Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Castle Cement Limited

Padeswood Cement Works
Padeswood
Mold
Flintshire
CH7 4HB

Permit number

EPR/BL1096IB

Padeswood Cement Works

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Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows

DESCRIPTION OF THE PROCESS
The cement works at Padeswood manufactures cement from limestone, pulverised fuel ash ("PFA"), shale and sand, together with gypsum, and dispatches it in bulk tankers and as packed cement. The kiln is a modern design dry process kiln, with a nominal capacity of 750,000 tonnes per annum and includes a five-stage cyclone pre-heater and a pre-calciner. Its advanced technology reduces energy consumption and significantly reduces emissions to air.

Manufacturing of cement at Padeswood involves three main steps:
Step 1: Crushing and blending of raw materials and additives to produce "raw meal". Limestone brought from the nearby Cefn Mawr quarry is delivered to a reception hopper in a purpose–built enclosure from where it is transferred to the Crane Store using a system of conveyor belts. The other raw materials are also stored here. From the Crane Store, all the raw materials (except gypsum) are taken by conveyor to the dry milling equipment.

Step 2: Clinker Manufacture.
The raw meal is transported to the top of the pre-heater tower cyclones. The mixture descends through the cyclones where it is heated to a temperature of about 850°C. (Calcining involves breaking down the carbonates in the limestone to produce oxides). The calcined material is further heated in the rotating kiln to produce clinker at a temperature of 1450°C. The clinker is cooled to about 100°C and discharged from the kiln's cooler and conveyed to a storage building.

The calciner can be heated using Waste Derived Fuels ("WDFs" including but not limited to Profuel (made from paper, plastic, fibre and textiles), Solid Recovered Fuel (also known as SRF which is similar to Profuel but reclaimed from 'black bag' waste), meat and bone meal (MBM), shredded tyres or coal/petcoke. In addition, hot gas from the kiln and the clinker cooler are added to assist combustion and reduce overall energy requirements.

It is at this point that the separately-milled shale is introduced. Using the exhaust gas from the kiln in this way means that substances emitted from the kiln undergo gas/solid reactions as they pass through the calciner and many are reduced or incorporated into the clinker product. Similarly introducing the shale separately into the calciner burns off volatile compounds; again, eliminating a large range of emissions. The gases and calcined material then pass to the pre-heater where the calcined raw materials are removed from the gas stream in a cyclone and enter the rotary kiln where the clinker is formed. The burner for kiln 4 can be fuelled by WDFs including but not limited to Cemfuel, Profuel, MBM and the coal/petcoke mix.

The hot clinker is cooled in a grate cooler and some heated air from the clinker cooler is used as combustion air in the kiln and calciner with the rest discharging to atmosphere through a bag filter and 35m stack. The clinker is taken to the storage facility by conveyor belts. Clinker can also be exported from site by lorries which are loaded in the clinker loading area. To control clinker quality and minimise blockages in the preheater tower a kiln bypass is used. Some hot gas from the kiln to the calciner is extracted.

This gas passes through mixing chamber and heat exchanger before dedusting with a fabric filter. The bypass dust is collected for disposal while a portion of the cooled, dedusted gas is returned to undertake the initial quench. This eliminates the need for fresh cold air making the kiln more efficient. The remainder is returned to the downdraft calciner to take advantage of NO_x reduction within the main calciner.

Step 3: Cement Milling.
Conveyor belts transfer the clinker from the storage facility to the feed hoppers on the cement mills, where it is mixed with gypsum and may be ground with additives such as fillers, grinding aids and strength enhancers to make the final cement product. The five cement mills each have fabric filters to minimise releases of dust to air. The cement produced is pneumatically conveyed to the bulk silos fitted with dust filters on the vents. From these storage silos cement is extracted either directly to bulk road and rail tankers or to the bagging plant.

Fuel
Gas oil or kerosene is used to start up the kiln which is then fuelled by coal and petcoke until stability is achieved. The coal and petcoke are stored in a largely covered stockpile area. The coal and petcoke are transported to the Crane Store, then using a series of conveyor belts, taken to be milled to a fine powder to aid combustion. They are ground in a vertical spindle mill in dry air from the exhaust gas from the cyclone pre-heater. The exhaust air from the mill is passed through its own bag filter to atmosphere via the main stack. (See fuels factsheet for information on alternative fuels).

Waste
Bypass dust is classified as hazardous waste and has to either be disposed of in a suitable facility or recovered in waste management process. Bag filter dust is recycled into the process. Other wastes produced at the Installation are stored in designated storage areas before being taken for recovery or disposal.

Alternative Fuels & Raw Materials
Kiln 4 is permitted to use up to 100% of a range of Waste Derived Fuels instead of coal and petcoke. These include but are not limited to:

- Shredded used motor vehicle tyres which are delivered to the works by road. The tyres are taken directly from the delivery vehicle and fed by a conveyor into the top of the calciner. They are delivered to the calciner combustion chamber through a system of two screw conveyors and a chute.
- Cemfuel, manufactured to a detailed specification from a range of waste streams including spent solvents, paint and ink residues, spent carbon absorbers and waste oils. The Cemfuel is delivered by road and stored in steel tanks in bunded areas. The tanks are vented to atmosphere through an activated carbon filter system and fitted with level and overflow control systems. Cemfuel is used only on the main burner of kiln 4 and is not introduced into the calciner.
- Profuel, is manufactured from solid wastes, principally paper, plastics, fibre and textiles. Profuel may be used as a fuel for both the calciner and the kiln although it has only been used on the calciner thus far.
- SRF (Solid Recovered Fuel) is bio-degraded and shredded combustible waste mainly consisting of paper and plastics from household sources. SRF is manufactured off-site using a form of MBT (Mechanical and Biological Treatment). Delivery to the works is by specially designed road vehicles. SRF is fed to the calciner using the same system as for chipped tyres and Profuel. SRF and Profuel are also pneumatically conveyed to the calciner.
- MBM (Meat and Bone Meal) is a non-hazardous bio-fuel produced by sterilising and grinding abattoir waste. MBM is delivered to site in special road vehicles and then transferred to a storage silo equipped with an activated carbon filter system. MBM may be used as a fuel for both the calciner and the kiln. Each of the SFs have a specification and are tested to ensure conformity with that specification and suitability for use.

Kiln 4 is permitted to use Alternative Raw Materials (“ARMs”) to substitute raw materials such as quarried limestone and to maintain cement chemistry. These waste materials are specified in the permit.

Waste Derived Fuels and Raw materials must be used in accordance with the Mineral Product Association’s’ Code of Practice for the use of Waste Materials in Cement Manufacture.

Emissions Monitoring

Emissions from the kiln stack are continuously monitored for total particulate matter (TPM), carbon monoxide (CO), sulphur dioxide (SO_2), hydrogen chloride (HCl), oxygen (O_2), moisture (H_2O), nitrogen oxides (as NO_2), ammonia (NH_3) and volatile organic compounds (as TOC). In addition, spot samples are carried out twice per year for metals [cadmium (Cd), thallium (Tl), mercury (Hg), antimony (Sb), arsenic (As), lead (Pb), chromium (Cr), cobalt (Co), copper (Cu), manganese (Mn), nickel (Ni) & vanadium (V)], dioxins and hydrogen fluoride (HF). The cement mills and clinker cooler are monitored for total particulate matter.

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 BL1096	Received 29/08/01	
Notice requiring further information	Request sent 17/12/01	Consolidated application incorporating response received 05/06/02
Notice requiring further information	Request sent 11/04/03	Response received 06/06/03
Notice requiring further information	Request sent 17/07/03	Response dated 11/08/03
Additional information from Applicant: revised site plan and confirmation that landfill is not part of the installation	Received 24/10/03	
Additional information from applicant	Received 10/05/04	
Permit Determined BL1096	17/12/04	
Application for landfill variation	Received 15/04/05	
Notice requiring further information	Request sent 21/07/05	Response received 23/09/05 Response received 09/01/06
Notice requiring further information	Request sent 02/06/06	Response received 03/08/06 Response received 14/08/06 Response received 19/09/06
Variation Determined YP3438	08/11/07	
Application for MBM variation	Duly made 30/03/07	
Notice requiring further information	Request sent 27/06/07	Response received 20/07/07
Additional information from applicant	Received 20/12/07	
Request to amend fuel specification to Standard Waste Derived Fuel Specification for the Cement Sector	Received 21/02/07	
Additional information from applicant	Received 20/02/08	
Variation Determined KP3338UC	03/04/08	
Application for SRF variation	Received 03/07/07	
Notice requiring further information	Request sent 31/07/07	Response received 28/08/07
Additional information from applicant	Received 10/03/08	
Variation Determined AP3134UN	17/04/08	
Application for landfill variation	Duly made 27/05/08	

Additional information from applicant	Received 21/08/08	
Variation Determined EA/EPR/BL1096IB/V005	09/10/08	
Partial surrender application	Received 18/12/09	
Variation Determined EA/EPR/BL1096IB/S007	06/04/10	Partial surrender of permit to remove the operation of a hazardous waste landfill from permit
Environment Agency Cement and Lime Sector Review Variation EPR/BL1096IB/V009	04/08/10	
Environment Agency Variation correcting errors EPR/BL1096IB/V010	15/12/10	
Variation Application EPR/BL1096IB/V011 received	03/05/13	Variation to reduce monitoring requirements following results of a public health study.
Variation Application EPR/BL1096IB/V011 issued	06/09/2013	Variation issued
Regulation 60(1) Notice of request for more information	06/03/14	Regarding Implementation of BAT conclusions under IED
Regulation 60(1) response received	30/01/15	Regarding Implementation of BAT conclusions under IED
Variation Application EPR/BL1096IB/V012	Duly made 23/02/15	Variation to add in 2 docking stations and pneumatic conveyer
Variation Application EPR/BL1096IB/V012 issued	09/06/15	Variation issued
Request for additional information to support Regulation 60(1) response	26/06/15	
Response to request for additional information received	29/07/15	Clarification on techniques employed in respect of the following BAT conclusions: 2, 5(g), 8, 9, 14, 15, 16, 19 and 20.
Additional information received	02/03/16	Updated site plan
Additional information received	14/03/16	Assessment of background ammonia emissions
Natural Resources Wales Cement Sector Review 2015 Permit EPR/BL1096IB Variation issued EPR/BL1096IB/V013	19/07/16	Varied and consolidated permit issued in modern IED condition format.
Application PAN- 001655 (EPR/BL1096IB/V014)	Duly made 16/06/17	Substantial variation application to add Cement Mill 5 and rail loading facility.
Additional information received	03/11/17	Response to Schedule 5 Notice sent 11th October 2017
Variation of permit determined	08/01/18	Consolidated Permit issued to Castle Cement Limited
Application PAN- 002355 (EPR/BL1096IB/V015)	Duly Made 12/02/18	Duly Made 12/02/18

Variation and consolidation determined (EPR/BL1096IB/V015)	15/05/18	Variation and consolidation issued
Variation EPR/BL1096IB/V016	10/09/18	NRW led variation and consolidation
Application PAN-013925 (EPR/BL1096IB/V017)	Duly Made 16/09/21	Minor technical variation to make replacements on the bypass syste
Variation determined (EPR/BL1096IB/V017)	22/10/21	Variation and consolidation permit issued
Variation application EPR/BL1096IB/V018 (PAN-019052)	22/08/2022	Variation to include use of Aluminium Oxide
Additional information received	Duly made 15/02/2023	Further information on the storage areas, extractive testing and odour assessment received.
Variation determined EPR/BL1096IB/V018	22/05/2023	Variation notice and consolidated permit issued
Variation application EPR/BL1096IB/V019(PAN-019893)	Received 14/11/22 Duly made 05/01/23	Minor technical variation to install a new SRF facility for transporting SRF into Kiln 4.
Additional information received EPR/BL1096IB/V019 (PAN-019893)	15/02/23 08/03/23	Response to Schedule 5 Notice information request (Noise Impact Assessment)
Additional information received EPR/BL1096IB/V019 (PAN-019893)	15/05/2023	Response to Schedule 5 Notice information request (dust bag filter emission point)
Additional information received EPR/BL1096IB/V019 (PAN-019893)	31/05/2023	Response to Schedule 5 Notice information request (addendum to BAT assessment)
Variation determined EPR/BL1096IB/V019	06/06/2023	Variation notice issued and operators registered address updated
Variation application EPR/BL1096IB/V020 (PAN-022273)	06/06/23	Minor technical variation to upgrade dust filter and monitoring equipment and to add a surface water emission point.
Additional information received EPR/BL1096IB/V020 (PAN-022273)	Duly made 03/08/23	Further information on BAT assessment and noise impact.
Variation determined EPR/BL1096IB/V020	24/10/23	Variation and consolidated permit issued

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number
EPR/BL1096IB

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BL1096IB/V020 authorising,

Castle Cement Limited ("the operator")

whose registered office is

Hanson UK
Second Floor
Arena Court
Crown Lane
Maidenhead
Berkshire
SL6 8QZ

company registration number **02182762**

to operate a regulated facility at

Padeswood Works
Padeswood
Mold
Flintshire
CH7 4HB

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

Signed	Date
Holly Noble	24/10/2023

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.

1.1.4 The Operator shall comply with the MPA code of practice, dated October 2014, or as otherwise agreed in writing with Natural Resources Wales.

1.2 Energy Efficiency

1.2.1 The operator shall:

(a) take appropriate measures to ensure that 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").

2.2 The site

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

2.3 Operating techniques

2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, 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 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.3 Waste shall be accepted only if:

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

(b) it conforms to the description in the documentation supplied by the producer and holder or otherwise with prior written approval from Natural Resources Wales.

2.3.4 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.

2.3.5 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.

2.3.6 The operator shall use only those waste derived fuels and alternative raw materials listed in tables S2.2 and S2.3 of schedule 2 and within the specification ranges specified in table S2.1.

2.3.7 All waste derived fuels used at the installation are subject to the following conditions:

(a) No radioactive materials or radioactive wastes (as defined by EPR Schedule 23 – Radioactive substances activities shall be included).

(b) No substances with PCB concentrations greater than 10mg/kg shall be included.

(c) No substances with PCP concentrations greater than 100mg/kg shall be included.

(d) No pharmaceutical products, pesticide products, biocide products and iodine compounds shall be included except as constituents of other materials and at levels that are minimised as far as reasonably practicable.

(e) No dioxins or furans shall be included except as constituents of other materials and at levels that are minimised as far as reasonably practicable.

(f) No medical/clinical waste shall be included.

2.3.8 Any waste derived fuels not listed in Schedule 2 Table S2.2 shall not be used for the purposes of carrying out a feasibility trial without obtaining the prior written approval from Natural Resources Wales in each case. Any such feasibility trials will be limited to a maximum of 100 tonnes of the fuel and a maximum duration of 14 days.

2.3.9 Any waste raw material not listed in Schedule 2 Table S2.2 or Table S2.3 shall not be used without prior written approval from Natural Resources Wales.

2.3.10 The operator shall ensure that prior to accepting waste derived fuels subject to condition 2.3.2 at the site, it has obtained sufficient information about the wastes to be burned as fuel to demonstrate compliance with the characteristics described in condition 2.3.2.

2.3.11 The operator shall take representative samples of all waste derived fuels delivered to the site unless otherwise agreed in writing with Natural Resources Wales and test a representative selection of these samples to verify conformity with the information obtained as required by condition 2.3.7. These samples shall be retained for inspection by Natural Resources Wales for a period of at least 1 month after the material is burned and results of any analysis made of such samples will be retained for at least 2 years after the material is burned.

2.3.12 Waste derived fuels shall not be burned, or shall cease to be burned, if:

(a) the kiln is in start-up (or as otherwise agreed in writing with Natural Resources Wales); or

(b) the kiln is in the process of shutting down (or as otherwise as agreed in writing with Natural Resources Wales); or

(c) Kiln feed rate is less than 120 tonnes/hr; or

(d) the calciner temperature is below, or falls below, 850ºC when using non-hazardous waste or hazardous waste where the content of halogenated organic substances (as chlorine) does not exceed 1%; or

(e) The kiln temperature is below, or falls below, 1100ºC when using hazardous waste where the content of halogenated organic substances (as chlorine) exceeds 1%; or

(f) any continuous emission limit value in schedule 3 table S3.1 is exceeded due to disturbances or failures of the abatement systems, other than under “Chapter IV abnormal operating conditions”; or

(g) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than under “Chapter IV abnormal operating conditions”.

2.3.13 The operator shall record the beginning and end of each period of “Chapter IV abnormal operating conditions” and shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.

2.3.14 Where, during “Chapter IV abnormal operating conditions”, any of the following situations arise, the operator shall, as soon as is practicable, cease the burning of waste derived fuels until normal operation can be restored:

(a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 due to disturbances or failures of the abatement systems, or continuous emission monitor(s) are out of service, as the case may be, for a total of four hours uninterrupted duration;

(b) the cumulative duration of “Chapter IV abnormal operating conditions” periods over one calendar year exceeds 60 hours on each kiln.

2.3.15 The operator shall interpret the end of the period of “Chapter IV abnormal operating conditions” as the earliest of the following:

(a) when the failed equipment is repaired and brought back into normal operation;

(b) when the operator initiates a shutdown of the waste derived fuels, as described in the application or as agreed in writing with Natural Resources Wales;

(c) when a period of four hours has elapsed from the start of the “Chapter IV abnormal operating conditions”;

(d) when, in any calendar year, an aggregated period of 60 hours “Chapter IV abnormal operating conditions” has been reached.

2.3.16 Hazardous waste derived fuels containing more than 1% Halogenated organic substances (as chlorine) shall only be burnt in the main burner of the kiln.

2.3.17 Hazardous waste shall not be mixed, either with a different category of waste or with other waste, substances or materials, unless it is authorised by Schedule 1 table S1.1 and appropriate measures are taken.

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 activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 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 and S3.4.

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

3.1.3 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.

3.1.4 Process Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.6. 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.

3.3 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 topollution 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 topollution 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.

3.5 Monitoring

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

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

(b) emissions to sewer as specified in S3.4;

(c) process monitoring specified in table S3.5;

(d) process waste as specified in table S3.6

3.5.2 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.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by Natural Resources Wales. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

3.5.4 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 unless otherwise agreed in writing by Natural Resources Wales.

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

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

- 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 3.5.5;

(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 determined as the average of all the valid half-hourly average values within a calendar day. 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.

3.5.6 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1:

(a) a QAL2 test as specified in BS EN 14181 shall be performed at least every three years or whenever there are significant changes to either the process, the fuel used or to the CEMs themselves

(b) an Annual Surveillance Test (AST) shall be performed at least annually, as specified within BS EN 14181;

(c) the operator shall have a procedure to apply the QAL3 requirements of EN 14181.

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.

4.2 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 performance parameters set out in schedule 4 table S4.2 using the forms specified in table S4.3 of that schedule.

(c) the functioning and monitoring of the plant involved with the burning of waste derived fuels, 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 (IED)) 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 S4.3 ; and

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

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

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to Natural Resources Wales using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.

4.2.6 Within 1 month of the end of each quarter, the operator shall submit to Natural Resources Wales, using the form specified, the information specified on the form relating to the types of waste Alternative Raw Materials and Waste Derived Fuels that the Operator has used in that quarter.

4.3 Notifications

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

(i) inform Natural Resources Wales,

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

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

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

(i) inform Natural Resources Wales, and

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

(c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment,

the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, 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 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.

4.3.4 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.

4.3.5 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.

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

4.3.7 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.

4.3.8 Unless otherwise agreed in writing, the operator shall provide Natural Resources Wales with 7 days written notice prior to the introduction of a new waste derived fuel or raw material listed in the Mineral Products Association's Code of Practice. The introduction of a new waste derived fuel or raw material does not require prior consent from Natural Resources Wales.

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 "without delay", 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 and WFD Annex I and II operations**	**Limits of specified activity and waste types**
A1	S3.1 A(1)a	Producing cement clinker in a rotary kiln with a production capacity exceeding 500 tonnes per day. **R01** – Use principally as a fuel or other means to generate energy **R05** – Recycling / Reclamation of other inorganic materials **R11** – Use of waste obtained from any other operations numbered R01 – R10 **R13 –** Storage of wastes pending recovery operations R01 – R12 (excluding temporary storage, pending collection, on the site where it is produced).	Receipt and storage of raw materials (including substitute raw materials) through crushing, blending, other processing and feeding to the kiln system. Mixing of hazardous waste (approved alternative raw materials) with raw materials for the production of clinker. Receipt and storage of fuels (including substitute fuels) and feeding to the kiln system. This includes the use of coal and gas oil as a start-up & shutdown fuel Discharge of clinker from the cooler to the clinker store or export facility and discharge of emissions from the chimney or other process vents.
A2	S3.1 A(2)(a)	Grinding cement clinker in cement mills 1, 2,3, 4 & 5	Receipt of clinker from the kiln and import facility through storage and transfer to the cement mills. Receipt, on site of all other raw materials (e.g. gypsum), through storage, blending and feeding, to the cement mills through to discharge of cement to storage silos. Emissions to air from process vents.
A3	S3.1 part B (a)	Storing, loading or unloading cement or cement clinker in bulk prior to further transportation in bulk.	Cement & clinker storage, bulk loading, unloading and dispatch. Emissions to air from process vents.
A4	S3.1 part B (b)	Blending cement in bulk or using cement in bulk other than at a construction site, including the bagging of cement and cement mixtures, the batching of ready-mixed concrete and the manufacture of concrete blocks and other cement products.	Blending and bagging of cement products. Emissions to air from process vents.

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity and WFD Annex I and II operations**	**Limits of specified activity and waste types**
Directly Associated Activity			
A5	Waste storage and handling **R13 -** Storage of wastes pending recovery operations R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced). **D15 -** Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced).		From waste generation, storage and monitoring to waste despatch.
A6	1.925 MW Hot Gas Generator providing auxiliary heat to Mill 5.		Combustion of gas oil including release to air of combustion gasses through Mill 5 stack.
A7	Rail loading facilities		Loading of cement products for dispatch

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Consolidated response to Information Notice dated 17/12/01	Sections 2.1 to 2.11	05/06/02
Response to Information Notice dated 11/04/03	The response given to questions 6 to 18, 23, 25 to 29 & 39	06/06/03
Additional Information May 2004	Sections 3,4, 7 to 18	10/05/04
Variation Application KP3338UC	C2.1 to C2.9, C2.10 (except 2.10.17 to 2.10.20, 2.10.23 and table 2.10.2), C2.11	30/03/07
Response to Information Notice dated 27/06/07	The response given to questions 1,2 and 3	20/07/07
Variation Application AP3134UN	C2.1 to C2.9, C2.10 (except 2.10.18 to 2.10.21, 2.10.24 and table 2.10.2), C2.11	03/07/07
Response to information Notice dated 31/06/07	The response given to questions 1 & 4 to 7	28/08/07
Additional Information August 2008	Use of SNCR (selective non-catalytic reduction)	21/08/08
Supporting information to variation application EA/EPR/BL1096IB/V012, document reference Pad1-2015	All	23/02/15
Information received in support of Natural Resources Wales Cement Sector Permit Review 2014	All parts of operator response to Regulation 60 (1) notice sent 06/03/14	30/01/15
Information received in support of Natural Resources Wales Cement Sector Permit Review 2014	All parts of operator response to Regulation 60 (1) notice sent 26/06/15	29/07/15
Application	Table 3a – technical standards , Part C3 of the application form Best available techniques as described in BAT conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the production of cement, lime and magnesium oxide	16/06/17

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	Application for variation to Padeswood Works Permit Document Ref CM5	16/06/17
Response to Schedule 5 Notice dated 11/10/17	Response to question regarding BAT for Noise control at CM5	03/11/17
Mineral Products Association Code of Practice for the Use of Waste Materials in Cement and Dolomitic Lime Manufacture	All	06/03/2018
Application PAN-013925 (EPR/BL1096IB/V017)	Application supporting document: 'Installation of a replacement Bypass system'. Responses to application form Part C2 and Part C3.	20/04/2021
Application PAN-019052 (EPR/BL1096IB/V018)	Application supporting document 'Aluminium oxide and GBFS Variation Appendix 6 BFS Trial Procedure'	22/08/2022
Application PAN-019893 (EPR/BL1096IB/V019)	Application supporting document '5426-CAU-XX-XX-RP-V-0301.A0.C1 Op Tech & BAT (final)'	14/11/2022
Response to Schedule 5 Notice	'5426-CAU-XX-XX-RP-V-0304.A0.C1 Operating Techniques & BAT Review Report – Addendum'	31/05/2023
Application PAN-022273 (EPR/BL1096IB/V020)	Application supporting documents ref: 5426-CAU-XX-XX-RP-V-0302.A0.C1 and Operating Techniques & BAT Review Report 5426-CAU-XX-XX-RP-V-0303.A0.C1	03/08/2023

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Due Date**
IC1	Particulate emission data (Continuous Emissions Monitors) for emission points A3, A4, A5, A6 & A9 shall be corrected to standard reference conditions (as detailed in Schedule 6) from 09/04/17 onwards. Pre-determined correction factors for each emission point may be acceptable as an alternative to upgraded CEMS where the operator can demonstrate that these parameters are stable and consistent, providing historical data as evidence. In line with BS EN 15259, historic moisture and temperature measurements would need to be shown to not vary above or below 10%, (as a guide value), of the statistical mean from available data derived from periodic measurements. The Operator shall provide a report to Natural Resources Wales confirming (for agreement) how particulate emissions data will be corrected.	31/10/16 Complete

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Due Date**
IC2	The Operator shall provide a written report detailing the proposed monitoring technique to be employed to demonstrate compliance with the particulate matter ELV of 10 mg/Nm3 at emission points A11 & A12. If the Operator proposes the use of an alternative technique (i.e. not extractive or continuous measurement in accordance with recognised standards), then evidence must be provided to prove the technique will demonstrate compliance with the ELV to an equivalent level of certainty.	31/10/16 Complete
IC3	In order for Natural Resources Wales to set the appropriate emission limit values, the Operator shall submit a report detailing the operational capability (expressed as mg/Nm3 of particulate released) of each bag filter plant associated with emission points A3, A4, A5, A6, A7 & A9. The report shall include: I. A statistical analysis of at least two years of particulate monitoring data for each emission point with supporting graphs demonstrating individual values, averages and standard deviations. II. Design specification of each bag plant. III. Details on all maintenance (including filter bag changes) carried out for each bag filter plant during the monitoring period, including dates and times of each maintenance	30/11/16 Complete

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Due Date**
IC4	If storing Priority Hazardous Substances on site, the Operator must carry out the following assessments with reference to the Environment Agency's guidance "How to carry out a risk assessment if you're applying for a bespoke permit that includes discharging hazardous pollutants to surface water": Phase 1 Part A screening tests for mercury, cadmium, nickel, lead, benzene, polyaromatic hydrocarbons and any other relevant priority hazardous substances. Phase 1 Part B screening tests for mercury, cadmium, polyaromatic hydrocarbons and any other relevant priority hazardous substances. For any substance which is not screened out by the Phase 1 Part A or Part B screening tests the Operator will also need to carry out Phase 2 modelling, as described in "How to carry out a risk assessment if you're applying for a bespoke permit that includes discharging hazardous pollutants to surface water". The Operator must provide Natural Resources Wales with the results of the emissions monitoring, the results from the screening tests and the results from any Phase 2 modelling. The Operator may use the Environment Agency's H1 electronic screening tool to present the emissions data and to carry out the Phase 1 screening tests. Note: With regard to the Phase 1 Part A screening - a full list of priority hazardous substances is provided in the Environment Agency guidance "How to carry out a risk assessment if you're applying for a bespoke permit that includes discharging hazardous pollutants to surface water" under the section entitled "Screening test: priority hazardous pollutants". The Operator must review the list and carry out the screening for any substances, in addition to those specified above, that may be present in the installations discharges to surface water. With regard to the Phase 1 Part B screening for priority hazardous pollutants, the section entitled "Screening test: priority hazardous pollutants" provides a full list of relevant priority hazardous substances and their associated annual significant loads.	28/02/18 Complete
IC5	The Operator shall submit a report on the baseline conditions of soil and groundwater at the installation. The report shall contain the information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities provided for in Article 22(3) of the IED. The report shall contain information, supplementary to that already provided in the application Site Condition Report, needed to meet the information requirements of Article 22(2) of the IED.	31/03/18 Complete
IC6	The Operator shall submit the written protocol referenced in condition 3.1.3 for the monitoring of soil and groundwater for approval by Natural Resources Wales. The protocol shall demonstrate how the Operator will meet the requirements of Articles 14(1) (b), 14(1) (e) and 16(2) of the IED. The procedure shall be implemented in accordance with the written approval from Natural Resources Wales.	31/03/18 Complete

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Due Date**
IC7	Given the difficulties of applying the BS 4142 assessment methodology to this specific situation as there are existing sources due to be removed which may be contributing to the background levels. A monitoring study should be carried out once Mill 5 is operational to validate the noise source assumptions and implementation of proposed mitigation measures. A report shall be submitted to Natural Resources Wales demonstrating the results of the monitoring exercise.	After 12 months of Mill 5 operating. Complete
IC8	The operator shall provide a report to Natural Resources Wales detailing the results of spot sampling of CO, NOx and SO2 emissions of the hot gas generator. The results shall be used to verify that the emissions are as predicted.	After 12 months of Mill 5 operating. Complete
IC9a	Following successful commissioning and establishment of routine steady operation, the Operator shall undertake a noise impact assessment following BS4142:2014 and guidance set out in Noise and vibration management: environmental permits - GOV.UK (www.gov.uk). The assessment should include an objective assessment of narrow band (FFT) measurements to identify any tonal elements from on-site sources and off-site at sensitive receptors. The assessment should include consideration of the Welsh Government's Noise and soundscape action plan 2018-2023. Upon completion of the work, a written report shall be submitted to Natural Resources Wales for approval.	Within 9 months of commissioning the new SRF feed or as otherwise agreed by Natural Resources Wales
IC9b	Following completion of IC9a, should the written report indicate it is required, a Noise Management Plan shall be submitted to Natural Resources Wales detailing any required noise control. This should be completed in line with guidance set out in Noise and vibration management: environmental permits - GOV.UK (www.gov.uk)	Within 3 months completion of IC9a(if applicable) or as otherwise agreed by Natural Resources Wales
IC10a	Following successful commissioning and establishment of routine steady operation of filter at emission point A11 the Operator shall undertake a noise impact assessment following BS4142:2014 and guidance set out in Noise and vibration management: environmental permits - GOV.UK (www.gov.uk). The assessment should include an objective assessment of narrow band (FFT) measurements to identify any tonal elements from on-site sources and off-site at sensitive receptors. The assessment should include consideration of the Welsh Government's Noise and soundscape action plan 2018-2023. Upon completion of the work, a written report shall be submitted to Natural Resources Wales for approval	Within 9 months of commissioning the new filter and associated equipment or as otherwise agreed by Natural Resources Wales
IC10b	Following completion of IC10a, should the written report indicate it is required, a Noise Management Plan shall be submitted to Natural Resources Wales detailing any required noise control. This should be completed in line with guidance set out in Noise and vibration management: environmental permits - GOV.UK (www.gov.uk)	Within 3 months completion of IC10a(if applicable) or as otherwise agreed by Natural Resources Wales

Table S1.4 Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational measures**
PO1 (completed 06/06/2023)	Use of SRF & Profuel® as alternative fuels on the main kiln burner	The Operator shall provide details of the transport system to the main burner and monitoring programmes for agreement by Natural Resources Wales.

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Waste Specifications

Parameters	Fuel	Waste Derived Fuels (WDF) ***							
	Coal/Petcoke	PSP	SRF	MBM	Tyres	WLF	RFO	Wood	Alternative Raw Materials (ARM)**
Units	**mg/kg (unless stated otherwise)**								
Gross Calorific Value (MJ/kg)	-	10-40	10-40	10-40	15-40	10-42	30-48	10-40	<10
Sulphur	5.00%	≤2.00%	≤2.00%	≤2.00%	≤2.00%	≤2.00%	≤2.00%	≤2.00%	-
Chlorine	-	≤2.00%	≤2.00%	≤2.00%	-	≤2.00%	≤2.00%	≤2.00%	≤1% halogenated organic substances
Total Fluorine, Bromine & Iodine	-	-	≤1.50%	-	-	≤1.50%	-	≤1.50%	-
Mercury	-	≤10	≤10	-	-	≤20	≤10	≤10	≤2
Total Group ii Metals (Cd & Tl)	-	≤30	≤30	-	-	≤40	≤40	≤30	≤50
Maximum replacement	-	-	-	-	-	40% *	-	-	-
Minimum Mineral Content	-	-	-	-	-	-	-	-	80% dry weight (w/w)
Other	-	-	-	-	-	-	-	-	-

* Maximum thermal input as required by Article 46(2) of the Industrial Emissions Directive (2010/75/EU).

** No materials which are defined as carcinogens for the purposes of the COSHH Regulations 2002 (as amended) shall be used.

*** Waste generated on-site in connection with the handling and storing of waste derived fuels must be burnt with 19 02 08 waste at a rate that constitutes less than 1.0% by mass of the 19 02 08 waste feed rate.

Table S2.2 Permitted Waste Derived Fuels and Alternative Raw Materials		
Waste code	**Description**	**WDF or ARM**
01	**WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS**	
01 01	**wastes from mineral excavation**	
01 01 01	wastes from mineral metalliferous excavation	ARM
01 01 02	wastes from mineral non-metalliferous excavation	ARM
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**	
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07	ARM
01 04 09	waste sand and clays	ARM
01 04 13	wastes from stone cutting and sawing other than those mentioned in 01 04 07	ARM
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**	
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**	
02 01 04	waste plastics (except packaging)	WDF
02 01 07	wastes from forestry	WDF
02 02	**wastes from the preparation and processing of meat, fish and other foods of animal origin**	
02 02 03	materials unsuitable for consumption or processing	WDF
02 04	**wastes from sugar processing**	
02 04 01	soil from cleaning and washing beet	ARM
02 04 02	off-specification calcium carbonate	ARM
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	WDF
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04	WDF
03 03	**wastes from pulp, paper and cardboard production and processing**	
03 03 01	waste bark and wood	WDF
03 03 05	de-inking sludges from paper recycling	WDF
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard	WDF
03 03 08	wastes from sorting of paper and cardboard destined for recycling	WDF
03 03 09	lime mud waste	ARM
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation	WDF
04	**WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES**	
04 01	**wastes from the leather and fur industry**	
04 01 02	liming waste	ARM
04 01 09	wastes from dressing and finishing	WDF
04 02	**wastes from the textile industry**	
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)	WDF
04 02 21	wastes from unprocessed textile fibres	WDF
04 02 22	wastes from processed textile fibres	WDF
05	**WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL**	
05 06	**wastes from the pyrolytic treatment of coal**	
05 06 03*	other tars	WDF
06	**WASTES FROM INORGANIC CHEMICAL PROCESSES**	
06 09	**wastes from the MSFU of phosphorous chemicals and phosphorous chemical processes**	
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03	ARM

Table S2.2 Permitted Waste Derived Fuels and Alternative Raw Materials		
Waste code	**Description**	**WDF or ARM**
06 11	**wastes from the manufacture of inorganic pigments and opacificiers**	
06 11 01	calcium-based reaction wastes from titanium dioxide production	ARM
07	**WASTES FROM ORGANIC CHEMICAL PROCESSES**	
07 02	**wastes from the MFSU of plastics, synthetic rubber and man-made fibres**	
07 02 13	waste plastic	WDF
09	**WASTES FROM THE PHOTOGRAPHIC INDUSTRY**	
09 01	**wastes from the photographic industry**	
09 01 08	photographic film and paper free of silver or silver compounds	WDF
10	**WASTES FROM THERMAL PROCESSES**	
10 01	**wastes from power stations and other combustion plants (except 19)**	
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)	ARM
10 01 02	coal fly ash	ARM
10 01 03	fly ash from peat and untreated wood	ARM
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form	ARM
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form	ARM
10 01 15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14	ARM
10 01 16*	fly ash from co-incineration containing dangerous substances	ARM
10 01 17	fly ash from co-incineration other than those mentioned in 10 01 16	ARM
10 02	**wastes from the iron and steel industry**	
10 02 10	mill scales	ARM
10 02 13*	sludges and filter cakes from gas treatment containing dangerous substances	ARM
10 09	**wastes from casting of ferrous pieces**	
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05	ARM
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07	ARM
10 10	**wastes from casting of non-ferrous pieces**	
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05	ARM
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07	ARM
10 11	**wastes from manufacture of glass and glass products**	
10 11 03	waste glass-based fibrous materials	ARM
10 12	**wastes from manufacture of ceramic goods, bricks, tiles and construction products**	
10 12 03	particulates and dust	ARM
10 12 06	discarded moulds	ARM
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)	ARM
10 13	**wastes from manufacture of cement, lime and plaster and articles and products made from them**	
10 13 01	waste preparation mixture before thermal processing	ARM
10 13 04	wastes from calcination and hydration of lime	ARM
10 13 06	particulates and dust (except 10 13 12 and 10 13 13)	ARM
10 13 11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10	ARM
10 13 12*	solid wastes from gas treatment containing dangerous substances	ARM
10 13 13	solid wastes from gas treatment other than those mentioned in 10 13 12	ARM
10 13 14	waste concrete and concrete sludge	ARM

Table S2.2 Permitted Waste Derived Fuels and Alternative Raw Materials		
Waste code	**Description**	**WDF or ARM**
12	**WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS**	
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**	
12 01 05	plastics shavings and turnings	WDF
12 01 13	welding wastes	WDF
13	**OIL WASTES AND WASTES OF LIQUID FUELS (except edible oils, and those in chapters 05, 12 and 19)**	
13 07	**wastes of liquid fuels**	
13 07 01*	fuel oil and diesel	WDF
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**	
15 01	**packaging (including separately collected municipal packaging waste)**	
15 01 01	paper and cardboard packaging	WDF
15 01 02	plastic packaging	WDF
15 01 03	wooden packaging	WDF
15 01 05	composite packaging	WDF
15 01 06	mixed packaging	WDF
15 01 09	textile packaging	WDF
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**	
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**	
16 01 03	end-of-life tyres	WDF
16 01 19	plastic	WDF
16 01 22	components not otherwise specified	WDF
16 08	**spent catalysts**	
16 08 03	spent catalysts containing transition metals or transition metal compounds not otherwise specified	ARM
16 08 04	spent fluid catalytic cracking catalysts (except 16 08 07)	ARM
16 08 07*	spent catalysts contaminated with dangerous substances	ARM
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**	
17 01	**concrete, bricks, tiles and ceramics**	
17 01 01	concrete	ARM
17 01 02	bricks	ARM
17 01 03	tiles and ceramics	ARM
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	ARM
17 02	**wood, glass and plastic**	
17 02 01	wood	WDF
17 02 03	plastic	WDF
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**	
17 05 04	soil and stones other than those mentioned in 17 05 03	ARM
17 05 06	dredging spoil other than those mentioned in 17 05 05	ARM
17 05 08	track ballast other than those mentioned in 17 05 07	ARM
17 08	**gypsum-based construction material**	
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01	ARM

Table S2.2 Permitted Waste Derived Fuels and Alternative Raw Materials		
Waste code	**Description**	**WDF or ARM**
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**	
19 01	**wastes from incineration or pyrolysis of waste**	
19 01 06*	aqueous liquid wastes from gas treatment and other aqueous liquid wastes	ARM
19 01 13*	fly ash containing dangerous substances	ARM
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**	
19 02 03	premixed wastes composed only of non-hazardous wastes	ARM
19 02 04*	premixed wastes composed of at least one hazardous waste	ARM
19 02 08*	liquid combustible wastes containing dangerous substances	WDF
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09	WDF
19 08	**wastes from waste water treatment plants not otherwise specified**	
19 08 05	sludges from treatment of urban waste water	ARM
19 09	**wastes from the preparation of water intended for human consumption or water for industrial use**	
19 09 02	sludges from water clarification	ARM
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**	
19 12 01	paper and cardboard	WDF
19 12 04	plastic and rubber	WDF
19 12 07	wood other than that mentioned in 19 12 06	WDF
19 12 08	textiles	WDF
19 12 09	minerals (for example sand, stones)	ARM
19 12 10	combustible waste (refuse derived fuel)	WDF
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances	ARM
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	ARM & WDF
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 01	paper and cardboard	WDF
20 01 10	clothes	WDF
20 01 11	textiles	WDF
20 01 38	wood other than that mentioned in 20 01 37	WDF
20 01 39	plastics	WDF

Table S2.3 Permitted waste types and quantities for use as raw materials		
Waste code	**Description**	**Raw Material Type**
01 04 10	dusty and powdery wastes other than those in mentioned in 01 04 07	Asphalt filler dust

Schedule 3 – Emissions and monitoring

Table S3.1 Kiln Exhaust Emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A8 – Kiln 4 on site plan in schedule 7	Kiln 4 stack	Particulate matter	10 mg/Nm^3	Daily average	Continuous measurement	BS EN 14181
		Total Organic Carbon (TOC)	50 mg/Nm^3			
		Hydrogen chloride	10 mg/ Nm^3			
		Carbon monoxide	1200 mg/Nm^3			
		Oxides of Sulphur expressed as SO2	200 mg/Nm^3			
		Oxides of nitrogen (NO and NO_2 expressed as NO_2)	450 mg/Nm^3			
		Ammonia	70 mg/Nm^3			
		Hydrogen fluoride	1 mg/Nm^3	Periodic over minimum 30 minute, maximum 8-hour period	6 monthly	ISO 15713
		Cadmium & thallium and their compounds (total)	0.05 mg/Nm^3			BS EN 14385
		Mercury and its compounds	0.05 mg/Nm^3			BS EN 13211

Table S3.1 Kiln Exhaust Emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/Nm^3			BS EN 14385
		Dioxins / furans (I-TEQ)	0.1 mg/Nm^3	Periodic average value over minimum 6 hours, maximum 8 hour period.		BS EN 1948 Parts 1, 2 and 3
		Dioxins / furans (WHO-TEQ Humans / Mammals / fish / birds)	No limit set	Periodic average value over sample period of between 6 and 8 hours.		BS EN 1948 Parts 1, 2 and 3

Table S3.2 Non-kiln point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A3 on site plan in schedule 7 **Note 2**	Cement Mill 1	Particulate matter	10 mg/Nm^3	Daily average	Continuous measurement	BS EN 14181 Note 1
A4 on site plan in schedule 7 **Note 2**	Cement Mill 2	Particulate matter	10 mg/Nm^3			
A5 on site plan in schedule 7 **Note 2**	Cement Mill 3	Particulate matter	20 mg/Nm^3			
A6 on site plan in schedule 7 **Note 2**	Cement Mill 4	Particulate matter	10 mg/Nm^3			
A7 on site plan in schedule 7 **Note 2**	Cement Mill 4 Classifier	Particulate matter	20 mg/Nm^3			
A9 on site plan in schedule 7	Kiln 4 cooler Exhaust	Particulate matter	20 mg/Nm^3			

Table S3.2 Non-kiln point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A10 on site plan in schedule 7	MBM Storage Vessel Bag Filter	Particulate matter	10 mg/Nm^3	The frequency of measurements or performance checks shall be based on a maintenance management system.		
A11 on site plan in schedule 7	Clinker Transport to Storage Filter	Particulate matter	10 mg/Nm^3	Periodic over a minimum 30 minute period	Quarterly for the first year, 6 monthly thereafter.	BS EN 13284-1
A12 on site plan in schedule 7	Arodo Packer Filter	Particulate matter	10 mg/Nm^3	Indicative Monitoring	Continuous Measurement	Triboelectric Probe
A13 on site plan in schedule 7	Ammonia Storage Tank Scrubber	No Parameters set	None Set	-	-	-
A14 on site plan in schedule 7	Cemfuel tanks carbon adsorbers.	No Parameters set	None Set	-	-	-
A15 on site plan in schedule 7	Cement Mill 5	Particulate matter	10 mg/Nm3	Periodic over a minimum 30 minute period	Quarterly for the first year, 6 monthly thereafter.	BS EN 13284-1
		Carbon monoxide	None Set	-	-	-
		Oxides of Sulphur expressed as SO2				
		Oxides of nitrogen (NO and NO2 Expressed as NO2)				
A16 on site plan in schedule 7	Kiln 4 SRF Feed Bag Filter	Particulate matter	10 mg/Nm^3	The frequency of measurements or performance checks shall be based on a maintenance management system.		

Table S3.2 Non-kiln point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
Vents including but not limited to those listed in document reference: Hanson Cement Padeswood Works Regulation 60 BAT Conclusions notice 2 Response.	Small sources of particulate matter <10,000 Nm^3/hr) from dusty operations other than cooling and the main milling processes e.g. silo vents and conveyer lines	Particulate Matter	10mg/Nm^3	The frequency of measurements or performance checks shall be based on a maintenance management system.		

Note 1 The principles of EN 14181 shall be applied (subject to agreement with Natural Resources Wales). See NRW Guidance Note "Application of BS EN 14181 to CEMs on non-IED Installations" for further information.
Note 2 For A3 – A7, Temperature shall be corrected automatically to 273K using in situ thermocouples. Correction to standard reference pressure (101.3 kPa) shall be calculated using the rolling mean of the pressure recorded during the last 5 periodic (extractive) samples. Correction to dry gas shall be calculated using the rolling mean of the moisture content recorded during the last 5 periodic (extractive) samples.

Table S3.3 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W1 on site plan in schedule 7	Site surface water drainage via the settlement lagoon	Total Suspended solids as defined by Directive 91/271/EEC	50 mg/l	Spot sample	Monthly	BS EN 872
		pH	6 min 9 max	Instantaneous	Continuous Note 1	MCERTS approved instrumentation
		Temperature	23 ºC	Instantaneous	Continuous Note 1	MCERTS approved instrumentation
		Oil or grease	None visible	Spot sample	Weekly	Visual Check
W2 Western Outfall WC01/ Grid reference SJ288622	Uncontaminated site surface water drainage.	No Parameters set	No limit set	-	-	-

Table S3.3 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W3 on site plan in schedule 7	Uncontaminated site surface water drainage	No parameters set	No limit set	-	-	-

Note 1 Continuous monitoring during discharge.

Table S3 4 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 (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
S1 on drawing number 401.00-11-0016-P.00	Vehicle wash water via catch pit and oil/water separator	No parameters set	No limit set	-	-	-

Table S3.5 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Weather Station cement silo 6	Wind speed and direction	Continuous	-	-
Calciner	Temperature	Continuous	Traceable to National Standards	-
A8 (Kiln 4 stack)	Temperature, pressure, oxygen and water vapour content	Continuous	As described in the application	-
Kiln exhaust (close to the combustion chamber inner wall)	Temperature	Continuous	Traceable to National Standards	-
A11 Clinker Transport to Storage Filter	Filter performance	Continuous	-	-
A15 Cement Mill 5	Filter Performance	Continuous	-	-

Table S3.6 Process Waste				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Cement Kiln 4 by-pass dust.	Total soluble fraction for free lime content and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds	Before use of a new disposal or recycling route	Environment Agency ash sampling protocol for cement	-

Table S3.6 Process Waste				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds	6 Monthly	Environment Agency Ash Sampling Protocol for Cement	-
	Dioxins/furans and dioxin-like PCBs			
	Halides (chloride, bromide and fluoride)			

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 3.5.1	A3, A4, A5, A6, A7, A8, A9, A11 & A15	Continuous monitoring: Every 3 months	1 January, 1 April, 1 July, 1 October
	A8, A11, A12 & A15	Periodic: Every 6 months	1 January, 1 July
Functioning and monitoring of the plant involved in the burning of waste derived fuels, as required by condition 4.2.2	As required by condition 4.2.2	Every 12 months	1 January
Emissions to water Parameters as required by condition 3.5.1	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
Process Waste Parameters as required by condition 3.5.1	Cement Kiln 4 by-pass dust	Every 6 months	1 January, 1 July
Process Waste Total soluble fraction for free lime content and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds	Cement Kiln 4 by-pass dust	Before use of a new disposal or recycling route	-
Waste ARM and Waste Derived Fuel Parameter required by condition 1.1.4	List of ARM and WDF permitted at the installation under the COP.	Every 3 months	1 January, 1 April, 1 July, 1 October

Table S4.2 Performance parameters

Parameter	Frequency of assessment	Units
Total substitute fuels burned	Annually	Tonnes
Total hazardous substitute fuels burned	Annually	Tonnes
Water usage (potable and non-potable)	Annually	m^3

Table S4.3 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air: 6 monthly periodic monitoring for A8	Form air 1 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of particulate matter for A8	Form air 2 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of TOC for A8	Form air 3 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of hydrogen chloride for A8	Form air 4 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of carbon monoxide for A8	Form air 5 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of sulphur dioxide for A8	Form air 6 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of oxides of nitrogen for A8	Form air 7 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of ammonia for A8	Form air 8 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of particulate matter for A3	Form air 9 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of particulate matter for A4	Form air 10 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of particulate matter for A5	Form air 11 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of particulate matter for A6	Form air 12 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of particulate matter for A7	Form air 13 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Continuous monitoring of particulate matter for A9	Form air 14 or other form as agreed in writing by Natural Resources Wales	19/07/16
Air: Periodic monitoring of particulate matter for A15	Form air 16 or other form as agreed in writing by Natural Resources Wales	08/01/18
Air: Periodic monitoring of particulate matter for A11	Form air 17 or other form as agreed in writing by Natural Resources Wales	24/10/23
Water: pH, Temperature, & Suspended Solids for W1	Form: M / W1	19/07/16
Other performance indicators	Form performance 1	19/07/16

Table S4.3 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
	or other form as agreed in writing by Natural Resources Wales	
Process Waste	Form: Process Waste 1 or other form as agreed in writing by Natural Resources Wales	19/07/16
Waste subject to Condition 4.2.5	Waste tonnage return form from the Natural Resources Wales website or other form as agreed in writing by Natural Resources Wales	N/A
Waste Derived Fuel	Form WDF Usage1	15/05/18
Alternative Raw Materials	Form ARM Usage1	15/05/18

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 Regulated 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	
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	
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 immediately	
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 regulated facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

"abatement system" means equipment dedicated to the removal of polluting substances from releases from the installation to air.

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

"Annex I" means Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Annex II" means Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"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. "annually" means once every year.

"ARM" means Alternative Raw Materials (waste derived materials that replace virgin materials in the manufacture of clinker)

"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.

"Chapter IV abnormal operating conditions" means any technically unavoidable stoppages, disturbances, or failures of the abatement systems or the measurement devices, during which the concentrations in the discharges into air or waste water of the regulated substances may exceed the normal emission limit values, IED article 45 1(f).

"daily average" unless otherwise specified within the permit, for releases of substances to air means the average of valid half-hourly averages over a calendar day 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 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.

"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 or background concentration limit.

"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.

"Group II Metals" means Cadmium (Cd) and Thallium (TI).

"Group III Metals" means Antimony (Sb), Arsenic (As), Chromium (Cr), Cobalt (Co), Copper (Cu), Lead (Pb), Manganese (Mn), Nickel (Ni) & Vanadium (V).

"Hazardous Waste" has the meaning given in the Hazardous Waste (England & 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.

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

"MBM" means Meat and Bone Meal. It is produced at animal rendering plants during the high temperature processing of animal remains comprising mainly abattoir waste arising in the course of preparing meat for consumption. It is a granular solid residue that is left after extracting fat (tallow) during the rendering process. The waste for rendering may contain

Specified Risk Material (SRM) such as brain and spinal cords from animals. MBM is classified as a non-hazardous waste by the waste code 02 02 03, defined as “Wastes from the preparation and processing of meat, fish and other foods of animal origin” and the sub-clause “Materials unsuitable for consumption or processing”. MBM cannot contain raw or unprocessed meat, bones or animal parts, or any other waste of agricultural, horticultural or industrial origin.

“*MPA Code of Practice*” means the Mineral Products Association Code of Practice for the use of waste materials in Cement and Dolomitic Lime Manufacture.

“*PCB*” means Polychlorinated Biphenyl

“*PCP*” means Pentachlorophenol

“*permitted installation*” means the activities and the limits to those activities described in Table S1.1 of this Permit.

“*PFA*” means Pulverised Fuel Ash and is the fine ash recovered from the gas stream from combustion of pulverised coal in coal fired power stations.

“*PSP*” means Processed Sewage Pellets.

“*quarter*” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“*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.

“*RFO*” means Recovered Fuel Oil.

“*shut down*” means (a) any period when the kiln is being returned to a non-operational state and no waste is being burned. Emission limit values do not apply during shutdown once the raw meal feed rate falls below 120 tonnes per hour, or (b) as otherwise agreed in writing with Natural Resources Wales.

“*Six monthly periodic monitoring*” means periodic monitoring in each 6 month period, January to June & July to December with at least 4 months between sampling dates.

“*SRF*” means Solid Recovered Fuel

“start-up” means (a) the process of bringing the kiln into normal operation. Start-up commences when raw meal is introduced into the kiln and may continue until the kiln feed rate reaches 120 tonnes per hour and the kiln is stable. On commencing kiln operation the first continuous monitoring daily average can be calculated from the 24 hour period starting from the time that kiln startup completed. Subsequent daily averages will be based on a 24 hour period commencing at midnight following the kiln startup. Or (b) as otherwise 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.

“*WLF*” means Waste Liquid Fuels

“*year*” means calendar year ending 31 December.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:
(a) in relation to emissions from the kiln, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 10% dry for all fuels;

(b) in relation to emissions from non-kiln sources, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa 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 S3.1.

Schedule 7 - Site plan

End of Permit