Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Kronospan Limited

Chirk Particleboard Factory
Holyhead Road
Chirk
Wrexham
LL14 5NT

Permit number

EPR/BW9999IG

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Introductory note

This introductory note does not form a part of the permit

The main features of the facility are as follows.

Kronospan Limited operate a wood-based panels manufacturing facility at their site in Chirk. The main products that are manufactured by the Operator at the Chirk Factory are particleboard, medium density fibreboard (MDF) and laminate flooring.

The Log Yard and material processing

The Log yard acts as an incoming goods store and primary processing area, receiving approximately 1,600,000 tonnes of wood per year. Incoming goods include several grades of timber, including roundwood, slabwood, peeled chips, sawdust and recycled fibre (RCF), which are all delivered by HGV. In addition, roundwood is delivered by rail. The Log yard has dedicated storage areas for the different timber products. All incoming timber is stored on hardstanding, except for the roundwood logs, which are either stored on hardstanding or areas of unmade ground.

Some roundwood is used as raw material for the Sawmill, producing rough sawn timber. The Sawmill also produces sawdust, peeled chips and bark as co-products. The sawdust and peeled chips are used in the particleboard and MDF processes. The RCF is transferred via an enclosed conveyor to the Grading Plant. Sawdust and chips are transferred directly from their designated reception building to storage silos (one 1,500m^3 for sawdust and two 10,000m^3 silos for chips).

Roundwood is also transferred from the Log yard for processing within the chipping and flaking facility, to produce chips, that are used for standard grades of MDF and particleboard. The board-breaker consumes reject MDF and particleboard generated on-site as part of the production process. The reject streams are kept separate: MDF is processed and used as a fuel for the Biomass Boilers and particleboard is recycled back into the particleboard process.

The Pre-Screening and Pre-Crushing plant for RCF includes a magnet to remove ferrous metals, two disc-screens and a re-chipper. The ferrous metals are transferred to a dedicated waste storage compound prior to transfer off-site to a suitably licensed waste management facility. The Grading plant separates the wood into several different sized fractions for particleboard pre-production and K8 Biomass Boiler fuel. Large material is reprocessed to reduce the particle size and the Fine material is transferred by blow line to a 132m^3 enclosed silo situated beside the main storage silos.

Particleboard Pre-production

Particleboard is manufactured by the application of pressure and heat on particles of wood (wood chips, shavings, sawdust and similar) and / or other lignocellulosic material in particle form (flax shives, hemp shives, bagasse fragments and similar) with the addition of an adhesive.

The CHIP Preparation building receives graded material from the storage silos on the Log yard which is then processed to remove any remaining ferrous and non-ferrous non-wood components. The process involves woodchips and graded recycled fibre being reduced in size by processing ring flakers or two hammer mills. The cleaned material is then transferred to one of four silos.

Air from the CHIP preparation building processes is extracted via an air extraction system, which filters the air in a dust filtration unit, before the clean air is discharged to atmosphere.

Particleboard manufacture involves the drying of the wood fibre chips prior to resination. Material from the CHIP Preparation building is passed to a new direct heated drum dryer, known as Dryer No. 4, which is fuelled by natural gas and wood dust from the process. The flue gases from the dryer are discharged via a new Particleboard Wet Electrostatic Precipitator, known as WESP 21, located adjacent to the CHIP Preparation building. WESP 21 minimises the emission of fine particulate matter and reduces emissions of volatile organic compounds prior to release to air.

The dried wood chips are then transferred from the dryer into a further storage silo, to one of 6 self-cleaning oscillating screens, before the material is fed into a wind sifter which achieves different grades of material by varying air velocity. (This is fines and coarse material for the surface and core of the particle board respectively). A turbulator conveyor conveys material from the wind sifter to the dry chip silos.

Particleboard Production

The dried wood chips are transferred via an enclosed conveyor from the dry chip silos to the blender. Resin and other chemicals are then added to the dry chips in the blender prior to pressing.

The resinated wood chips go to the core and surface forming stations and through the pre-press before entering the main particleboard Contiroll Press. Particleboard is produced within the press by applying high pressure and high temperature for sufficient time to compress the mat to the required thickness and to densify and fixate the particles by resin curing.

The Particleboard Press is fitted with an automatic fire suppression system.

Process emissions to air from the Contiroll press are extracted using local exhaust ventilation, prior to treatment in a hydrocyclone and venturi scrubber arrangement and released to atmosphere from WESP 32.

The manufactured board is then further processed by being transferred to turners or coolers to cool the board prior to transfer to the Finishing Line.

Medium Density Fibreboard (MDF)

MDF is dry formed panel product manufactured from lignocellulosic fibres combined with a synthetic resin or other suitable binder. The first stage in MDF production is debarking. A debarker / disc chipper, with an operating capacity of approximately 100 tonnes per hour removes the outer bark from round wood to produce peeled chips for the MDF process.

There are 2 MDF manufacturing lines on site:

MDF 1

The manufacture of MDF differs from that of particleboard in that the wood fibres are resinated prior to drying. After leaving the wash/steam/refining system, the fine wood fibre is immediately treated with a wax/resin formulation and is passed to the Flash dryer, which utilises heat from a number of sources (K8 Biomass Boiler, Gas Engines, or Gas Turbine 1).

The Flash dryer is fitted with two high efficiency cyclones designed to separate dry resinated fibre from the dryer air stream. The inlets to the cyclones are fitted with water sprays that are automatically activated by spark detectors. These cyclones terminate 50m above ground level and each has an effective diameter of 2.2m. At full output the cyclones discharge an air volume of 520,000m^3/hr @ circa 60ºC. Under normal operations the cleaned gases are used in the board manufacturing process and vented from the MDF1 cyclones.

A steam supply is common to both MDF processes and is a combination of steam from the K8 Biomass Boiler and the Formalin Plant. The Formalin Plant currently can produce up to 10 tonnes/hr of steam and typically supplies up to 5 tonnes/hr of steam at 16 bar.

Separated resinated fibres pass from the dryer cyclones directly onto the mat forming station and onto the pre-press and a 28m long Contiroll press. Process emissions from the hot press are collected and directed to a venturi scrubber that handles 79,800 Am^3/hr @ 32ºC, prior to release to atmosphere via WESP 32.

The raw board is then transferred from the board presses via automated handling and conveying systems into the Intermediate Board Store. After storage here, the board is passed onto the common MDF Finishing Line.

MDF 2

A purpose designed chip wash with bow screen separation system is installed. Pre-steam, cooker, plug screw and refiner equipment replicates the MDF 1 equipment. The fibre, similarly to MDF 1 is resinated immediately on exiting the refiner and thereafter passes directly to the 190m long and 2.75m diameter dryer pipe. Whilst the dryer is fitted with gas burners, the principal source of heat used in the dryer is from the K7 and / or K8 Biomass boilers, or the gas engines, with Gas Turbine 2 being used for standby heat if K7 or K8 are offline. Emissions from the dryer exit via the MDF2 cyclones.

The air and dried resin treated fibre are separated by four (quad set) high efficiency cyclones. From here, the separated fibres pass directly onto the mat forming station, through a metal detection zone and onto the pre-press and main Contiroll Press. Process emissions from the hot press are collected and directed to a venturi scrubber, prior to release to atmosphere from WESP 32.

Both MDF1 and MDF2 Contiroll presses are fitted with water fog systems for fire suppression. Board exiting the press passes through width and length saws onto their individual star turners for cooling, prior to moving onto the stacking equipment that handles boards in a range of lengths from 9m to 12m and stacked to a height of 2.8m. This is then stored in the Intermediate Board Store before the products pass into the common MDF finishing line.

The MDF waste water treatment system has a daily capacity of 30T/hr. This plant allows the recovery of water added into the chip-wash and refiner processes as well as the timber's naturally-occurring water. The treatment process produces high-quality water that is then used as boiler feed water. Solids derived from the process pass to the Biomass boiler as fuel.

Particleboard and MDF Finishing Lines

The finishing lines take the pressed board after cooling and cut and sand the product. The sanded products are then stacked, banded and transferred to the warehouse for storage. From the warehouse the board is either sold as Rawboard or is further processed on the site within the Melamine Facing department. It can then be transferred to the Kronoplus department for worktop or flooring manufacture or sold direct to customer as melalmine-faced product.

There are two finishing lines, one each for particleboard and MDF. All dusts generated by sanding operations on the finishing lines are filtered out by bag filtration systems. All filtered dusts for these units are conveyed to storage silos and used as a fuel.

Paper Impregnation

Raw paper is purchased externally with multiple paper impregnation lines operated for production of impregnated paper. These lines use melamine and urea resin, provided from the resin room. The papers are fed into a resin bath and pass through a dryer and over cooling rollers; they are then cut and stacked. All emissions are treated via WESP 32 prior to discharge to atmosphere.

Melamine Facing

Coreboard, which is either particleboard or MDF, has impregnated paper placed on one or both sides before being pressed in a short cycle hot press, (a few seconds). The VITS Paper Impregnation process, supplies decorative impregnated papers. Multiple presses are used to apply the melamine facing.

Curing is achieved in the laminating cyclic hot press, when the resin forms hard, permanent bonds between the paper and the panel. No adhesive is used during the bonding process; heat from the press activates sufficient resin in the facing material to effect bonding to the board. The small volumes of process emissions that are liberated are extracted to bag filtration units.

Laminate Flooring and Worktop Production

Kronoplus processes pre-laminated board from the Melamine Facing process to produce laminate flooring and raw coreboard to manufacture worktops in the Kronoplus building. This process involves sawing and profiling of the pre-laminated board to make flooring. To manufacture Worktops, coreboard also requires additional laminating, followed by gluing of the high-pressure laminate to the finished MDF or Particleboard. Following processing, the flooring and work tops are packed and transferred to the warehouse for storage, prior to delivery to customers.

All off-cuts and dust are collected by a dedicated closed circuit extraction system, which collects the solid debris in a purpose designed filtration box for each line. The off-cuts and dust are emptied via a closed circuit blower device into closed containers and / or blow-line pipework, before being used as fuel for the Biomass Boiler or transferred to a trailer for off-site disposal.

The Kronoplus facility has a gas fired thermal oil heater (K1 boiler), which provides process heat and space heating.

The Sawmill

Roundwood is converted to sawn timber, with residues of sawdust and woodchips stored in a silo prior to being used in the MDF and Particleboard process.

Formaldehyde and Resin manufacture

The manufacture of formaldehyde is carried out by the oxidation of methanol in air using an iron / molybdenum oxide catalyst. There are two plants in operation of a similar design. The formaldehyde gas is absorbed into water via an absorption column, to produce a 55% solution of formaldehyde. A combined total of ~50,000 tonnes of methanol is consumed annually, producing ~100,000 tonnes of (50 – 55%) formaldehyde solution per year, for use on site in the resins plant. Emissions to air from formaldehyde manufacturing are released via a catalytic oxidiser (emissions control system) and dedicated stack (A1). Releases to water from the plant are via the formaldehyde plant effluent storage tank, containing nominally uncontaminated surface water. This tank is sampled and tested prior to discharge to the Surface Water Lagoons. Reportable limits have been set on this discharge to the Lagoons.

The Resin Plant manufactures a variety of formaldehyde-based resins by means of a semi-batch process. The resin is used on site in the production of various grades of boards. The resins are all formaldehyde-urea, formaldehyde–melamine-urea or formaldehyde-melamine polymers. The two 46m^3 and two 15 m^3 reactors are abated along with the VITS Paper Impregnation Plant via WESP 32.

Combustion Plant

The nature of the manufacturing processes is such that it is energy intensive, involving the drying of the wood and residues in large volumes. This, coupled with the historic fragility of the local electricity grid has led to the Operator aiming for self-sufficiency in terms of its energy needs. At the same time, the objective is to be energy efficient by utilising what would otherwise be waste heat within the manufacturing processes, which require heat for direct drying.

Gas Fired Plant

Kronospan Limited operates combustion plant comprising three thermal oil heaters (K1, K5 and K6), three gas engines, (of five permitted) and two gas turbines, all of which are fired on natural gas. The combustion plant is used for production of electricity, heat and steam for use within the board manufacturing processes. The total rated thermal input of this combustion plant is approximately 180MW. In addition, the site has a total of 92MW of gas / wood dust fired combustion plant in the form of the process dryers for particleboard and MDF.

The main emissions to air associated with the gas fired combustion plant are oxides of nitrogen (NOx), and carbon monoxide (CO). During normal operation these emissions are released via the MDF Cyclones (MDF Dryer 1 and MDF Dryer 2). If the MDF dryers are not operational, emissions from the combustion plant will be released from their own individual dedicated stacks. However, a reduction in heat and electricity demand from the manufacturing facility will ultimately result in some or all the combustion processes being shut down.

The K1, K5 and K6 thermal oil heaters and the gas turbines do not consume water. The boilers on the gas engines consume approximately 88,000m^3 of water per annum which is abstracted from the Shropshire Union Canal (Llangollen branch). All emissions of process waters (e.g. boiler blowdown) are released to sewer.

Biomass Fired Plant

The K7 Biomass Boiler is a direct heating unit with a design thermal fuel input capacity of 38MW. The boiler is primarily used to produce hot oil for all the existing board manufacturing presses (MDF1, MDF2 and Particleboard) and the Melamine-Facing and Paper Impregnation departments through a common manifold. The K7 boiler can also be switched over to supply steam to the MDF processes. The K7 boiler is only used to generate heat – it heats a thermal oil system which supplies heat to the presses and steam for the refiner process. For current operation K7 steam generation is kept on standby and produces up to 20T/hr of steam to the MDF processes.

The biomass fuel combusted within the K7 Biomass Boiler grate is derived from a combination of sources – wood derived fuel, wood dust and natural gas.

The emissions pass through a dry electrostatic filter to remove dust and the cleaned flue gas is then passed to the MDF2 dryer systems. Emissions exit via the MDF2 Cyclones under normal operation or the K7 Biomass Boiler dedicated stack.

The K8 Biomass Boiler is a Chapter IV (IED) compliant plant with a design thermal fuel input capacity of 32 MW. K8 is fuelled by up to 62,000 tonnes of biomass per year, depending on the fuel's calorific value. The biomass fuel is comprised of process wood wastes sourced both on and off site. A natural gas fired auxiliary burner is employed to support start-up, shut-down and for supplementary firing for maintaining Chapter IV (IED) temperature requirements.

The biomass is combusted on a conventional moving grate. The emissions from the boiler pass through the flue gas treatment (FGT) plant comprising Selective Non-Catalytic Reduction (SNCR), dry acid gas abatement system, activated carbon dosing and bag filters.

Under normal operations, the cleaned flue gases are used to provide process heat in the MDF drying process via thermal oil heat exchangers and vented from either the MDF1 or MDF2 cyclones. Where flue gases are not required, such as during a maintenance shutdown period for the MDF dryers, the combustion gases are released to atmosphere via a dedicated 70m high K8 Biomass Boiler stack.

Site Drainage

Surface water run-off and effluent is collected in the site drainage systems. The surface water drainage systems discharge into 3 surface water settlement lagoons, which receive surface run-off water from the whole of the installation. Lagoons 1 and 2 are located side by side, each 2022m^3 in capacity. Surface Water Lagoon 3 takes surface water from the Log Yard and rail off-loading facility. Under abnormal conditions, during periods of heavy rainfall, a penstock valve on Lagoon 3's outfall allows the discharge of waters to the inlet of Lagoons 1 & 2.

The discharge from the lagoons at emission point W1 is a batch discharge via valve Penstock A to the Afon Bradley. This only takes place when the water to be discharged is within the permitted limits specified in the permit. The Afon Bradley is a minor tributary of the River Dee, 2km away.

12 floating aerators are installed in Lagoons 1 & 2. Lagoon 3 contains a series of reed bed rafts. The aerators and reed bed rafts help to improve water quality within the 3 surface water lagoons and discharged waters with the aim of protecting the local water course and River Dee.

Process effluents from the manufacturing process are collected in the site foul water drainage systems prior to discharge to sewer from emission points E1 and S1 – S4.

There are no Natura 2000 sites that are adversely affected by the emissions to air or water from this site. However, the site is in proximity to residential housing, which gives rise to receptors that are sensitive to emissions to air, noise and odour from the site processes.

The Operator has an accredited Environmental Management System in place.

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 BW9999IG (EPR/BW9999IG/A001)	Received 28/11/03	Duly made, Supersedes withdrawn application BR7194
Additional information via Schedule 4	Request dated 23/02/04	Response in part dated 19/04/04
Additional information via Schedule 4		Noise survey 21/05/04
Re-submission of Schedule 4 response	Request dated 26/05/04	Information received on 30/06/04
Permit determined BW9999IG (EPR/BW9999IG/A001)	17/09/04	
Variation notice KP3735SC. Issued (EPR/BW9999IG/V002)	05/04/06	Re-issue of conditions to account for administrative errors and to change emission limits values from the original permit
Variation application EPR/BW9999IG/V003	Duly Made 02/12/08	

Status log of the permit		
Description	**Date**	**Comments**
Variation application EPR/BW9999IG/V003 issued	28/04/09	
Variation application EPR/BW9999IG/V004	Duly Made 18/05/10	
Variation application EPR/BW9999IG/V004 issued	22/08/10	
Variation application EPR/BW9999IG/V005	Duly Made 28/10/10	
Variation application EPR/BW9999IG/V005 issued	08/12/10	
Variation application EPR/BW9999IG/V006	Duly Made 05/01/16	
Variation application EPR/BW9999IG/V006 issued	01/02/16	
Variation application EPR/BW9999IG/V007	Duly Made 13/01/17	Substantial variation to include combustion plant
Additional information requested	08/03/17	Schedule 5 Notice
Additional information received	28/03/17	Updated site plan, clarification regarding release of trade effluent to sewer from combustion plant, gas engine emissions monitoring point assessment and additional information on the air quality assessment.
Additional information received	13/04/17	Information describing control of NO_x and CO emissions from gas engines
Additional information requested	19/05/17	Schedule 5 Notice
Additional information received	26/05/17 & 09/06/17	Updated site plan, clarification regarding release of trade effluent to sewer from combustion plant, gas engine tuning settings, updating modelling for K7 at 6% O_2 reference oxygen content, & predicted impacts associated with half-hourly and daily NOx ELVs, when all dryers are offline. Also, predicted NOx PCs and PECs at ecological receptors under “Limits Case”.
Additional information requested	03/07/17	Email to: R.Flavell (Fichtner) (cc; K Baker, Kronospan)
Additional information	05/07/17	Email to: R.Flavell (Fichtner) (cc;

Status log of the permit		
Description	**Date**	**Comments**
requested		K Baker, Kronospan)
Additional information received	12/07/17	Updated PCs and PECs for the "Limits Case" ecological assessment, following under-estimation for some modelling scenarios. Assessment of predicted impact on European Sites for Nutrient Nitrogen and Acid Deposition. Provision of modelling assessment for Berwyn SPA.
Additional information received	26/07/17	Revised acid deposition predictions for woodland habitats following error in previous calculations. Clarification on predicted releases from site when K7 and K8 are offline compared with releases when MDF2 is offline for the Likely, Limits and Worst Cases.
Additional information received	16/08/17	Provision of predicted impact on human health under the Limits Case when MDF2 is offline for annual and daily mean NO_x. Also predicted daily mean NO_x impact at Canal Wood LWS and Chirk Castle ancient woodland.
Variation determined EPR/BW9999IG/V007	30/11/17	
Variation and consolidation application EPR/BW9999IG/V008 received	Duly made 27/07/18	Application for new OSB Production line; consolidation of extant WCBC & NRW permits to implement WG Direction; Natural Resources Wales Production of Wood-based Panels Sector Review
Additional information requested	01/08/18	Email
Additional information received	02/08/18	Email confirmation that the Sawmill and Laminated Flooring Line are both EPR Section 6.6 B (a) i activities. (Response to email request on 01/08/18).
Additional information requested	23/11/18	Schedule 5 Notice
Regulation 61 Notice sent to the Operator	15/01/19	Issue of a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 requiring further information

Status log of the permit		
Description	**Date**	**Comments**
		on expected compliance with the "Large Volume Organic Chemicals BAT Conclusions" and "Common Waste Water and Waste Gas Treatment / Management Systems in the Chemical Sector BAT Conclusions". The purpose of this request is to gather information to inform a forthcoming NRW review of the permit against these best practice documents.
Additional information received	21/01/19, 23/01/19 & 24/01/19	Schedule 5 Notice response covering, air quality assessment, Kronoplus Ltd operations, noise assessment and more detailed comparison of Kronospan Ltd's operations against the Wood Panel BREF BAT Conclusions.
Additional information requested	08/04/19	Schedule 5 Notice
Additional information requested	03/05/19	Query on waste types accepted by K7. (Grades of wood part of the question no longer relevant).
Additional information received	28/05/19	Schedule 5 Notice response (including response to 03/05/19 email query) covering: Identification of which legal entities control each regulated activity. Provision of updated noise assessment, noise modelling for on-site traffic and complaints log template. Clarification on Air Quality Assessment Input tables, status of Gas Engines 4 & 5, plume abatement on the newly constructed WESP 21, items of combustion plant using Light Fuel Oil as a secondary fuel and which combustion plant the report in Appendix E of the variation application is relevant to. Clarification of raw material usage, water use, releases to sewer, relevant to proposed OSB process. Clarification on waste types used in on-site processes.
Additional information requested	04/06/19	Email

Status log of the permit		
Description	**Date**	**Comments**
Additional information received	05/06/19	Email: 2016 site baseline noise assessment & clarification on NVC report appendices. (Response to email request on 04/06/19).
Additional information requested	10/06/19	Email
Additional information requested	11/06/19	Email requesting clarification of the relationship between Kronospan Ltd and the companies operating the Part B activities for accounting purposes.
Additional information received	12/06/19	Justification for air quality modelling scenarios used for ecological assessment (response to email request on 10/06/19)
Additional information requested	27/06/19	Email
Additional information received	02/07/19	Email: Demonstration of Kronospan Ltd operator control of Part B activities (response to email request on 11/06/19).
Additional information received	02/07/19	Kronospan response to Regulation 61(1) notice requiring further information on expected compliance with the “Large Volume Organic Chemicals BAT Conclusions” and “Common Waste Water and Waste Gas Treatment / Management Systems in the Chemical Sector BAT Conclusions”.
Additional information received	03/07/19	Email: Boiler Fuel Creation Procedure. (Response to email request on 27/06/19).
Additional information requested	12/07/19	Email
Additional information received	12/07/19	Email: clarifying sources of releases from WESPs 32 and 21 (response to email request on 12/07/19).
Additional information requested	23/07/19	Schedule 5 Notice
Additional information received	30/09/19	Schedule 5 Notice response covering: press abatement emissions dispersion from original WESP 32, location of bag filter abatement plant and associated emissions, K8 ammonia modelling, justification of habitats

Status log of the permit		
Description	**Date**	**Comments**
		assessment scenarios, critical loads assessment for key ecological interest features, updated noise modelling, OSB BAT assessment, segregation of K7 and K8 boiler fuel and updated emission point plan.
Additional information received	04/10/19	Air Quality and Noise Modelling Files in support of Schedule 5 response.
Additional information requested	25/10/19	Email
Additional information requested	29/10/19	Email
Additional information received	29/10/19	Email confirmation that Kronospan wish to retain half-hour average ELVs and legal ability for abnormal operation of K8 Biomass Boiler in NRW permit. Confirmation of CEM arrangements for K8. (Response to email request on 29/10/19).
Additional information received	31/10/19	Amended emission point plan and plan showing release points from bag filter abatement plant. (Response to email request on 29/10/19)
Additional information received	08/11/19	Email: Amended Boiler Fuel Creation procedure (Part response to email request on 25/10/19).
Additional information requested	13/11/19	Email
Additional information requested	22/11/19	Email
Additional information received	22/11/19	Email: Air Quality Assessment for OSB Planning application, response to press abatement modelling questions and source of WESP 32 emission limits. Results of fuel trials on K7 Boiler. (Results of fuel trials are part response to email request on 13/11/19)
Additional information received	28/11/19	Finished Product Composition (response to email dated 22/11/19)
Confidentiality decision following objection notice received from operator on	20/12/19	Decision to accept the objection notice received from the operator in relation to specified information

Status log of the permit		
Description	**Date**	**Comments**
28/11/19		received as part of the application.
Additional information received	09/01/20	Further review of dust extraction units, with technical data sheets and updated modelling.
Additional information requested	15/01/20	Follow-up noise questions following assessment of Schedule 5 response #3.
Additional information requested	05/02/20	Schedule 5 Notice
Additional information received	16/03/20 & 09/04/20 & 12/04/20	Schedule 5 Notice Part Response covering: modelling supporting K1 increased NO_x ELV, modelling of additional pollutants for K7, AQ modelling of half hourly averages for K8, confirmation of K8 auxiliary fuel, Abnormal Emissions Impact Assessment for K8 and HHRA addendum to include fisher receptor. Air Quality Modelling files in support of response. Background noise monitoring question not answered due to Covid-19 restrictions.
Additional information requested	06/05/20 & 27/05/20	Emails requesting confirmation of current trade effluent emission points
Additional information received	21/05/20 & 27/05/20	Emails confirming current trade effluent emission points
Additional information received	15/07/20	Letter from Kronospan following NRW & Kronospan meeting on 9 July 2020. Confirms understanding of postponing determination of OSB development and removing from this variation. This is due to difficulty of obtaining up to date background noise data due to Covid-19 restrictions. (Superceded by correspondence sent to Kronospan dated 18/03/22 advising submission of a new application for OSB in the light of design changes since the original application PAN-002755).
Additional information requested	08/10/20	Schedule 5 Notice
Additional information received	27/11/20, 02/12/20, & 10/12/20	Schedule 5 Notice response covering: Site plans including emission points, modelling of

Status log of the permit		
Description	**Date**	**Comments**
		particulate emissions and design specification for bag filter abatement plant, points of clarification in relation to air modelling from third and fourth Schedule 5 responses, in-combination habitats assessment for European Sites, updated Fire Prevention and Mitigation Plan and noise assessment for Chip Dryer No. 4.
Additional information requested	02/12/20	Email requesting clarification and submission of noise modelling files for New Chip Dryer 4
Additional information received	02/12/20	Noise modelling files for new Chip Dryer 4
Additional information requested	07/12/20	Emails requesting clarification on calculation of K1 emission rate & submission of 4 x missing bag filter data sheets.
Additional information received	10/12/20	4 x missing bag filter data sheets submitted in response to email dated 07/12/20
Additional information requested	10/12/20	Email querying Met data for K8 half-hourly ELVs model inputs
Additional information requested	16/12/20	Additional clarification sought on in-combination assessment provided as part of the fifth Schedule 5 Notice Response.
Additional information requested	18/12/20 & 11/01/21	Emails querying noise modelling for New Chip Dryer 4
Additional information received	23/12/20	Clarification on K1 emission rate, Met data for K8 half-hourly ELV model inputs and updated in-combination assessment in response to follow up questions via emails dated 07/12/20, 10/12/20 & 16/12/20
Additional information requested	23/12/20 & 07/01/21	Emails querying model inputs for WESP 32 Press abatement releases
Additional information received	21/01/21	Amended site plan with air emission point A29 removed.
Additional information received	22/01/21 & 15/03/21	Emails clarifying queries on noise modelling for new Chip Dryer 4 (email request dated 18/12/20).
Additional information requested	26/01/21	Email: Confirmation of modelling scenarios required for WESP 32 Press abatement releases and plume visibility analysis.

Status log of the permit		
Description	**Date**	**Comments**
Additional information requested	09/02/21	Email: follow up noise questions based on email response of 22/01/21
Additional information received	03/03/21	Press abatement and plume visibility modelling for WESP 32 (response to email dated 26/01/21)
Additional information received	08/03/21	Email: revised and updated noise modelling files verifying noise reduction associated with new wood chip preparation plant (response to email dated 09/02/21)
Additional information requested	16/07/21	Schedule 5 Notice
Additional information provided to Operator	22/07/21	Spreadsheet of Medium Combustion Plant permits issued in North & Mid Wales regions to inform scope of habitats in-combination assessment.
Additional information received	31/07/21	Response to Schedule 5 Notice dated 16/07/21. Consolidated Air Quality Modelling report for the installation.
Additional information requested	19/08/21	Email: Process flow diagram for WESP 21
Additional information requested	25/08/21	Email: Excel spreadsheet of emission calculations underpinning air quality modelling and priority order for other Schedule 5 follow up items.
Additional information requested	26/08/21	Email request for consolidated Air Quality modelling report to address inconsistencies identified from initial review of Schedule 5 response dated 31/07/21.
Additional information received	10/09/21	Updated Consolidated Air Quality Modelling report addressing the inconsistencies identified in emails dated 25/08/21 & 26/08/21.
Additional information received	15/12/21	Updated consolidated air quality modelling report addressing habitats issues with acid deposition process contributions and critical loads for assessment.
Additional information requested	17/12/21	Email: Feasibility of meeting Likely Case NO_x emission limits in terms of normal process fluctuations.

Status log of the permit		
Description	**Date**	**Comments**
Additional information received	11/01/22	Email: Emissions monitoring results for WESP 21 and MDF 1 & 2 cyclones. (response to email dated 17/12/21)
Notice of Deemed Withdrawal PAN-002755	15/06/22	OSB development proposals partially deemed withdrawn from this variation.
Variation determined Consolidated Permit: EPR/BW9999IG	04/10/22	Varied and consolidated permit issued in modern IED condition format. The following permits have been consolidated: EPR/BW9999IG and WCBC/IPPC/03/KR(V3). Consolidation includes review of permit against the Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels.
Regulation 61 Notice Response from Operator	31/01/2023	Response received from Operator to Regulation 61(1) Notice dated 15/01/2019.
Additional information requested	03/03/2023	Letter requesting revised response to CWW Bref to include Manufacture of Urea-formaldehyde and melamine-urea-formaldehyde resin activity
Additional information received	24/03/2023	Additional response to Regulation 61(1) Notice from Operator
Natural Resources Wales initiated variation determined EPR/BW9999IG/V009	16/05/2023	Natural Resources Wales initiated review and variation to vary the permit following the publication of the revised Best Available Techniques (BAT) Reference Documents for Large Volume Organic Chemicals and Common Waste Water and Waste Gas Treatment / Management Systems in the Chemical Sector
Variation Application (PAN-021028) EPR/BW9999IG/V010	Duly Made 06/03/2023	Application to change ELV from WESP 21 for oxides of nitrogen and re-duct emission points A5 & A6 to WESP 32.
Regulation 61 Notice sent to the Operator	30/03/2023	Issue of a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 requiring further information on expected compliance with the “Waste Incineration BAT Conclusions”. The purpose of this

Status log of the permit		
Description	**Date**	**Comments**
		request is to gather information to inform a forthcoming NRW review of the permit against these best practice documents.
Additional information requested.	30/05/2023	Clarification on emission limits at A28 & A31 with re-ducting of A5 & A6 to WESP 32 (A28). Schedule 5 Notice dated 30/05/2023.
Additional information received.	13/06/2023	Email in response to Schedule 5 Notice 30/05/2023 regarding emission limits at A28 & A31.
Additional information requested.	20/06/2023	Schedule 5 Notice. Clarification of emission point for the proposed change in emission limit value.
Additional information received.	21/06/2023	Email in response to Schedule 5 Notice 19/06/2023. Resubmission of air quality report and supporting information to correct emission point reference change.
Additional information received.	21/06/2023	Email in response to Schedule 5 Notice 19/06/2023. Letter regarding emission point A32.
Variation determined EPR/BW9999IG/V010	15/09/2023	Varied and consolidated permit issued.
Regulation 61 Notice Response from Operator	05/10/2023	Response received from Operator to Regulation 61(1) Notice dated 30/03/2023.
Further information requested	22/01/2024	Natural Resources Wales letter to operator on K7.
Additional information received	01/03/2024	Additional response to Regulation 61(1) Notice from Operator
Additional information received	30/05/2024	Letter concerning K7 biomass CEMS
Natural Resources Wales initiated variation determined EPR/BW9999IG/V011	04/06/2025	Natural Resources Wales initiated review and variation to vary the permit following the publication of the revised Best Available Techniques (BAT) Reference Documents for Waste Incineration.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number
EPR/BW9999IG

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BW9999IG/V011 authorising,

Kronospan Limited ("the operator"),

whose registered office is

Kronospan Limited
Maesgwyn Farm
Chirk
Wrexham
LL14 5NT

company registration number **00981905**

to operate an installation at

Chirk Particleboard Factory
Holyhead Road
Chirk
Wrexham
LL14 5NT

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

Signed	Date
Holly Noble	**04/06/2025**

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.

1.3 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 For the following activities referenced in Schedule 1, Table S1.1 (AR4, AR5 and AR7), 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 red on the site plan at schedule 7a 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 S1.2, 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 S1.2 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 Wood particles, including woodchip and sawdust, that may become wind-entrained, shall be stored in such a manner (for example, enclosed storage areas, screened, covered, by conditioning and height management of stockpiles etc) to prevent as far as is reasonably practicable, the emission of wind-blown particulates.

2.3.3 External stockpiles shall be suitably conditioned and managed to prevent, as far as is reasonably practicable, the emission of wind-blown particulates.

2.3.4 External stockpiles shall not contain MDF Fibre or Sander Dust. The only exception to this is where non-dry MDF Fibre, mixed with other wood residues, is stored within the K7 boiler fuel compound.

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

2.3.6 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 tables S2.2, S2.3 and S2.4; and

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

2.3.7 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.

2.3.8 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.

2.3.9 The K8 Biomass Boiler shall not be charged with waste, or shall cease to be charged, if:

(a) the combustion chamber temperature is below, or falls below, 850°C; or

(b) any continuous emission limit value in schedule 3 table S3.3(a) is exceeded during abnormal operation; or

(c) any continuous emission limit value in schedule 3 table S3.3 is exceeded, other than during abnormal operation or

(d) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.3 are unavailable; or

(e) there is a stoppage, disturbance or failure of the abatement plant.

2.3.10 The K8 Biomass Boiler shall have at least one auxiliary burner in each line which shall be operated at start up, shut down and as required during operation to ensure that the operating temperature specified in condition 2.3.9 is maintained as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.9 is maintained in the combustion chamber, such burner(s) shall be fed only with fuels which result in emissions no higher than those arising from the use of gas oil, liquefied gas or natural gas.

2.3.11 Bottom ash and APC residues from the K8 Biomass boiler shall not be mixed.

2.3.13 The operator shall record the beginning and end of each period of “abnormal operation”.

2.3.14 During a period of “abnormal operation”, the operator shall restore normal operation of the failed equipment or replace the failed equipment as soon as possible.

2.3.15 The operator shall interpret the start of the period of “abnormal operation” as the earliest of the following:

(a) a technically unavoidable stoppage, disturbance, or failure of continuous emission monitors;

(b) a technically unavoidable stoppage, disturbance, or failure of the abatement system.

(c) Any other technically unavoidable stoppage, disturbance, or failure of the plant which is causing or could lead to an exceedance of an emission limit value in table S3.3.

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.

2.5 Pre-operational conditions

2.5.1 The operations specified in schedule 1 table S1.4 shall not commence until the measures specified in that table have been completed.

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, S3.3, S3.3(a), S3.4, S3.5 and S3.6.

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

3.1.3 For the following activities referenced in schedule 1, table S1.1 (AR4 and AR5). Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.9. 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.

3.2 Emissions of substances not controlled by emission limits

3.2.1 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.

3.2.2 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.

3.2.3 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.

3.2.4 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.

3.3 Odour

3.3.1 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.

3.3.2 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.

3.4 Noise and vibration

3.4.1 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.

3.4.2 The operator shall:

(a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to 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.

3.4.3 Emergency generators / alarms / sirens / relief valves shall only be tested between the hours of 09.00 and 17.00 Monday to Friday and not on any Public Holiday.

3.5 Fire Prevention

3.5.1 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.

3.5.2 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.

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, S3.3; S3.3a, S3.4, S3.5 and S3.6;

(b) process monitoring specified in table S3.7 and S3.8;

(c) K7 and K8 Biomass boiler residue quality in table S3.9

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), unless otherwise agreed in writing by Natural Resources Wales. For the K8 Biomass Boiler, 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 S3.3. 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, S3.3, S3.3a, S3.4, S3.5 and S3.6 unless otherwise agreed in writing by Natural Resources Wales.

3.6.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.3; 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%
- Ammonia 40%

(b) valid half-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 3.6.5(a);

(c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period , the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. The number of half-hourly averages so validated shall not exceed 5 per day;

(d) daily average values shall be calculated as follows: the average of valid half-hourly averages over a calendar day, excluding half-hourly averages during periods of abnormal operation. The daily average value shall be considered valid if no more than five half-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.

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 When Chip Dryer No. 4 and / or WESP 21 are / is not operating normally, such as during start-up, shut down, malfunction, leaks, temporary stoppages, changes of fuel or combustion load and any other special circumstances which could affect the proper functioning of the abatement plant, such as cleaning (including field flushing) and maintenance (scheduled and non-scheduled), the Operator shall keep records which demonstrate and verify that emissions to air have been minimized.

4.1.4 The records relating to condition 4.1.3 shall contain clearly documented instructions and procedures documenting ‘other than normal operating conditions’ and ‘other special circumstances’ and will set out operational controls during these times to ensure air quality impacts are minimised. These records shall be made available to the Regulator on request and will form part of the Environmental Management System.

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;

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

(d) the functioning and monitoring of the K8 Biomass Boiler in a format agreed with Natural Resources Wales. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.

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 For the following activities referenced in schedule 1, table S1.1 (AR7). 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, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.

4.2.6 For the following activities reference in Schedule 1, table S1.1 (AR4 and AR5). 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 Natural Resources Wales shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

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 NRW shall be immediately informed of any malfunction of WESP 21 unit and associated plant operation, in line with conditions 4.3.1 and 4.3.2. The WESP 21 and associated plant operation shall be terminated as soon as is reasonably practicable, but within a period not exceeding one hour.

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 reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity and waste types**
AR1	S1.1 A(1) (a) burning any fuel in an appliance with a rated thermal input of 50 or more megawatts	Operation of natural gas-fired combustion plant comprising: 1 x 2.25 MWth K1 thermal oil heater providing heat for the Kronoplus single daylight press plus space heating. 1 x 14.1 MWth K5 thermal oil heater & 1 x 16.5 MWth K6 thermal oil heater operated as standby plant for K7 and K8 biomass boilers. 5 x 21.28 MWth gas engines providing electricity supplied to site, steam production for MDF 1& 2 process and heat to MDF dryers 1 & 2. 2 x 20.5 MWth gas turbines (GTs) operated as standby plant for gas engines 1 to 5 providing back up flue gas heat to MDF dryers 1 and 2 during gas engine maintenance and back-up electricity supply to site. MDF 1 – 15MWth gas-fired dryer MDF 2 – 32MWth gas-fired dryer The MDF dryers are direct dryers used as standby for K8/GT1 and K7/GT2 respectively. BAB 2 and 3 – 2 x 35 MWth gas-fired direct dryers used as primary heat source for manufacturing process. Chip Dryer No. 4 - 45 MWth gas and wood dust-fired direct dryer used as primary heat source for drying of wood chip.	From receipt of raw materials to combustion of fuel and release of exhaust gases to atmosphere. Distribution of heat, electrical power and steam to the installation. Disposal of wastes arising, including release of boiler blowdown to sewer. BAB 2 and 3 dryers are not operational as they have been mothballed.

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity and waste types**
AR2	S4.1 A(1) (a) (ii) producing organic chemicals containing oxygen	Manufacture of formaldehyde by catalytic oxidation of methanol	From receipt of raw materials (or purchase of finished product) to intermediate storage of formaldehyde production or external sale
AR3	S4.1A(1) (a) (viii) producing organic chemicals such as polymers	Manufacture of Urea-formaldehyde and melamine-urea-formaldehyde resin	From intermediate storage of formaldehyde and receipt of other materials to intermediate storage of resin products or external sale
AR4	S5.1 A(1) (b) - The incineration of non-hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 3 tonnes per hour.	K7 38 MWth Biomass Boiler Single co-incineration line.	Combustion of virgin and exempt waste wood biomass fuels to generate heat to be used within the manufacturing process. and control of associated emissions. From receipt of waste to emission of exhaust gas and disposal of waste arising. The waste wood biomass combusted in K7 is limited to waste types not subject to Chapter IV and Annex VI of the Industrial Emissions Directive (2010/75/EU) Waste types as specified in Table S2.2 virgin wood chip originating on site.

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity and waste types**
AR5	S5.1 A(1) (b) – The incineration of non-hazardous waste in a waste incineration or waste co-incineration plant with a capacity exceeding 3 tonnes per hour.	K8 32 MWth Biomass Boiler Single co-incineration line	Combustion of wood residues to generate heat for use in the manufacturing process and control of associated emissions. From receipt of waste to emission of exhaust gas and disposal of waste arising. The waste wood biomass combusted in K8 is subject to Chapter IV and Annex VI of the Industrial Emissions Directive (2010/75/EU). Abnormal operation K8 only Waste types as specified in Table S2.3
AR6	S6.1 A(2) (a) – Producing in an industrial plant, one or more of the following wood-based panels with a production capacity exceeding 600m^3 per day: oriented strand board, particleboard or fibreboard.	Manufacture of medium density fibre board with a total production capacity of 640,000 m^3 / year	Receipt of raw materials through to product despatch
AR7	S6.1 A(2) (a) – Producing in an industrial plant, one or more of the following wood-based panels with a production capacity exceeding 600m^3 per day: oriented strand board, particleboard or fibreboard.	Manufacture of particleboard with a total production capacity of 750,000 m^3 /year	Receipt of raw materials through to product despatch Waste types as specified in Table S2.4 plus logs and wood chip

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity and waste types**
AR8	S6.6 Part B (a) Unless falling within Part A(2) of Section 6.1, manufacturing products wholly or mainly of wood at any works if the activity involves a relevant activity and the throughput of the works in any 12-month period is likely to be more than— (i) 10,000 cubic metres in the case of works at which wood is only sawed, or wood is sawed and subjected to excluded activities, or (ii) 1,000 cubic metres in any other case.	Kronoplus Laminated Flooring line and Worktop production	Receipt of MDF and particleboard through to product despatch
AR9	S6.6 Part B (a) Unless falling within Part A(2) of Section 6.1, manufacturing products wholly or mainly of wood at any works if the activity involves a relevant activity and the throughput of the works in any 12-month period is likely to be more than— (i) 10,000 cubic metres in the case of works at which wood is only sawed, or wood is sawed and subjected to excluded activities.	Sawmill operations	Receipt of raw materials through to product despatch
Directly Associated Activities			
AR10	Unlisted Directly Associated Activity	VITS Paper Impregnation process	From resin intermediate storage and receipt of other raw materials to intermediate storage of impregnated paper products.
AR11	Unlisted Directly Associated Activity	Melamine Facing	Receipt of MDF and particleboard through to product despatch.

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity and waste types**
AR12	Unlisted Directly Associated Activity	Surface Water Lagoons 1 & 2	Receipt of site drainage from whole installation and effluent from formaldehyde plant, then discharged into the Afon Bradley via valve Penstock A. The effluent from the formaldehyde plant includes inputs from the process bunds, tank farm bunds and tanker loading bays. The lagoons also have 12 Kasco floating aerators per lagoon.
AR13	Unlisted Directly Associated Activity	Surface Water Lagoon 3	Receipt of site drainage from Log Yard and rail sidings. During abnormal conditions (heavy rainfall, flood conditions) discharge via other surface water lagoons into the Afon Bradley. The lagoon also has floating reed beds within it.
AR14	Unlisted Directly Associated Activity	Canal Water Treatment Plant	From receipt of abstracted canal water, to release of treated water for use as (1) boiler feed water, (2) washdown and dust suppression in pre-production Log Yard and (3) Main Fire Tanks top up. Use ranked in order of volume and importance. Treatment process includes Lamella system and sand filters for removal of heavy solids and suspended solids respectively. Storage and dosing with sodium hypochlorite. Further micro-filtration and reverse osmosis is employed specifically for boiler feed water.

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity and waste types**
AR15	Unlisted Directly Associated Activity	Delivery and storage of raw materials to be used in the process	Receipt and storage of raw materials
AR16	Unlisted Directly Associated Activity	Handling, processing and storage of all process wastes and by-products (including fuel and materials for composting)	From point of arising through to despatch or disposal/use

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application for BW9999 to Environment Agency	The response to question 2.1 given in pages 7 – 10 and supporting document No1 of the application	28/11/03
Response to Environment Agency Schedule 4 notice dated 23/02/04	Response to question 10, 16, 17, 18, 21, 22 and 26	30/06/04
Response to WCBC Schedule 4, Part I Notice	Sections 1 to 6 inclusive	01/07/04
Variation application to Environment Agency	Response to question 2a – e	Duly Made 02/12/09
Request to Environment Agency for minor operational change dated 16/02/05. Replacement of VITS 2 with VITS 5	All	Accepted
Works instruction KC/WI/ENV006 relating to lagoon operation (Environment Agency Permit)	All	16/04/09
Further response requested dated 12/03/09 (Environment Agency Permit)	All	26/03/09
Further information as request response dated 23/03/09 (Environment Agency Permit)	All	26/03/09
Technical/Water environmental management programme dated 21/10/04 (Environment Agency Permit)	9	Agreed 23/04/10

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Letter of proposal for the replacement of Formalin plant 1 reactor dated 12/05/10 ref. KB/PSC/02 (Environment Agency Permit)	All except sections headed 'Kronospan Limited Drawings' and 'Project Timeline'	18/05/10
Variation application (Environment Agency Permit)	Response given to question 2b, part C of the application form and supporting documents KB/PSC/04 and KB/PSC/05 including drawings as referenced	13/10/10
Additional information (Environment Agency Permit)	Response to letter entitled 'additional information'	24/11/2010
Additional information (Environment Agency Permit)	Response to letter entitled 'additional information' dated 7 December 2010	08/12/2010 – via email
Information from application EPR/BW9999IG/V006 (NRW Permit)	Response to Part C, 2, 2b – Notification of permit change. Technical summary. Document ref: KB/10/06	21/12/2015
Information from application EPR/BW9999IG/V006 (NRW Permit)	Response to Part C, 2, 2b – Description of activities and description of aeration and lagoon dynamics. Document ref: Living Water (1)	21/12/2015
Information from application EPR/BW9999IG/V006 (NRW Permit)	Response to Part C, 2, 2b – Lagoons and updated pipe connections and diagrams. Document ref: PH1/H/002 (A1)	21/12/2015
Variation application EPR/BW9999IG/V007 (NRW Permit)	Response to Part C3 of the application form, questions 3a, 3b, 3c and 3d (Appendix 1: Specific Questions for the combustion sector). Also: Fichtner "Kronospan Limited Chirk Particleboard Facility Supporting Information" Fichtner "Annex 3 – Air Quality Assessment", Section 3 "Operating and Emissions Scenarios" Fichtner "Annex 4 – Environmental Risk Assessment", (excluding hard copy of completed H1 Software Tool) Noise and Vibration Consultants Ltd "Annex 5 – Noise Assessment", section 6 "Mitigation".	16/12/2016
Response to Not Duly Made letter dated 22/12/16 (NRW Permit)	Response to Q2b (non-technical summary) confirming that the 17.4 MWth Loos boiler and 15.5 MWth Babcock boiler will be permanently decommissioned.	13/01/2017

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Response to Schedule 5 Notice dated 08/03/17 (NRW Permit)	Fichtner “Kronospan Chirk Particleboard Facility Schedule 5 Response”, specifically: Section 3 – Monitoring Location Assessment including Appendix B “Extract from Wartsila Emissions Monitoring Report”; Section 4d – Air Quality Assessment confirming urea based SNCR NO_x abatement system for K8 biomass plant; and Section 4e – Air Quality Assessment confirming that Press abatement system is not a source of NO_x. Also: Wartsila scope of work for reducing NO_x_CO.pdf; Wartsila 34SG engine tuning for different NO_x emission levels.pdf; and Wartsila “Integrated CO control System Description”.pdf.	28/03/2017 & 13/04/2017
Response to Schedule 5 Notice 19/05/17 (NRW Permit)	Fichtner “Kronospan Chirk Particleboard Factory Schedule 5 Response”, specifically: Section 2 – Releases to Sewer; and Section 3 – Justification for proposed Gas Engine tuning setting of half TA luft.	26/05/2017 & 09/06/2017
Variation application EPR/BW9999IG/V008 (NRW Permit)	Fichtner “Appendix B – Environmental Risk Assessment”, specifically: Tables A1, A2, A3 and A4 Fichtner “Appendix D – BAT Conclusions Review” Demonstration of compliance status with the Best Available Techniques Conclusions (BATC) document for the Production of Wood-based panels, implemented by Commission Implementing Decision (EU) 2015/2119 of 20th November 2015 and site operating techniques in this regard.	29/05/2018
Response to Schedule 5 Notice 23/11/2018 (NRW Permit)	Response to Question 2 explaining technical connection between Kronoplus and Kronospan operations using EPR RGN2 “Understanding the meaning of Regulated Facility” criteria. Response to Question 4 – Further information on compliance with the Best Available Techniques Conclusions (BATC) document for the Production of Wood-based panels, implemented by Commission Implementing Decision (EU) 2015/2119 of 20th November 2015 and site operating techniques in this regard. Appendix D – Waste Management (Procedure KC/EHS/PRO/015). Appendix E – Dust, Noise and Odour Management Plan (Procedure KC/EHS/PRO/017). Appendix F – Suppliers Specification for RCF to Kronospan Chirk (Procedure KC/LOGY/DOC/0008). Appendix I – Bilfinger Bund Report describing individual containment and giving improvement recommendations.	21/01/2019

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Response to Schedule 5 Notice of 08/04/2019 (NRW Permit)	Table 1 confirming the operating companies and registration numbers (for accounting purposes, for Kronoplus and the Sawmill). Kronospan Ltd confirmation as appropriate permit holder received in letter dated 02/07/2019 below. Table 2 confirmation of changes to site activities since September 2016. Response to Question 5 explaining the current status of gas engines 4 & 5 and minimum emissions performance specification when a supplier has been selected. Response to Question 6 confirming that WESP 21 is fitted with deplume technology and how depluming is achieved. Response to Question 10 listing the current sources of process water.	28/05/2019
Additional information received in response to email request on 11/06/2019	Letter from Kronospan Group Secretary demonstrating how Kronospan Ltd exercises sufficient control over the Part B activities based on comparison with the paragraph 3.2 control criteria listed in NRW Regulatory Guidance Note RGN1 “Understanding the Meaning of Operator” (version 5, October 2014). The letter also confirms that Kronospan Ltd consider it is appropriate for them to be the permit holder for the Part B activities.	02/07/2019
Additional information received in response to email request on 12/07/2019	Confirmation that press abated emissions from 3 x presses are releases to the original PB WESP (now called WESP 32). Also that Chip Dryer No. 4 emissions are released to the new WESP (now called) WESP 21.	12/07/2019
Additional information received in response to email request on 29/10/2019	Email from Kronospan EHS Manager confirming that K8 Biomass Boiler is fitted with two CEMS, (a duty and standby). Reports generated record the duty CEM readings unless there is an issue with the unit in which case readings are taken from the standby, which operates in parallel.	29/10/2019
Response to Schedule 5 Notice of 08/10/20 (NRW Permit)	Response to Question 1 detailing operating scenarios under which emergency stacks A31 and A33 to A35 are used.	27/11/2020
Response to Schedule 5 Notice of 16/07/21 (NRW Permit)	Table 1 “Combustion Sources” and Section 3 “Operating Scenarios” (excluding section 3.3) of “Kronospan Dispersion Modelling Assessment” - Fichtner consolidated Air Quality Modelling (report ref S2376-0030-0003RSF).	15/12/2021
Response to Improvement Condition NRW IC29	WESP 21 Operating Techniques	Upon completion of IC29.
Response to Improvement Condition NRW IC38	Dust Management Plan	Upon completion of IC38.
Response to Improvement Condition NRW IC39	Odour Management Plan	Upon completion of IC39.
Response to Improvement Condition NRW IC40	Noise Management Plan	Upon completion of IC40.
Response to Improvement Condition NRW IC41	Emissions Management Plan	Upon completion of IC41.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Response to Improvement Condition NRW IC48	Fire Prevention and Mitigation Plan	Upon completion of IC48.
Response to Regulation 61(1) Notice – request for information dated 15/01/2019 detailing how the Operator will comply with the BAT Conclusions for (i) Large Volume Organic Chemicals and (ii) Common Waste Water and Waste Gas Treatment / Management Systems in the Chemical Sector.	All	31/01/2023
Variation application PAN-021028 EPR/BW9999IG/V010	Application Supporting Document 'Chirk Particleboard Facility Kronospan EP Variation' dated 2/3/2023. Responses to application form Part C2 and Part C3.	06/03/2023
Additional response to Regulation 61 (1) Notice - request for information dated 15/01/2019 detailing how the Operator will comply with the BAT Conclusions for (i) Large Volume Organic Chemicals and (ii) Common Waste Water and Waste Gas Treatment / Management Systems in the Chemical Sector.	All	24/03/2023
Response to Schedule 5 Notice of 30/05/2023	E-mail of response regarding clarification of emission limit values on A28 and A31 with the re-ducting of A5 and A6.	13/06/2023
Response to Schedule 5 Notice of 20/06/2023	Re-submission of 'Chirk Particleboard Facility Kronospan EP Variation r2 and Dispersion Modelling Assessment r2' and letter to correct emission point reference change.	21/06/2023
Response to Regulation 61(1) Notice – request for information dated 30/03/2023 detailing how the Operator will comply with the BAT Conclusions for Waste Incineration. Supplementary information on K7.	All parts of responses received.	05/10/2023 & 30 May 2024
Performance and optimisation of K8 following rebuild.	As stated in written approval to the response to improvement condition IC56.	Upon completion of IC56.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Other than normal operating conditions (OTNOC) management plan	As stated in written approval to the response to improvement condition IC61.	Upon completion of IC61.

Improvement Programme Condition Nos. 7, 8, 9 and 10 of previous Permit reference WCBC/IPPC/03/KR(V2) have been completed.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
WCBC 4	The Operator shall submit a written report to the Council on the commissioning of the K8 Biomass Plant. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application.	Completed
WCBC 5	The Operator shall submit a written report to the Council describing the performance and optimisation of the Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NO_x) emissions within the emission limit values described in the Permit with the minimisation of nitrous oxide emissions. The report shall include an assessment of the level of NO_x and N_2O emissions that can be achieved under optimum operation conditions.	Completed
WCBC 6	The Operator shall submit written reports to the Council to confirm, by the results of calibration and verification testing, that the performance of Continuous Emissions Monitors complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	Completed
WCBC 11	When the K8 Biomass Plant is in operation, and subject to climatic conditions and the availability of sufficient electrical energy, the Operator shall ensure that SEKA de-pluming or partial SEKA de-pluming is carried out. This requirement will be reviewed six months after the K8 Biomass Plant becomes operational.	Completed Not feasible
WCBC 12	The Operator shall implement the noise control measures detailed in Section 6.0 of the Wakefield Acoustics Ltd. Noise Control Measures Report, reference C26823/003, for the following items of plant: Formalin Plant Turbo Compressor Discharge Pipe (RSK S69); Finishing Lines East Plant Area – Circular Exhaust Ducts (RSK S85 & S86) and 1 no. discharge from the Particleboard exhaust; Log Yard Hacker Building (RSK S56); Pre-production Dryer 2 Belt Drive (RSK S26); Formalin Plant ECS Inlet pipe; Log Yard Andritz Chipper; Pre-production Blower to bottom of silo (near Pallman Chippers) and M1 Fines Blower; HDF Warehouse Lath Machine.	Completed
WCBC 13	The Operator shall provide appropriate containment for the recycled wood-waste unloading, storage and transportation activities carried out on site, to prevent fugitive emissions of wood-dust to air. This shall apply to all incoming deliveries of recycled wood waste.	Completed
NRW IC1	The Operator shall undertake a BAT assessment for the prevention or reduction of emissions of formaldehyde from emission points A1, A5 and A6 in comparison with the benchmark of 5 mg/m^3 as set out in the Agency Guidance Note (IPPC S4.01) for the Large Volume Organic Chemicals Sector. The assessment shall include options, impacts to the environment, cost comparisons and a schedule of actions to be implemented. A summary of the assessment shall be sent to the Agency in writing together with a timetable to implement any necessary changes identified.	Completed

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC2	The Operator shall undertake a BAT assessment for the prevention or reduction of emissions of methanol from the storage tank vents. The assessment shall include options, impacts to the environment, cost comparisons and a schedule of actions to be implemented. A summary of the assessment shall be sent to the Agency in writing together with a timetable to implement any necessary changes identified.	Completed
NRW IC3	The Operator shall carry out a BAT assessment of the formaldehyde tank scrubber system. The assessment shall include options, impacts to the environment, cost comparisons and a schedule of actions to be implemented. A summary of the assessment shall be sent to the Agency in writing together with a timetable to implement any necessary changes identified.	Completed
NRW IC4	The Operator shall carry out a BAT assessment of the discharge to the River Bradley to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it. The assessment should give priority to identification and treatment of contaminated effluent or surface water at source and shall aim to reduce the emissions of biochemical oxygen demand, ammonia and formaldehyde to target levels of 9.5 mg/l, 3.5m/g and 1.5mg/l respectively. A summary of the assessment shall be sent to Natural Resources Wales in writing together with a timetable to implement any necessary changes identified to meet this target.	Superseded by IC42
NRW IC5	The Operator shall carry out a Direct Toxicity Assessment of the effluent discharge to the River Bradley in accordance with the Agency Guidance identified in Appendix F of the Horizontal Guidance Note IPPC H1. A summary of the results shall be sent to the Agency in writing, together with a timetable for implementation of any further work identified by the assessment.	Completed
NRW IC6	The Operator shall carry out an investigation to determine the levels of monomers released from the resin plant through the air extraction system to the NAIRB scrubber. The investigation may be of the form of monitoring of raw materials, products and emissions and sampling of product to compare quality. The results of this investigation shall be used to assess the performance of the condensers, the impact of monomers and particulates on the performance of the NAIRB scrubber and identify any improvements that can be made. A summary of the assessment shall be sent to the Agency in writing together with a timetable to implement any necessary changes identified.	Completed
NRW IC7	The Operator shall produce and implement an Odour Management Plan to an approved Agency standard, as outlined in the Technical Guidance Note IPPC H4. Confirmation shall be sent in writing to the Agency that the plan has been formulated and implemented. (Document references shall be included). Documents shall be made available for inspection when requested.	Completed
NRW IC8	The Operator shall produce and implement a Noise Management Plan in accordance with Agency Guidance. (Horizontal Guidance Note IPPC H3). Confirmation shall be sent in writing to the Agency that a plan has been formulated and implemented. (Document references shall be included). Documents shall be made available for inspection when requested.	Completed

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC9	The Operator shall carry out a BAT assessment of water usage, paying attention to the potential for minimising potable water use and effluent flow, through optimisation of recycling and the considerations outlined in improvement condition 4 of this document. The assessment shall identify the areas where water usage can be minimised through improved management and process control , or supplemented with recycled water (e.g. operation of the lagoons, or the resin plant). The assessment shall also include a single sheet schematic detailing an overall plant water balance, which shall include normal and design flowrates. A summary of the assessment shall be sent to the Agency in writing together with a timetable to implement any necessary changes identified.	Completed
NRW IC10	The Operator shall carry out a review of their waste management systems and procedures and address the deficiencies highlighted in the Waste Audit (Supporting Document No. 5) in the permit application. The findings of this review shall be sent to the Agency in writing together with a timetable to implement any necessary changes that are identified. Any relevant waste management procedures and associated documents shall be made available for inspection upon request.	Completed
NRW IC11	The Operator shall carry out a BAT assessment of the energy usage of the Installation. The Operator shall provide to the Agency in writing a timescale for the implementation of any recommendations from the BAT assessment and for any recommendations detailed in the Energy Survey (supporting document2). Where a recommendation from the Energy Survey is not to be implemented, a justification shall be provided to the Agency taking into account BAT considerations.	Completed
NRW IC12	The Operator shall review and update the relevant emergency on-site plans as identified in the Proposed Improvement Programme (Section 6 of the application). A summary of the review shall be sent to the Agency in writing together with a timetable to implement any necessary changes identified.	Completed
NRW IC13	The Operator shall implement an Environmental Management System that satisfies the requirements set out in Agency Guidance Note (IPPC S4.01) for the Large Volume Organic Chemicals Sector. Confirmation in writing shall be submitted to the Agency when a recognised system has been implemented and certification achieved. If not achieved within this timescale the Operator shall notify the Agency of this and shall make available all Environmental Management System documents for inspection.	Completed
NRW IC14	The Operator shall review their emissions monitoring with the intent to achieve MCERTS certification or MCERTS accreditation (as appropriate) or an equivalent standard that is acceptable to the Agency, where confirmation has been agreed in writing beforehand. Measurement methods shall be to appropriate standards (examples in Appendix 1, Agency guidance for speciality Organic Chemicals S4.02). Techniques should be in accordance with Agency Guidance Notes M1 and M2. Proposals for a revised emissions monitoring programme shall be sent to the Agency together with an implementation date.	Completed
NRW IC15	The Operator shall repeat the Direct Toxicity Assessment of the effluent discharge to the Afon Bradley, using freshwater algal growth, once improvement condition 4 has been completed. A summary of the results shall be sent to the Agency in writing, together with a timetable for implementation of any further work identified by the assessment.	Completed
NRW IC16	The Operator shall provide a timetable relating to the decommissioning of the two 15m^3 reactors and commissioning of the new 46m^3 reactor.	Completed

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC17	The Operator shall investigate additional measures to further reduce the level of formaldehyde within the discharge to controlled waters. The assessment should give priority to identification and removal of contamination at source and should aim to reduce the emissions to 0.5mg/l or below. A summary of the assessment shall be sent to Natural Resources Wales in writing and shall include a timetable for any proposals highlighted.	Superseded by IC42
NRW IC18	The Operator shall update drawing 4000/21 to show the new reactor and remove 2 of the 15m^3 reactors. A copy of the updated drawing shall be forwarded to the Environment Agency.	Completed
NRW IC19	The Operator shall investigate the cause of the tonal noise from the formalin plant. A report detailing the findings of this investigation, including timescales for any improvements shall be submitted to the Environment Agency for agreement.	Completed
NRW IC20	The Operator shall carry out the improvements highlighted in response to improvement condition 3.	Completed
NRW IC21	The Operator shall carry out an additional set of monitoring for formaldehyde at emission point A5 when high solid resin products are being produced, i.e. during distillation. A summary of the results obtained and any improvements highlighted shall be forwarded to the Environment Agency.	Completed
NRW IC22	The Operator shall review the environmental risk and control measures associated with the loading and unloading of distillate from the resin plant. A report summarising the findings and any improvements highlighted shall be submitted to the Environment Agency.	Completed
NRW IC23	Lagoon 3 and the associated infrastructure shall be installed and constructed in accordance with the document : Notification of a request for a Variation to permit number EA/EPR/BW9999IG/V005 dated 6th October 2010 and associated plans. Upon completion of the work, the operator shall submit as-built drawings and construction details to the Agency.	Completed
NRW IC24	The Operator shall provide a written report for emission points A33, describing all the process conditions that trigger the need to use each stack and the expected duration of each type of release. The report shall also provide the frequency of each process occurrence per stack, for each of the calendar years 2017 – 2021 inclusive. The report shall also provide justification of why use of these emission points is necessary, together with a feasibility assessment of any alternative operating techniques that have been considered.	Completed
NRW IC25	The Operator shall provide Natural Resources Wales with a copy of the procedure that covers the temperature monitoring of all stockpiles of combustible material stored on site.	Completed
NRW IC26	The Operator shall provide Natural Resources Wales with a copy of the procedure that covers the monitoring and recording of temperature within the biomass silos and the frequency of these checks and / or written methodology covering management of the biomass silos to ensure material remains for 3 days maximum.	Completed

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC27	The “Kronospan Dispersion Modelling Assessment” by Fichtner Consulting Engineers Ltd (Report ref. S2376-0030-0003RSF dated 15/12/2021) presents air dispersion modelling for the installation’s normal operations scenario and a number of additional non-standard operating scenarios, specifically: (i) MDF 1 Cyclones Offline (ii) MDF 2 Cyclones Offline (iii) MDF 1 and 2 Cyclones Offline (iv) K7 and K8 Biomass Boilers Offline. The results presented are worst case in that they assume that each scenario is operating 100% of the time all year round, which cannot happen in reality and the modelling report does not address how often each scenario occurs. The Operator shall provide a written report setting out the frequency and duration of both normal operations and the non-standard operations (i) to (iv) listed above over a 5 year calendar period, 2017 – 2021 inclusive. Frequency shall be represented by the number of occurrences for each individual scenario and duration represented by number of hours. The data shall be presented by operating scenario for each individual calendar year and summarised by providing the totals for each over the full 5 year period.	Completed
NRW IC28	Of the total tonnage of waste derived biomass received over the 5 year period 2017 – 2021 inclusive, please provide a written report that shows each type of material, waste code and the relative tonnages of this material used in K7 Biomass Boiler, K8 Biomass Boiler and Particleboard manufacturing for each of the 5 years and the associated moisture content range required for use in each of these three processes.	Completed
NRW IC29	The Operator shall provide a written report to demonstrate how optimum operation of WESP 21 is achieved. The written report shall include the supplier performance guarantee for the WESP. The written report will be incorporated into Table S1.2 of this permit as existing operating techniques.	Completed
NRW IC30	Fire Prevention and Mitigation Plan: Hot Exhausts and Cleaning. The Operator shall ensure that adequate preventative maintenance procedures are in place to minimise dust accumulation on hot surfaces (including high level areas, which are not visible from the ground). These procedures are referenced in sections 3.14 and 3.15 of the Installation Fire Prevention and Mitigation Plan and shall be forwarded to Natural Resources Wales for review. The procedures shall also address the recording of corrective actions and the frequency of high level inspections. (i.e. surfaces not visible from the ground).	Completed

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC31	Table 2 of the Operator's Fire Prevention and Mitigation Plan (revision 4) gives the maximum retention times for small round wood, RCT (recycled timber for panel board), chipped wood (external sawmill residues) and sawdust. Table 2 shall be reviewed against the storage times stipulated in Natural Resources Wales Guidance Note 16 "Fire Prevention and Mitigation Plan Guidance – Waste Management". Where the storage time in Table 2 is longer than that given in Guidance Note 16, the Operator shall provide a justification for the difference between the actual and recommended storage time for each material, together with written details of the control measures in place to minimise the potential for self-combustion. The storage of wood chip and sawdust in silos shall also be included in the assessment. The Operator shall provide Natural Resources Wales a copy of procedure KC/LOGY/WI/1000 – "Rotation of Log Yard Stock" for review.	Completed
NRW IC32	Fire Prevention and Mitigation Plan: Fire Suppression Systems. The Operator shall confirm the type of fire suppression system employed for each of the areas and plant described in Section 5.13 of their Fire Prevention and Mitigation Plan (revision 4) and confirm if each system is certified to a British Standard and / or UKAS accredited.	Completed
NRW IC33	Early consideration must be made for the removal of fire-fighting water from the Middle Road Tertiary Containment Area, as fire water could theoretically exceed the 77,000 litres storage capacity within 1 hour. The Operator shall submit a written procedure to Natural Resources Wales demonstrating how this issue is addressed.	Completed
NRW IC34	Section 5.4.1.9 of the Operator's Fire Prevention and Mitigation Plan (revision 4) includes two tables summarising the provision of facility wide fire water and the hierarchy of fire water control. The assumption is that all tanks and lagoons are filled to capacity. On this basis, the Operator shall provide written evidence demonstrating how this is maintained and monitored if quantities are significantly less than those quoted in the tables. More description is also required to clarify how this works in the event of a fire to prevent misinterpretation of the two tables. For example Lagoons 1 and 2 are generally not full at the same time in practice, despite the tables in the Fire Management and Mitigation Plan showing that this may potentially be the case.	Completed
NRW IC35	The Operator shall carry out a review of their waste management systems and procedures against the Best Available Techniques Conclusions (BATc) for the Production of Wood-based Panels 'Management of waste and residues'. The findings of this review shall be sent to Natural Resources Wales in writing together with a timetable to implement any necessary changes that are identified. Any relevant waste management procedures and associated documents shall be made available for inspection upon request.	Completed
NRW IC36	The operator shall submit a written plan to implement the soil and groundwater monitoring requirements referenced in Condition 3.2.4. The monitoring plan shall demonstrate how the operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED. The monitoring plan shall be implemented in accordance with the written approval from Natural Resources Wales.	Completed

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC37	The K7 emission limit values in Table S3.3 do not come into effect until 1st January 2024. The Operator shall investigate the likely cause of high CO releases from K7 Biomass Boiler and submit a written report identifying the key causes and outlining proposals to reduce the CO release from K7 Biomass Plant, with associated timescales for implementation in order to meet emission limit values in Table S3.3 in accordance with Local Authority Process Guidance Note 1/03 (12) "Statutory Guidance for Boilers and Furnaces 20 – 50MW thermal input".	Completed
NRW IC38	The Operator shall update and submit the written Dust Management Plan describing the operating techniques employed. The dust management plan shall be structured in line with Environment Agency Emissions Management Plan for Dust online guidance and shall also address the delivery of all relevant Production of Wood-based Panels BAT Conclusions. The written report will be incorporated into Table S1.2 of this permit as existing operating techniques.	Completed
NRW IC39	The Operator shall update and submit the written Odour Management Plan describing the operating techniques employed. The odour management plan shall be structured in line with "How to Comply with Your Environmental Permit: H4 Odour Management" and shall also address the delivery of all relevant Production of Wood-based Panels BAT Conclusions. The written report will be incorporated into Table S1.2 of this permit as existing operating techniques.	Completed
NRW IC40	The Operator shall update and submit the written Noise Management Plan describing the operating techniques employed. The noise management plan shall be structured in line with the Environment Agency online guidance "Noise and Vibration Management: Environmental Permits" and shall also address the delivery of all relevant Production of Wood-based Panels BAT Conclusions. The written report will be incorporated into Table S1.2 of this permit as existing operating techniques. NB: The response to this IC should have consideration of comments made by WCBC in letter dated 8/06/2022.	Within 6 months of variation V008 issue
NRW IC41	The Operator shall submit a written Emissions Management Plan. The emissions management plan shall address the emissions of substances not controlled by emission limits (excluding odour, noise and dust which are covered by separate management plans). The plan shall describe the operating techniques employed. It shall also address the delivery of all relevant Production of Wood-based Panels BAT Conclusions and all relevant Common Waste Water and Waste Gas Treatment / Management Systems in the Chemical Sector BAT Conclusions. The written report will be incorporated into Table S1.2 of this permit as existing operating techniques.	Completed
NRW IC42	The Operator shall carry out a BAT assessment of water usage, paying attention to the potential for minimising potable water use and effluent flow, through optimisation of recycling and the considerations outlined in improvement conditions 4 and 17 of this document. The assessment shall identify the areas where water usage can be minimised through improved management and process control, or supplemented with recycled water (e.g. operation of the lagoons, or the resin plant). The assessment shall also include a single sheet schematic detailing an overall plant water balance, which shall include normal and design flowrates. A summary of the assessment shall be sent to Natural Resources Wales in writing together with a timetable to implement any necessary changes identified.	Completed

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC43	Please provide revised copies of the Dŵr Cymru Welsh Water Trade Effluent Consents for emission points S1, S2, S3 and S4 listed in Table S3.6 of this Permit. The revised consents are required for record-keeping purposes following the zoning and redesign of the installation's trade effluent drainage system.	Completed
NRW IC44	The Operator shall reduce the maximum stockpile heights, widths and lengths of all combustible materials, in line with Sections 8 and 9 of Natural Resources Wales Guidance Note 16 "Fire Prevention and Mitigation Plan Guidance – Waste Management". The density of the maximum pile size following this exercise shall also be confirmed to Natural Resources Wales in m^3.	Within 12 months of variation V008 issue.
NRW IC45	The Operator shall review the separation distances between piles of combustible material stored (including round wood, slab wood, bark, wood chip, RCT, sawdust and boiler biomass fuel) to ensure that these materials are stored with suitable separation distance (e.g. from other stockpiles, buildings or flammable materials and dangerous substances) in line with Sections 8, 9 and 12 of Natural Resources Wales Guidance Note 16 "Fire Prevention and Mitigation Plan Guidance – Waste Management".	Within 12 months of variation V008 issue
NRW IC46	Where fire walls are used to separate piles of loose material, the Operator shall ensure that these are constructed and used in line with Sections 8, 9 and 12 of Natural Resources Wales Guidance Note 16 "Fire Prevention and Mitigation Plan Guidance – Waste Management".	Within 12 months of variation V008 issue
NRW IC47	The Operator shall review the location of the existing designated quarantine area for use in a fire against Section 22 of Natural Resources Wales Guidance Note 16 "Fire Prevention and Mitigation Plan Guidance – Waste Management" to ensure it is sized appropriately and used in line with the Guidance.	Within 12 months of variation V008 issue
NRW IC48	Upon completion of ICs NRW IC44 – NRW IC47, the Operator shall submit an updated Fire Prevention and Mitigation Plan (FPMP) for the installation to Natural Resources Wales for approval. The Operator shall ensure that the updated plan references all fire prevention and mitigation procedures in place for all combustible material stored on site. The FPMP and associated procedures shall include details of stockpile sizes, total amounts of roundwood and slabwood stored on site at any one time, separation distances, distance from buildings etc and reference relevant guidance. Combustible material shall include non-waste material stored in bulk, for example the raw and treated paper stores associated with Paper Impregnation line and finished product stored in warehousing on site.	Within 15 months of variation V008 issue
NRW IC49	The Operator shall investigate potential technical solutions with regard to monitoring and control of dust filtration units B01-B31.	Completed
NRW IC50	The operator shall carry a risk assessment of the discharge to the Afon Bradley (emission point W1 in this permit). The risk assessment shall include: • an assessment of hazardous chemicals and elements which shall be carried out in line with the methodology outlined in the gov.uk guidance entitled "Surface water pollution risk assessment for your environmental permit"; • an assessment of sanitary and other pollutants which shall be carried out in line with the methodology outlined in H1 Annex D2 guidance 'Assessment of sanitary and other pollutants within Surface Water Discharges' The risk assessment shall be submitted to Natural Resources Wales for review.	04 January 2024

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC51	Following NRWIC50, the Operator shall carry out a BAT assessment of the discharge to the Afon Bradley to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it. The assessment shall consider all relevant Common Waste Water and Waste Gas Treatment / Management Systems in the Chemical Sector BAT Conclusions. The assessment should give priority to identification and treatment of contaminated effluent or surface water at source and shall aim to reduce the emissions. The Operator shall also review the discharge process and review whether a batch discharge process is considered BAT taking into account the flow conditions of the Afon Bradley. The BAT assessment shall include a review of the existing emission limit values and whether any of the existing limits can be reduced, in the case where there are no existing emission limit values the Operator shall propose limits ensuring these have been assessed in the risk assessment completed in NRW IC50. A summary of the assessment shall be sent to Natural Resources Wales in writing together with a timetable to implement any necessary changes identified to meet this target.	04 April 2024
NRW IC52	The Operator shall carry out a BAT assessment of the current drainage systems in place at the site, paying particular attention to segregation of site drainage water from formaldehyde plant effluent. The Operator shall ensure all relevant BAT conclusions have been considered including but not limited to: • BAT Conclusion 8 of the Common Waste Water and Waste Gas Treatment / Management Systems in the Chemical Sector BRef A summary of the assessment shall be sent to Natural Resources Wales in writing together with a timetable to implement any necessary changes identified.	Completed
NRW IC53	The Operator shall review their emissions to water monitoring at emission point W1 in this permit with the intent to achieve MCERTS certification or MCERTS accreditation (as appropriate) or an equivalent standard that is acceptable to Natural Resources Wales, where confirmation has been agreed in writing beforehand. Measurement methods shall be to appropriate standards (examples in BAT Conclusions for Large Volume Organic Chemicals and Common Waste Water and Waste Gas Treatment / Management Systems in the Chemical Sector), particularly with intent to implement continuous or at very least proportional composite sampling. Techniques should be in accordance with Technical Guidance Note M18 ‘Monitoring of discharges to water and sewer’. Proposals for a revised emissions monitoring programme shall be sent to Natural Resources Wales together with an implementation date.	04 January 2024

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC54	The operator will develop a written commissioning plan for WESP 32 and submit it to NRW for approval. The plan shall include, but is not restricted to: • A timetable for completion of the re-ducting of A5 and A6 and commissioning of WESP 32; • Technical steps (including any contingency plans) involved with commissioning of WESP 32 for abatement of resin plant, paper impregnation plant and press abatement emissions; • Expected duration of commissioning activities; and • Any additional (beyond that required by the permit) monitoring to be undertaken. Commissioning shall be carried out in accordance with the commissioning plan as approved.	Completed
NRW IC55	The operator shall submit to NRW a written report on the commissioning of WESP 32 and shall report in accordance with the approved commissioning plan. • The environmental performance of WESP 32 and a review against the conditions in the permit; • Any operating techniques or procedures developed and adopted during the commissioning of WESP 32 for achieving and demonstrating compliance; and • Any operating techniques and procedures relating to the shut down of WESP 32 and the implications for press abatement, resin and paper impregnation plants. All relevant documents to be updated where necessary. • In the event that A5 and A6 have to be re-commissioned, quarterly monitoring would be required to start on resumption of use of these emission points. The report shall also outline any improvements and / or modifications identified as part of the commissioning and any timetable for their implementation.	Completed
NRW IC56	Following the rebuild of K8 the operator shall submit a written report to Natural Resources Wales describing the performance and optimisation of K8, specifically: ○ The lime injection system for minimisation of acid gas emissions for HCl and SO_2; ○ The carbon injection system for minimisation of dioxin and heavy metal emissions; ○ The Selective Non-Catalytic Reduction (SNCR) system; and ○ Combustion settings to minimise oxides of nitrogen (NOx). The report shall include an assessment of the level of NO_X, N_2O and NH_3 emissions that can be achieved under optimum operating conditions.	6 months from issue of variation V011
NRW IC57	The operator shall carry out a study to determine measures needed to monitor channelled emissions on K7 emission point A26 to meet the standards specified within BAT Conclusion 4 of the Waste Incineration BREF Document (EU 2019). A written report of the study shall be submitted to Natural Resources Wales. The report shall include, but not be limited to: findings from the study, timescales for installing CEMS on A26 actions required to meet the BAT 4 standards and a timetable for implementation and reporting to NRW.	12 months from issue of variation V011

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC58	Following optimisation and performance testing of K7 (emission point A26) the operator shall undertake a review of emissions over a period and frequency agreed with NRW. Following this a study of the current abatement system on the K7 biomass boiler plant shall take place in order to reduce emissions of HCl, HF and SO_2. A written report of the study shall be submitted to Natural Resources Wales. The report shall include, but not be limited to: findings from the study, timescales for implementation of any improvements identified, and reporting to NRW.	16 months from issue of variation V011
NRW IC59	The operator shall carry out a study to determine measures needed on K7 emission point A26 to meet the standards specified within BAT Conclusion 29 of the Waste Incineration BREF Document (EU 2019). The study shall include a description of how the measures will be operated on an ongoing basis to minimise NOx, N2O, NH3 and CO emissions, including target emission limit values for NOx and for any reagent used, (including process optimisation and monitoring). A written report of the study shall be submitted to Natural Resources Wales.	16 months from issue of variation V011
NRW IC60	The Operator shall calculate the gross energy efficiency using the method set out in the general considerations section of the Waste Incineration BAT conclusions for K7 emission point A26 and submit details of the calculation to Natural Resources Wales in a written report. If the calculated gross energy efficiency is below the range specified in BAT 20 of the Waste Incineration BAT Conclusions, the operator shall carry out a written assessment of the opportunities to increase the energy efficiency of the installation and include this in the report along with proposed improvements and timescales within an action plan for implementation. The assessment shall include but not necessarily be limited to: • Improvements that could be made to the furnace (including control systems) in order to increase the amount of thermal energy produced per unit of thermal energy in the waste. • Improvements in the heat and electrical efficiency of the plant's ancillary systems that could be made in order to reduce the parasitic heat and electrical loads of the plant. • Where relevant, an implementation plan for the improvements identified, including the anticipated increase in the gross and/or net electrical efficiency of the plant which would be achieved.	18 months from issue of variation V011

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
NRW IC61	The operator shall submit an Other than normal operating conditions (OTNOC) management plan to Natural Resources Wales (NRW) for approval for both K8 and K7. The OTNOC management plan shall be produced in line with all relevant current guidance provided by NRW to the operator and the requirements of the following BAT conclusions of the Waste Incineration BREF Document (EU 2019): • BAT 1 (xxiv) – BAT is also to incorporate the following features in the Environmental Management System (EMS): o (xxiv) for incineration plants, an OTNOC management plan (see BAT 18) • BAT 5 – BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC • 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: o 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; o 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.); o Set-up and implementation of preventative maintenance plan for critical equipment (see BAT 1(xii)) o Monitoring and recording of emissions during OTNOC and associated circumstances (see BAT 5) o Periodic assessment of the emissions during OTNOC (e.g. frequency of events, duration, amount of pollutants emitted) and implementation of corrective actions if necessary. The OTNOC management plan shall include: o a list of any potential OTNOC situations that are considered to be abnormal operation under the definition in Schedule 6 of this permit. o a definition of start-up and shut-down conditions having regard to any relevant regulatory guidance on start-up and shut-down. any updates on the design of critical equipment to minimise OTNOC since the permit application.	Within 18 months of V011 issue

Table S1.4 Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational measures**
PO1	Gas Engines 4 and 5	The Operator shall submit a written assessment of the sampling locations used to measure point source emissions to air for Gas Engines 4 and 5 (emission points A24 and A25 respectively). The assessment must use Natural Resources Wales Monitoring Technical Guidance Note M1: "Sampling Requirements for Stack Emission Monitoring". The assessment shall be submitted to Natural Resources Wales for written approval at least 4 weeks before the start of operation of Gas Engines 4 and 5.

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
-	-

Table S2.2 Permitted waste types and quantities for K7 Biomass Boiler	
	The waste wood biomass combusted in K7 is limited to waste types not subject to Chapter IV and Annex VI of the Industrial Emissions Directive (2010/75/EU)
Waste code	**Description**
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 (specifically bark from the on-site Saw Mill)
03 01 05	Sawdust, shavings, cuttings, wood, particleboard and veneer other than those mentioned in 03 01 04* (specifically off-cuts and sawdust from the Saw Mill and non-particleboard reject material from manufacturing)
03 03	**Wastes from pulp, paper and cardboard production and processing**
03 03 01	Waste bark and wood

Table S2.3 Permitted waste types and quantities for K8 Biomass Boiler	
Maximum quantity	The annual quantity of wood waste to be burned in the K8 Biomass Boiler shall not exceed 100,000 tonnes at 35% moisture content. Waste wood classified within these categories may contain dangerous substances providing that the concentration of the dangerous substances do not exceed the hazardous waste thresholds for 03 01 04* and 19 12 06*.
	Description
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 (specifically bark from the on-site Saw Mill)
03 01 05	Sawdust, shavings cuttings, wood, particleboard and veneer other than those mentioned in 03 01 04* (including dust from dust extraction systems on site, off-cuts and sawdust from the on-site Saw Mill, solid residues from skimming of surface water run-off from internal roadways and reject material from the manufacturing processes).
03 03	**Wastes from pulp, paper and cardboard production and processing**
03 03 01	Waste bark and wood
19	**Waste from waste management facilities, off-site waste-water treatment plants and preparation of water intended for human consumption and water for industrial use**
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* (including fines from grading of Recycled Cellulose Fibre (RCF) generated on site)
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* (non-hazardous municipal wood waste)

Table S2.4 Permitted waste types and quantities for Particle Board Manufacturing	
Waste code	**Description**
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 05	Sawdust, shavings cuttings, wood, particleboard and veneer other than those mentioned in 03 01 04* (including dust from dust extraction systems on site, off-cuts and sawdust from the on-site Saw Mill and reject material from the manufacturing processes)
03 03	**Wastes from pulp, paper and cardboard production and processing**
03 03 01	Waste bark and wood
19	**Wastes from waste management facilities, off-site waste-water treatment plants and preparation of water intended for human consumption and water for industrial use**
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* (mechanically sorted / processed wood including fines from grading of Recycled Cellulose Fibre (RCF) generated on site)
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* (non-hazardous municipal wood waste)

Schedule 3 – Emissions and monitoring

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

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [on Site Plan in Schedule 7a]	Emissions Control System – Formaldehyde Plant	Formaldehyde	5 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Annual	CEN / TS 17638:2021
		Total Volatile Organic Compounds (TVOC)(1)	30 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Monthly (2)	EN 12619
A2 [on Site Plan in Schedule 7a]	Methanol Storage Tank (1A) Vent	No parameter set	No limit set	-	-	-
A3 [on Site Plan in Schedule 7a]	Methanol Storage Tank (1B) Vent	No parameter set	No limit set	-	-	-
A4 [on Site Plan in Schedule 7a]	Wet scrubber on Formaldehyde Storage Tanks	No parameter set	No limit set	-	-	-
A5 [on Site Plan in Schedule 7a](3)	NAIRB Wet Scrubber – Resin VITS 3, 5, Paper Impregnation Plant	Formaldehyde	5 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	As agreed in writing with Natural Resources Wales	CEN / TS 17638:2021
		Total Volatile Organic Compounds (1)	30 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	As agreed in writing with Natural Resources Wales	EN 12619

Table S3.1 Point source emissions to air – Chemical manufacturing plant emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Particulates	20 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	As agreed in writing with Natural Resources Wales	BS 13284-1
A6 [on Site Plan in Schedule 7a](3)	NAIRB Wet Scrubber – Resin VITS 4 Paper Impregnation Plant	Formaldehyde	5 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	As agreed in writing with Natural Resources Wales	CEN / TS 17638:2021
		Total Volatile Organic Compounds (1)	30 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	As agreed in writing with Natural Resources Wales	EN 12619
		Particulates	20 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	As agreed in writing with Natural Resources Wales	BS 13284-1
A7 [on Site Plan in Schedule 7a]	Exhaust fan for existing urea silo	No parameter set	No limit set	-	-	-
A8 [on Site Plan in Schedule 7a]	Exhaust fan for urea tipping hopper	No parameter set	No limit set	-	-	-
A9 [on Site Plan in Schedule 7a]	Exhaust fan for urea screw conveyor	No parameter set	No limit set	-	-	-
A10 [on Site Plan in Schedule 7a]	Redundant Emission Point	No parameter set	No limit set	-	-	-

Table S3.1 Point source emissions to air – Chemical manufacturing plant emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A11 [on Site Plan in Schedule 7a]	Exhaust fan for melamine bag station hopper	No parameter set	No limit set	-	-	-
A12 [on Site Plan in Schedule 7a]	Redundant Emission Point	No parameter set	No limit set	-	-	-
A13 [on Site Plan in Schedule 7a]	Exhaust fan for urea silo	No parameter set	No limit set	-	-	-
A14 [on Site Plan in Schedule 7a]	All pressure relief venting systems in formalin plant	No parameter set	No limit set	-	-	-
A15 [on Site Plan in Schedule 7a]	All pressure relief venting systems in resin plant	No parameter set	No limit set	-	-	-

Notes:

(1) Methane monitored according to EN ISO 25140 or EN ISO 25139 is subtracted from the result when using natural gas, LPG etc. as a fuel.

(2) The monitoring frequency for periodic measurements may be reduced to once every year, if the emission levels are proven to be sufficiently stable.

(3) A5, A6 are only to be used to facilitate controlled shut-down of the relevant plant.

Table S3.2 Point source emissions to air – Gas fired combustion plant emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A16 [on Site Plan in Schedule 7a]	K1 Kronoplus (press and space heating)	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	200 mg/Nm^3	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Annual	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058

Table S3.2 Point source emissions to air – Gas fired combustion plant emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A17[1] [on Site Plan in Schedule 7a]	K5 Rawboard Thermal Oil to ContiRoll Presses (standby gas heater)	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	200 mg/Nm^3	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Annual	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058
A18[1] [on Site Plan in Schedule 7a]	K6 Rawboard Thermal oil to ContiRoll Presses (standby gas heater)	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	200 mg/Nm^3	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Annual	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058
A19[1][3] [on Site Plan in Schedule 7a]	GT1 Heat to MDF1 dryer (standby)	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	390 mg/Nm^3	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Quarterly	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058
A20[1][3] [on Site Plan in Schedule 7a]	GT2 Heat to MDF2 dryer (standby)	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	390 mg/Nm^3	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Quarterly	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058
A21[3] [on Site Plan in Schedule 7a]	Engine 1 providing electricity supply to site, steam production for MDF 1& 2 process and heat to MDF dryers 1 & 2.	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	280 mg/Nm^3[2]	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Quarterly	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058
A22[3] [on Site Plan in Schedule 7a]	Engine 2 providing electricity supply to site, steam production for MDF 1& 2 process and heat to MDF dryers 1 & 2.	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	280 mg/Nm^3[2]	Periodic (average value of three consecutive measurements of at least 30	Quarterly	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058

Table S3.2 Point source emissions to air – Gas fired combustion plant emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
				minutes each)		
A23(3) [on Site Plan in Schedule 7a]	Engine 3 providing electricity supply to site, steam production for MDF 1& 2 process and heat to MDF dryers 1 & 2.	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	280 mg/$Nm^{3(2)}$	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Quarterly	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058
A24(3) [on Site Plan in Schedule 7a]	Engine 4 providing electricity supply to site, steam production for MDF 1& 2 process and heat to MDF dryers 1 & 2.	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	280 mg/$Nm^{3(2)}$	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Quarterly	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058
A25(3) [on Site Plan in Schedule 7a]	Engine 5 providing electricity supply to site, steam production for MDF 1& 2 process and heat to MDF dryers 1 & 2.	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	280 mg/$Nm^{3(2)}$	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Quarterly	BS EN 14792
		Carbon monoxide	No limit set			BS EN 15058

Notes:

(1) Emission testing required when brought into use for periods which aggregate to >28 days per year

(2) A21 – A25 emission limit value for oxides of nitrogen has been converted from 250 mg/Nm^3 @ 5% reference O_2 content to 280 mg/Nm^3 at the standard 3% reference O_2 content for gaseous fuels.

(3) Emergency release point

Table S3.3 Point source emissions to air – Biomass Boiler emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A26 [on Site Plan in Schedule 7a]	K7 Biomass Boiler chimney (waste biomass heat and steam production for MDF and Particleboard) (ductwork prior to transfer point of flue gases to MDF Dryer 2)	Oxides of nitrogen (NO & NO_2 expressed as NO_2)	250 mg/Nm^3 Effective from 1st January 2024	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Quarterly	BS EN 14792
		Carbon Monoxide	150 mg/Nm^3 Effective from 1st January 2024			BS EN 15058
		Particulate Matter	30 mg/Nm^3			BS EN 13284-1
		Sulphur Dioxide	200 mg/Nm^3			BS EN 14791
		Hydrogen fluoride	1 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	CEN TS 17340
		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
		Ammonia (NH_3)	No limit set	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	EN ISO 21877

Table S3.3 Point source emissions to air – Biomass Boiler 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	CEN TS 17337
		Cadmium & thallium and their compounds (total)(1)	0.03 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	BS EN 14385
		Antimony, Arsenic, Lead, Chromium, Cobalt, Copper, Manganese, Nickel & Vanadium and their compounds (total) (1)	0.45 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Bi-annually	BS EN 14385
		Mercury and its compounds	0.03 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	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
		Dioxin-like PCBs (WHO-TEQ Humans / Mammals, Fish, Birds)	No limit set	Periodic over minimum 6 hours, maximum 8 hour period	Bi-annually	BS EN 1948 Parts 1, 2 and 3
		Dioxins / furans (WHO-TEQ Humans / Mammals, Fish, Birds)	No limit set	Periodic over minimum 6 hours, maximum 8 hour period	Bi-annually	BS EN 1948 Parts 1, 2 and 3

Table S3.3 Point source emissions to air – Biomass Boiler emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Specific individual poly-cyclic aromatic hydrocarbons (PAHs) as specified in Schedule 6	No limit set	Periodic over minimum 6 hours, maximum 8 hour period	Annually	BS ISO 11338 Parts 1 and 2
		Exhaust gas temperature	No limit set	Periodic (average value of three consecutive measurements of at least 30 minutes each)	Quarterly	Traceable to national standards
		Exhaust gas pressure				Traceable to national standards
		Exhaust gas flow				EN 16911-2
		Exhaust gas oxygen content				EN 14181 and EN 17255
		Exhaust gas water vapour content				EN 14181 and EN 17255
A27 [on Site Plan in Schedule 7a]	K8 Biomass Boiler chimney (waste biomass heat and steam production for MDF and Particleboard) (ductwork prior to transfer point of flue gases to MDF Dryer 1)	Particulate Matter	7.5 mg/Nm^3	Daily average	Continuous	BS EN 17255 BS EN 14181
		Particulate Matter	45 mg/Nm^3	½ hour average	Continuous	BS EN 17255 BS EN 14181
		Total organic carbon (TOC)	15 mg/Nm^3	Daily average	Continuous	BS EN 17255 BS EN 14181
		Total organic carbon (TOC)	30 mg/Nm^3	½ hour average	Continuous	BS EN 17255 BS EN 14181
		Hydrogen chloride	12 mg/Nm^3	Daily average	Continuous	BS EN 17255 BS EN 14181
		Hydrogen chloride	90 mg/Nm^3	½ hour average	Continuous	BS EN 17255 BS EN 14181
		Hydrogen fluoride	1 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Quarterly	CEN TS 17340
		Carbon monoxide	75 mg/Nm^3	Daily average	Continuous	BS EN 17255 BS EN 14181
		Carbon monoxide	150 mg/Nm^3	½ hour average	Continuous	BS EN 17255 BS EN 14181

Table S3.3 Point source emissions to air – Biomass Boiler emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Sulphur dioxide	60 mg/Nm^3	Daily average	Continuous	BS EN 17255 BS EN 14181
		Sulphur dioxide	300mg/Nm^3	½ hour average	Continuous	BS EN 17255 BS EN 14181
		Oxides of nitrogen (NO & NO_2 expressed as NO_2)	270 mg/Nm^3	Daily average	Continuous	BS EN 17255 BS EN 14181
		Oxides of nitrogen (NO & NO_2 expressed as NO_2)	600 mg/Nm^3	½ hour average	Continuous	BS EN 17255 BS EN 14181
		Ammonia (NH_3)	22.5mg/Nm^3	Daily average	Continuous	BS EN 14181 BS EN 17255
		Cadmium & thallium and their compounds (total)(1)	0.03 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 14385
		Mercury and its compounds(1)	0.03 mg/Nm^3	Average of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 13211
		Antimony, Arsenic, Lead, Chromium, Cobalt, Copper, Manganese, Nickel & Vanadium and their compounds (total) (1)	0.45 mg/Nm^3	Periodic over minimum 30-minute, maximum 8 hour period	Quarterly	BS EN 14385
		Dioxins and Furans (I-TEQ)	0.09 ng/Nm^3	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly	BS EN 1948 Parts 1, 2 and 3
		Dioxin-like PCBs (WHO-TEQ Humans / Mammals, Fish, Birds)	No limit set	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly	BS EN 1948 Parts 1, 2 and 3

Table S3.3 Point source emissions to air – Biomass Boiler emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Dioxins / furans (WHO-TEQ Humans / Mammals, Fish, Birds)	No limit set	Periodic over minimum 6 hours, maximum 8 hour period	Quarterly	BS EN 1948 Parts 1, 2 and 3
		Specific individual poly-cyclic aromatic hydrocarbons (PAHs) as specified in Schedule 6	No limit set	Periodic over minimum 6 hours, maximum 8 hour period	Annually	BS ISO 11338 Parts 1 and 2
		Nitrous Oxide (N_20)	No limit set	1/2 hour average and daily average	Continuous	EN14181 and EN 17255
		Exhaust gas temperature	No limit set	1/2 hour average and daily average	Continuous	Traceable to national standards
		Exhaust gas pressure	No limit set	1/2 hour average and daily average	Continuous	Traceable to national standards
		Exhaust gas flow	No limit set	1/2 hour average and daily average	Continuous	EN 16911-2
		Exhaust gas oxygen content	No limit set	1/2 hour average and daily average	Continuous	EN 14181 and EN 17255
		Exhaust gas water vapour content	No limit set	1/2 hour average and daily average	Continuous	EN 14181 and EN 17255

Notes:

(1) Metals include gaseous, vapour and solid phases as well as their compounds (expressed as the metal or the sum of the metals as specified).

Table S3.3(a) Point source emissions to air during abnormal operation of (co)incineration plant– emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A27	K8 Biomass Boiler chimney	Particulate matter	225 mg/Nm^3	½-hr average	Continuous	EN 14181 and EN 17255 and EN13284 during abatement plant failure
A27	K8 Biomass Boiler chimney	Carbon monoxide	150 mg/Nm^3	½-hr average	Continuous	EN 14181 and EN 17255 during abatement plant failure
A27	K8 Biomass Boiler chimney	Total Organic Carbon (TOC)	30 mg/Nm^3	½-hr average	Continuous	EN 14181 and EN 17255

Table S3.4 Point source emissions to air – Board Manufacturing emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A28 [on Site Plan in Schedule 7a]	WESP 32 Unit Stack: (taking emissions from A31 and re-ducted emission points A5 & A6 (amended by variation BW9999IG/V010) (1) (10)	Particulate Matter	15 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 13284-1
		Total Volatile Organic Compounds	30 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 12619
		Formaldehyde	5 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	CEN / TS 17638:2021

Table S3.4 Point source emissions to air – Board Manufacturing emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A29 [on Site Plan in Schedule 7a]	MDF 2 Dryer (open cyclones x 4) (8)	Particulate Matter	20 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 13284-1
		Total Volatile Organic Compounds (2)	120 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 12619
		Formaldehyde	15 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	CEN / TS 17638:2021
		Oxides of nitrogen (NO & NO_2 expressed as NO_2)	100 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 14792
		Carbon monoxide	200 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 15058

Table S3.4 Point source emissions to air – Board Manufacturing emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Hydrogen chloride (3)	30 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 1911
		Hydrogen fluoride (3)	1 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	CEN TS 17340
		Mercury (3)	No limit set	Periodic over minimum 30-minute, maximum 8 hour period	Annual	BS EN 13211
		Metals (Antimony, Arsenic, Cadmium, Cobalt, Chromium, Copper, Manganese, Nickel, Lead, Thallium & Vanadium) (3)	No limit set	Periodic over minimum 30-minute, maximum 8 hour period	Annual	BS EN 14385
		Polychlorinated dibenzo-dioxins and -furans (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Annual	EN 1948 parts 1, 2 and 3
		Ammonia (4)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Annual	EN ISO 21877

Table S3.4 Point source emissions to air – Board Manufacturing emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A30 [on Site Plan in Schedule 7a]	MDF 1 Dryer Cyclones x 2 (9)	Particulate Matter	20 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 13284-1
		Total Volatile Organic Compounds (2)	120 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 12619
		Formaldehyde	15 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	CEN / TS 17638:2021
		Carbon monoxide	200 mg/m^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 15058
A30 [on Site Plan in Schedule 7a]	MDF 1 Dryer Cyclones x 2 (9)	Oxides of nitrogen (NO & NO_2 expressed as NO_2)	100 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 14792

Table S3.4 Point source emissions to air – Board Manufacturing emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Hydrogen Chloride (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 1911
		Hydrogen Fluoride (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	CEN TS 17340:2020
		Mercury (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Annual	EN 13211
		Metals (Antimony, Arsenic, Cadmium, Cobalt, Chromium, Copper, Manganese, Nickel, Lead, Thallium & Vanadium) (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Annual	EN 14385
		Polychlorinated dibenzo-dioxins and -furans (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Annual	EN 1948 parts 1, 2 and 3

Table S3.4 Point source emissions to air – Board Manufacturing emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Ammonia	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Annual	EN ISO 21877
A31 [on Site Plan in Schedule 7a]	MDF 1, MDF 2 and Particleboard Contiroll / combined press abatement system stack (7)	Particulate Matter	15 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	As agreed in writing with Natural Resources Wales	BS EN 13284-1
		Total Volatile Organic Compounds	30 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	As agreed in writing with Natural Resources Wales	BS EN 12619
		Formaldehyde	5 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	As agreed in writing with Natural Resources Wales	CEN / TS 17638:2021
A32 [on Site Plan in Schedule 7a]	WESP 21 Unit Stack (Chip Dryer No. 4 and exhaust from Particleboard) (5)	Particulate Matter	20 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 13284-1

Table S3.4 Point source emissions to air – Board Manufacturing emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Total Volatile Organic Compounds (2)	200 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 12619
		Formaldehyde	10 mg/Nm^3 (6)	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	CEN / TS 17638:2021
		Oxides of nitrogen (NO & NO_2 expressed as NO_2)	200 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 14792
		Carbon monoxide	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 15058
		Hydrogen chloride (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	BS EN 1911

Table S3.4 Point source emissions to air – Board Manufacturing emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A32 [on Site Plan in Schedule 7a]	WESP 21 Unit Stack (Chip Dryer No. 4 and exhaust from Particleboard) (5)	Hydrogen Fluoride (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Quarterly	CEN TS 17340:2020
		Mercury (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Annual	EN 13211
		Metals (Antimony, Arsenic, Cadmium, Cobalt, Chromium, Copper, Manganese, Nickel, Lead, Thallium & Vanadium) (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Annual	EN 14385
		Polychlorinated dibenzo-dioxins and -furans (3)	No limit set	Average value of three consecutive measurements of at least 30 minutes each	Annual	EN 1948 parts 1, 2 and 3
A33 [on Site Plan in Schedule 7a]	Dryer No. 4 WESP 21 Particleboard Emergency Stack	Emergency operation (reference condition 4.3.3)				
A34 [on Site Plan in Schedule 7a]	BAB Dryer No. 3 WESP 32 Emergency Stack	Dryer mothballed				
A35 [on Site Plan in Schedule 7a]	BAB Dryer No. 2 WESP 32 Emergency Stack	Dryer mothballed				

Table S3.4 Point source emissions to air – Board Manufacturing emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
B01 – B31 [on Site Plan in Schedule 7b]	All Particulate Filtration Plant (bag filters and MDF recycle cyclones)	Particulate Matter	5 mg/Nm^3 to be determined following outcome of IC49	Average value of three consecutive measurements of at least 30 minutes each	to be determined following outcome of IC49	BS EN13284-1

(1) WESP 32 is to be used for press abatement, resin and paper impregnation plant emissions to air and will be operational on completion of IC55. (see footnote 10)

(2) Methane monitored according to EN ISO 25140 or EN ISO 25139 is subtracted from the result when using natural gas, LPG, etc. as a fuel.

(3) Relevant if contaminated recovered wood is used as fuel.

(4) Relevant to MDF1 Offline operating scenario.

(5) Dryer inlet and outlet temperatures shall be monitored and recorded continuously.

(6) When using almost exclusively recovered wood, the upper end of the range may be up to 15 mg/Nm^3. In the UK this would be >85% of feedstock to be recovered wood.

(7) Emission point A31 shall only be operated should WESP 32 be unavailable to facilitate shut-down of the presses.

(8) One round of quarterly monitoring annually to include all 4 cyclones.

(9) One round of quarterly monitoring annually to include both cyclones.

(10) A5, A6 and A31 are only to be used to facilitate controlled shut-down of the press abatement, resin and paper impregnation plant.

Table S3.5 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 (2)**	**Monitoring standard or method**
W1 [Point W1 on the site plan. DRG 7000/282-B]	Discharge from Surface Water Lagoons via Penstock A to Afon Bradley	pH	6 – 9 (1)	Instantaneous (spot sample)	Daily when discharging	BS 6068-2.50:1995, ISO 10523:1994
		Biological Oxygen Demand (BOD)	9.5 mg/l	Instantaneous (spot sample)	3 times / week	5-day ATU @ 20ºC BS EN 1899-1 (1998)
		Total Suspended Solids	100 mg/l	Instantaneous (spot sample)	Daily when discharging	EN 872 Dried @ 105ºC

Table S3.5 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 [2]**	**Monitoring standard or method**
		Total Suspended Solids	40 mg/l	Instantaneous (spot sample)	Average of samples obtained during one year [3]	As agreed in writing with Natural Resources Wales
		Ammonia	5 mg/l	Instantaneous (spot sample)	Daily when discharging	BS6068-2.33:1987 ISO 7150-2 1986
		Oil and Grease	15 mg/l	Instantaneous (spot sample)	Daily when discharging	SCA The determination of Hydrocarbon oils in waters by solvent extraction IR absorption and gravimetry ISBN 0117517283
		Formaldehyde	2 mg/l	Instantaneous (spot sample)	Daily when discharging	SCA The determination of formaldehyde, other volatile aldehydes and alcohols in water.
		Discharge volume	No limit set	Continuous	Daily when discharging	MCERTS flowmeter

Notes:

(1) No spot samples when discharging shall be outside the pH range specified.

(2) Spot sampling to be carried out while discharging to the River Bradley, in accordance with operator procedures.

(3) Reported quarterly as a 12 month running average.

Table S3.6 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**
E1 (Site plan in Schedule 7a)	Formaldehyde Plant Effluent Tank Outlet	Formaldehyde	1 mg/l	Instantaneous (spot sample)	Prior to each discharge	SCA The determination of formaldehyde, other volatile aldehydes and alcohols in water
		pH	6 - 9	Instantaneous (spot sample)	Prior to each discharge	BS 6068-2.50:1995, ISO 10523:1994

Table S3.6 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**
		Oil and Grease	15 mg/l	Instantaneous (spot sample)	Prior to each discharge	SCA The determination of Hydrocarbon oils in waters by solvent extraction IR absorption and gravimetry. ISBN 011751 7283
		Discharge volume	No limit set	Instantaneous (spot sample)	For each batch discharge	-
S1 (Site Plan in Schedule 7a)	Zone 1 – Middle Road Pit, Bab Dryer No.2 and No.3 & WESP 32 Area. Boiler blowdown (from Gas Engines 1 – 5, K7 Biomass Boiler, K8 Biomass Boiler), MDF Refiner Chip wash water and surface wash down water released to Middle Road Pit, prior to final discharge to public sewer	No parameters set	No limit set	-	-	-
S2 (Site Plan in Schedule 7a)	Zone 2 – Pre-production Wash down water and surface water from area around Preproduction Sifters and Conidur Mills.	No parameters set	No limit set	-	-	-
S3 (Site Plan in Schedule 7a)	Zone 3 – Dryer No. 4 & WESP 21 area. Washdown of Surfaces in PAL area	No parameters set	No limit set	-	-	-
S4 Garage interceptor (Site Plan in Schedule 7a)	Vehicle Maintenance in Garage area	No parameters set	No limit set	-	-	-

Table S3.7 Process monitoring requirements – K8 Biomass Boiler				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Close to the Combustion Chamber inner wall	Temperature (ºC)	Continuous	Traceable to National Standards	As agreed in writing with Natural Resources Wales
See Table S3.1 for exhaust gas monitoring on K8 Biomass Boiler	-	-	-	-

Table S3.8 Process monitoring requirements – All Particulate Filtration Plant (bag filters and MDF recycle cyclones)				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
B01 –B31 [on Site Plan in Schedule 7b]	Pressure drop across the filter	Continuous	To be agreed in writing with Natural Resources Wales	Selection of abatement equipment which is capable of meeting the specified emission limit in Table S3.4

Table S3.9 K7 and K8 Biomass Boiler Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method***	**Other specifications**
K7 Bottom Ash	LOI	<5%	Quarterly	EN 14899 and either EN 15169 or EN 15935	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"
K7 Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	No limit set	Quarterly	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"	-
K7 Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	No limit set	Before use of a new disposal or recycling route	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"	-
K7 APC Residues	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	No limit set	Quarterly	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"	-

Table S3.9 K7 and K8 Biomass Boiler Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method***	**Other specifications**
K7 APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	No limit set	Before use of a new disposal or recycling route	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"	-
K8 Bottom Ash	LOI	<5%	Quarterly	EN 14899 and either EN 15169 or EN 15935	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"
K8 Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	No limit set	Quarterly	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"	-
K8 Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	No limit set	Before use of a new disposal or recycling route	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"	-

Table S3.9 K7 and K8 Biomass Boiler Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method***	**Other specifications**
K8 APC Residues	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	No limit set	Quarterly	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"	-
K8 APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	No limit set	Before use of a new disposal or recycling route	Environment Agency Guidance, "TGN M4 – Guidelines for Ash Sampling and Analysis"	-
* Or other equivalent standard as agreed in writing with Natural Resources Wales.					

Schedule 4 – Reporting

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, A5, A6, A16, A17, A18	Annually	1 Jan
Emissions to air Parameters as required by condition 3.6.1	A19, A20, A21 - A25, A26, A27, A28, A29, A30, A31, A32, B01 –B31	Quarterly	1 Jan, 1 Apr, 1 Jul, and 1 Oct
Emissions to water Parameters as required by condition 3.6.1	W1	Quarterly	1 Jan, 1 Apr, 1 Jul, and 1 Oct
Emissions from Formaldehyde Plant Effluent Tank Parameters as required by condition 3.6.1	E1	Quarterly	1 Jan, 1 Apr, 1 Jul, and 1 Oct
K7 and K8 LOI Parameters as required by condition 3.6.1	Bottom Ash	Quarterly	1 Jan, 1 Apr, 1 Jul, and 1 Oct
K7 and K8 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 Jan, 1 Apr, 1 Jul, and 1 Oct
K7 and K8 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	-
K7 and K8 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	APC Residues	Quarterly	1 Jan, 1 Apr, 1 Jul, and 1 Oct
K7 and K8 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	APC Residues	Before use of a new disposal or recycling route	-

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Functioning and monitoring of the K8 Biomass Boiler co-incineration plant as required by condition 4.2.2	-	Annually	1 Jan

Table S4.2: Annual production/treatment	
Parameter	**Units**
Production of formaldehyde	tonnes
Production of resin	tonnes
Discharge of effluent from W1	m^3
Incoming Water Use	m^3
Total waste biomass / wood received (1)	tonnes
Total tonnage of biomass / waste wood co-incinerated	tonnes
Thermal energy produced (e.g. steam for export)	MWh
Thermal energy used on installation	MWh
Electrical Energy generated	MWh
Electrical Energy used on installation	MWh
Total K7 and K8 bottom ash produced	tonnes
Total K7 and K8 APC residue produced	tonnes
Notes: All waste biomass / wood delivered to the installation, including waste which is subsequently rejected.	

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Total BOD emission to Water (other than Sewer) from point W1	Annual	Kg
Total Methanol received into storage tanks	Annual	tonnes
Total VOCs released	Annual	tonnes
Electricity consumption	Annual	MWh / tonne of finished product
Natural gas consumption	Annual	MWh / tonne of finished product
Water consumption	Annual	M^3/ tonne of finished product
Bottom ash residue produced by K7 and K8	Annual	Route, tonnes and tonnes / tonne of waste incinerated
K7 & K8 APC residue	Annual	Route, tonnes and tonnes / tonne of waste incinerated
K8 Urea Consumption	Annual	Kg / tonne of waste incinerated

Table S4.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	For CEMS monitoring data - In the format indicated in forms air 1 to 16 as a direct output from Data Acquisition and Handling system. For other monitoring results - Form Air 17 or other form as agreed in writing by Natural Resources Wales	Air 1 to 16 Continuous 04/06/2025 Air 17 04/06/2025
Water	Form Water 1 or other form as agreed in writing by Natural Resources Wales	16/05/2023
Formaldehyde Plant Effluent Tank	Form FPET 1 or other form as agreed in writing by Natural Resources Wales	16/05/2023
Water usage	Form Water Usage 1 or other form as agreed in writing by Natural Resources Wales	04/06/2025
Energy usage	Form Energy 1 or other form as agreed in writing by Natural Resources Wales	04/10/2022
Residue quality	Form Residue 1 or other form as agreed in writing by Natural Resources Wales	04/10/2022
Other performance indicators	Form Performance 1 or other form as agreed in writing by Natural Resources Wales	15/09/2023
Waste subject to conditions 4.2.5 and 4.2.6	Waste tonnage return form from the Natural Resources Wales website 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	
Name of operator	
Location of Facility	
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

“abatement equipment” means that equipment dedicated to the removal of polluting substances from releases from the installation to air or water media.

“abnormal operation” means: any technically unavoidable stoppages, disturbances, or failures of the plant or the measurement devices. Abnormal operation starts as defined in condition 2.3.15 and ends as defined in condition 2.3.16. Abnormal operation is limited to 4 hours for a single occurrence and a total of 60 hours per year per line.

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

"annually" means once every year.

“APC residues” means air pollution control residues

"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.

"biological oxygen demand" means biological oxygen demand (BOD) measured after 5 days at 20ºC with nitrification suppressed by the addition of allyl-thiourea.

“bottom ash” means ash falling through the grate

“CEM” Continuous emission monitor

“CEN” means Commité Européen de Normalisation

“co-incineration line” means all of the co-incineration equipment related to a common discharge to air location.

“daily average” for releases of substances to air, means the average of valid half-hourly averages over consecutive discrete periods of 24 hours as agreed with Natural Resources Wales during normal operation.

“dioxin and furans” means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

“disposal” means 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 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**..**

"emissions to land", includes emissions to groundwater.

"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.

"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

“hazardous waste” has the meaning given in the Hazardous Waste (Wales) Regulations 2005 (as amended)

“Industrial Emissions Directive” 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.

“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.

"LOI" means loss on ignition a technique used to determine the combustible material by heating the ash residue to a high temperature

"low and stable mercury content" can be demonstrated using the latest version of the UK WI BREF Mercury monitoring protocol (V0.28 or as updated) or an appropriate alternative method as agreed in writing with Natural Resources Wales.

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

"normal operation" in respect of K7 and K8 only consists of any operation of the plant other than that as defined as "OTNOC" unless otherwise agreed in writing with Natural Resources Wales

"monitoring" means the taking and analysis of samples, instrumental measures (periodic and continual), calibrations, examinations, tests and surveys.

"natural gas" means naturally occurring methane with no more than 20% by volume of inert or other constituents

"OTNOC" applies to K7 and K8 only means other than normal operating conditions. OTNOC consists of start-up, shut-down and abnormal operation only, unless additional definitions are agreed in writing with Natural Resources Wales

"*PAH*" means Poly-cyclic aromatic hydrocarbon, and comprises **Anthanthrene**, **Benzo[a]anthracene**, **Benzo[b]fluoranthene**, **Benzo[k]fluoranthene**, **Benzo[b]naph(2,1-d)thiophene**, **Benzo[c]phenanthrene**, **Benzo[ghi]perylene**, **Benzo[a]pyrene**, **Cholanthrene**, **Chrysene**, **Cyclopenta[c,d]pyrene, Dibenzo[ah]anthracene**, **Dibenzo[a,i]pyrene, Fluoranthene**, **Indo[1,2,3-cd]pyrene**, **Naphthalene**

"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.

"quarterly" for reporting/sampling means after/during each 3 month period, January to March; April to June; July to September and October to December and, when sampling, with at least 2 months between each sampling date.

"recovery" means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"shut down" is any period where the K7, K8 Biomass Boilers are being returned to a non-operational state and there is no waste being burned, as described in the application, or agreed in writing with Natural Resources Wales.

"start up" is any period, where the K7, K8 Biomass Boilers have been non-operational, after igniting the auxiliary burner until waste has been fed to the plant in sufficient quantity to cover the grate and to initiate steady-state conditions as described in the application or agreed in writing with Natural Resources Wales.

"sufficiently stable" in respect of dioxins/furans emissions can be demonstrated using the latest version of the UK WI BREF PCDD/F monitoring protocol (V0.28 or as updated) or an appropriate alternative method as 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.

"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

"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, 15% dry for liquid and gaseous fuels burned at gas turbines, 6% dry for solid fuels; and 11% for catalytic oxidation and incinerator processes; and/or

(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

(c) in relation to emissions from directly heated Particleboard dryers alone or combined with the press, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 18% dry.

(d) In relation to emissions from other non-combustion sources, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with no correction for oxygen.

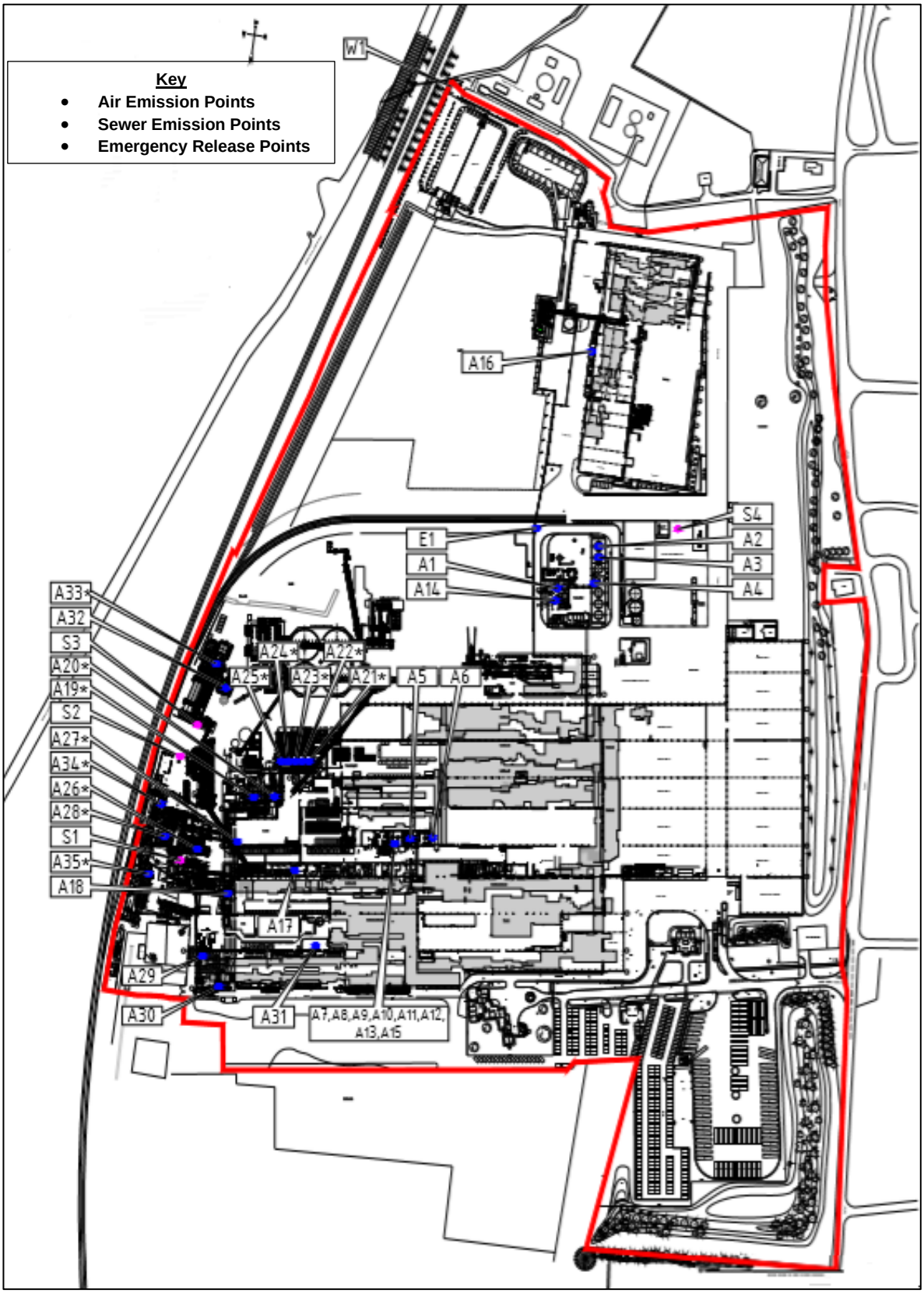
For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and / or reporting requirement, the mass concentrations of the following congeners have to be multiplied with 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 S3.3.

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

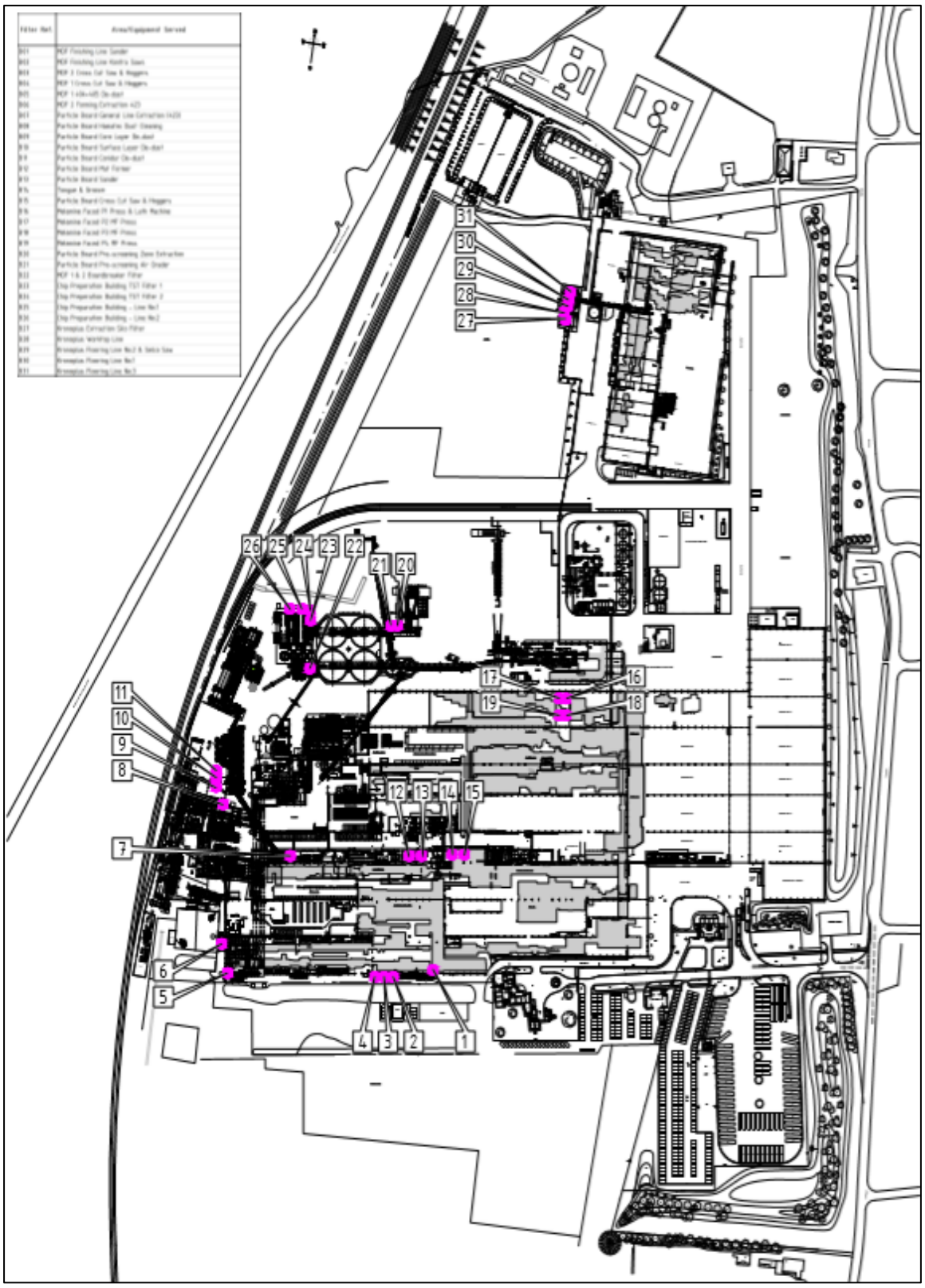
TEF schemes for dioxins and furans				
Congener	**I-TEF**	**WHO-TEF**		
	1990	**2005**	**1997/8**	
1,2,3,4,6,7,8_HpCDF	0.01	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.01
OCDF	0.001	0.0003	0.0001	0.0001

TEF schemes for dioxin-like PCBs			
Congener	**WHO-TEF**		
	2005	**1997/8**	
	Humans / mammals	**Fish**	**Birds**
Non-ortho PCBs			
3,4,4',5-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0003	0.0001	0.05
3,3',4,4',5 - PeCB (126)	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.03	0.00005	0.001
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	0.00003	<0.000005	0.0001
2,3,4,4',5-PeCB (114)	0.00003	<0.000005	0.0001
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00003	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.00003	<0.000005	0.00001

Schedule 7a - Site plan



Schedule 7b – Particulate Filtration Points



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