
(b) in relation to gases from co-incineration plants the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 6% dry; and/or

(c) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing. When reporting on measurements of dioxins/furans and dioxin-like PCBs, the toxic equivalence concentrations should be reported as a range based on: all congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum. However the minimum value should be used when assessing compliance with the emission limit value in table S3.1.

TEF schemes for dioxins and furans				
Congener	**I-TEF**	**WHO-TEF**		
	1990	**2005**	**1997/8**	
		Humans / Mammals	Fish	Birds
Dioxins				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD	0.1	0.1	0.01	0.01
1,2,3,7,8,9-HxCDD	0.1	0.1	0.01	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.001	<0.001
OCDD	0.001	0.0003	-	-
Furans				
2,3,7,8-TCDF	0.1	0.1	0.05	1
1,2,3,7,8-PeCDF	0.05	0.03	0.05	0.1
2,3,4,7,8-PeCDF	0.5	0.3	0.5	1
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,7,8,9-HxCDF	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8_HpCDF	0.01	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.01
OCDF	0.001	0.0003	0.0001	0.0001

Schedule 7 - Site plan



Schedule 8 – Annex 1 of MCPD

1. Rated thermal input (MW) of the medium combustion plant.	47.5MW_{th} co-incinerator
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Other medium combustion plant
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Solid Biomass – 100% Supplementary light fuel oil (gas oil) – 0% in normal operation.
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	Prior to 20th December 2018 (EPR installation from 2009)
5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code.	D35 - Electricity, gas, steam and air conditioning supply D35.1 - Electric power generation, transmission and distribution **D35.1.1 - Production of electricity**
6. Expected number of annual operating hours of the medium combustion plant and average load in use.	8750
7. Where the option of exemption under Article 6(3) or Article 6(8) is used, a declaration signed by the operator that the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs.	N/A
8. Name and registered office of the operator and, in the case of stationary medium combustion plants, the address where the plant is located.	Western Bio-Energy Limited *Registered office and address of plant:* Western Wood Energy Plant – Margam Longlands Lane Margam Port Talbot SA13 2NR

END OF PERMIT