



**ENVIRONMENT
AGENCY**

Variation Notice with introductory note

Pollution Prevention and Control Regulations 2000

Padeswood Cement Works

**Castle Cement Ltd
Padeswood Works
Padeswood
Mold
Flintshire
CH7 4HB**

Variation Notice number

AP3134UN

Permit number

BL1096

Introductory note

This introductory note does not form a part of the Variation Notice.

The following Notice is issued under Regulation 17 of The Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No. 1973 (as amended) (the Regulations) to vary the conditions of a Permit issued under the Regulations to operate an installation.

The Notice comprises Schedule A containing conditions to be deleted, Schedule B conditions to be amended and Schedule C conditions to be added. The Notice is subject to the express conditions set out in Schedules A to C.

The Permit, as amended by this Variation Notice, contains conditions which have to be complied with. It should be noted that aspects of the operation of the installation which are not regulated by those conditions are subject to the condition implied by Regulation 12(10) of the PPC Regulations, that the Operator shall use the best available techniques for preventing or, where that is not practicable, reducing emissions from the installation. Techniques include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

This variation notice has been issued in response to an application by Castle Cement to use Solid Recovered Fuel (SRF) as an alternative fuel on Kiln 4 at its Padeswood Works. SRF is a non-hazardous waste. The variation permits the use of SRF subject to the satisfactory completion of technical evaluation.

SRF will be delivered to Padeswood by road and discharged into the handling system by walking floor trailers. The unloading facility is fully enclosed with roller doors.

The use of SRF as a fuel is considered to represent Best Available Techniques (BAT) for the manufacture of cement. The SRF would otherwise be disposed of in landfill, use in a cement kiln reduces this form of disposal and reduces fossil fuel consumption.

Other PPC Permits relating to this installation

Permit holder	Permit Number	Date of Issue
None		

Superseded Licenses/Consents/Authorisations relating to this installation

Holder	Reference Number	Date of Issue
Castle Cement Ltd	A10349 (IPC)	30/09/93

Talking to us

If you contact the Agency about this Permit please quote the Permit Number.

The Operator should use the Emergency Hotline telephone number (0800 80 70 60) or any other number notified to it to give a notification under condition 5.1.1 of the Permit.

Confidentiality

The Permit/Variation requires the Operator to provide information to the Agency. The Agency will place the information onto the public registers in accordance with the requirements of the PPC Regulations. If the Operator considers that any information provided is commercially confidential, it may apply to the Agency to have such information withheld from the register as provided in the PPC Regulations. To enable the Agency to determine whether the information is commercially confidential, the Operator should clearly identify the information in question and should specify clear and precise reasons.

Variations to the permit

This Permit may be varied in the future. The Status Log within the Introductory Note to any such variation will include summary details of the Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Surrender of the permit

Before this Permit can be wholly or partially surrendered, an application to surrender the Permit has to be made. For the applicant to be successful, they would have to be able to demonstrate to the Agency, in accordance with Regulation 19 of the PPC Regulations, that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

Transfer of the permit or part of the permit

Before the Permit can be wholly or partially transferred to another person, a joint application to transfer the Permit has to be made by both the existing and proposed holders, in accordance with Regulation 18 of the PPC Regulations. A transfer will be allowed unless the Agency considers that the proposed holder will not be the person who will have control over the operation of the installation or will not ensure compliance with the conditions of the transferred Permit. If the Permit authorises the carrying out of a specified waste management activity, then there is a further requirement that the transferee is considered to be a "fit and proper person" to carry out that activity.

Status Log

Detail	Date	Comment
Application BL 1096	Received 29/08/01 Duly Made 31/08/01	
First Schedule 4 Information Notice	Notice dated 17/12/01	Consolidated application incorporating response received 05/06/02
2 nd Sch 4 Notice	Notice dated 11/04/03	Response dated 06/06/03
3 rd Sch 4 Notice	Notice dated 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 BL1096	Determined 17/12/04	
Application for landfill variation	Received 15/04/05	
First Schedule 7 Information Notice	Notice dated 21/07/05	Response dated 23/09/05 Response dated 09/01/06
Second Schedule 7 Information Notice	Notice dated 02/06/06	Response dated 03/08/06 Response dated 14/08/06 Response dated 15/09/06
Variation Notice YP3438	Determined 08/11/07	Consolidated permit
Application for MBM variation	Duly made 30/03/07	
Schedule 7 Information Notice	Notice dated 27/06/07	Response dated 19/07/07 (received 20/07/07)
Additional Information from Applicant	Received 20/12/07	
Request from Applicant to amend fuel specifications to the Standard Waste Derived Fuel Specifications for the Cement Sector	Received 21/12/07	
Additional Information from Applicant	Received 20/02/08	
Variation Notice KP3338UC	Determined 03/04/08	
Application for SRF variation	Duly made 03/07/07	
Schedule 7 Information Notice	Notice dated 31/07/07	Response dated 24/08/07 (received 28/08/07)
Additional Information from Applicant	Received 10/03/08	
Variation Notice AP3134UN	Determined 17/04/08	

End of introductory Note

Variation Notice

Pollution Prevention and Control
(England and Wales) Regulations 2000



**ENVIRONMENT
AGENCY**

Variation Notice

Permit number **(The Permit)**

BL1096

Variation Notice number

AP3134UN

The Environment Agency in exercise of its powers under Regulation 17 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I. 2000 No. 1973) (as amended), hereby varies the Permit issued on 14/05/04 (as varied) and held by

Castle Cement Ltd ("the Operator"),

whose Registered Office is

Park Square

3160 Solihull Parkway

Birmingham Business Park

Birmingham

B37 7YN

Company registration number **2182762**

which relates to the operation of part of an Installation at

Padeswood Works

Padeswood

Mold

Flintshire

CH7 4HB

to the extent set out in Schedules A to C of this Variation Notice.

This Notice shall take effect from 17/04/2008 at 00.01 hours.

Signed

Ann Weedy, Team Leader (PPC Compliance)

Authorised to
sign on behalf of
the Environment Agency

Date

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Castle Cement Ltd
Schedules to Variation Notice AP3134UN

SCHEDULE A-CONDITIONS TO BE DELETED

1. None.

SCHEDULE B-CONDITIONS TO BE AMENDED

2. Schedule 1 Table S1.1 Activities shall be amended to:

Table S1.1 Activities

Activity listed in Schedule 1 of the PPC Regulations	Description of specified activity	Limits of specified activity
Section 3.1, Part A(1)(a), The production of cement clinker or the production and grinding of cement clinker.	All raw materials storage, handling and preparation.	Receive raw materials from suppliers, including checking for suitability for use in line with the Integrated Management System ("IMS"). Preparation and storage of raw materials or process feedstocks, including crushing, blending, other processing and feeding materials to kiln 4.
	All fuel handling, storage and preparation.	Coal, petcoke, gas oil, kerosene, Profuel®, Cemfuel®, Tyres, MBM and SRF including receipt on site through storage, handling, crushing, blending, other processing and feeding materials to the kiln system. This includes the use of gas oil or kerosene as a start-up fuel.
	Cement kiln No 4 and associated cooler.	Operation of cement kiln systems including feed of all materials and fuels into the kiln system through to discharge of clinker from the cooler and discharges to air from the stacks.
	All cement clinker storage and associated milling.	Clinker handling, storage and milling, including feed of clinker from clinker coolers or import facility, receipt of grinding aids and reducing agents, all storage, transport, milling and blending activities through to discharge from cement milling area to export facilities.
	All cement storage, blending, packing and loading.	Cement handling, storage, packing and dispatch, including all transport, bulk storage through to bulk discharge to road transport or bagging, storage and loading to road transport.
Section 5.2 Part A(1) (a) , The disposal of waste in a landfill.	Landfill for hazardous waste (landfill classification under the Landfill Regulations 2002)	Receipt, handling, storage and disposal of wastes, consisting of the types and quantities specified in schedule 3, table S3.3, as an integral part of landfilling.
Directly Associated Activity		
Water discharges to controlled waters.	Discharges of site drainage	From surface water management system to point of entry to controlled waters.
All waste storage and handling	Waste storage and handling	From the on site generation of waste through to dispatch for recovery or disposal
Leachate management	Recirculation of leachate within the landfill	Leachate arising from the Permitted landfill

3. Schedule 1 Table S1.2 Operating techniques shall be amended to:

Table S1.2 Operating techniques		
Description	Parts	Date Received
The Consolidated Response to the Sch-4 Notice issued 17 December 2001	Sections 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11	05/06/2002
The response to the Sch 4 Notice issued 11 April 2003	The response given to questions 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 23, 25, 26, 27, 28, 29 & 39	06/06/2003
The additional information May 2004	Sections 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18	10/05/2004
Variation Application YP3438	The response to questions, 2.1, 2.2, 2.3, 2.4 and 2.5 in part B of the Variation Application Form	15/04/05
The response to the Sch 7 Notice issued 21 July 2005	The response to questions A19, A20, A23, A29, A65, A66, A70, A79 and A81	23/09/05
The response to the Sch 7 Notice issued 2 June 2006	The response to questions B4, B8, B21 and B23	03/08/06 and 14/08/06
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
The response to the Sch 7 Notice issued 27 June 2007	The response to questions 1, 2 and 4	20/07/07
The additional information Feb 2008	Alternative fuel maximum tonnage per hour amendments	20/02/08
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
The response to the Sch 7 Notice issued 31 July 2007	The response to questions 1, 4, 5, 6, 7	28/08/07
The additional information March 2008	SRF maximum tonnage per hour amendment	10/03/08

4. Schedule 1 Table S1.4 Pre-operational measures for future development shall be amended to:

Table S1.4 Pre-operational measures for future development

Reference	Operation	Pre-operational Measures
S1.4.1	Hazardous waste landfill	The Operator shall submit to the Environment Agency, for its approval in writing, a revised Landfill Gas Management and Monitoring Plan, which shall include a review of the perimeter gas monitoring data. The review shall propose assessment and compliance limits, based upon 6 sets of data collected at monthly intervals. Gas monitoring shall be undertaken in accordance with the Environment Agency's document, "Guidance on the Management of Landfill Gas" (LFTGN03) dated September 2004. Following determination by the Environment Agency the operator shall implement the plan with any amendments as approved by the Environment Agency immediately.
S1.4.2	Use of MBM as an alternative fuel	The Operator shall ensure that the MBM HAZOP study is validated by a competent 3 rd party (i.e. independent of the Heidelberg organisation and to be agreed with the Environment Agency)
S1.4.3	Use of SRF as an alternative fuel on the calciner	The Operator shall ensure that all feed-system HAZOP recommendations have been implemented
S1.4.4	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 the Environment Agency.

5. Schedule 3 Table S3.1 Raw materials and fuels (including substitute fuels) shall be amended to:

Table S3.1 Raw materials and fuels (including substitute fuels)	
Raw materials and fuel description	Specification
Blended coal and petcoke	Maximum 2.5% w/w sulphur
Chipped tyres	Gross Calorific Value 15 – 40 MJ/kg Maximum 2.0% w/w sulphur.
Cemfuel®	Gross Calorific Value 10 – 42 MJ/kg Maximum 2% w/w sulphur Maximum 2% w/w chlorine Maximum 1.5% w/w Total fluorine, bromine & iodine Maximum 20 mg/kg mercury Maximum 40 mg/kg Total Group II metals (cadmium and thallium) Maximum 1000 mg/kg copper Maximum 800 mg/kg lead Maximum 18000 mg/kg Total Group III metals (antimony, arsenic, cobalt, copper, chromium, lead, manganese, nickel, vanadium)
Profuel® & SRF	Gross Calorific Value 10 - 40 MJ/kg Maximum 2% w/w sulphur Maximum 2% w/w chlorine Maximum 1.5% w/w Total fluorine, bromine & iodine Maximum 10 mg/kg mercury Maximum 30 mg/kg Total Group II metals (cadmium and thallium) Maximum 500 mg/kg copper Maximum 300 mg/kg lead Maximum 8000 mg/kg Total Group III metals (antimony, arsenic, cobalt, copper, chromium, lead, manganese, nickel, vanadium)
MBM	Gross Calorific Value 10 - 40 MJ/kg Maximum 2.0% w/w sulphur Maximum 2.0% w/w chlorine

6. Schedule 3 Table S3.2 Permitted waste types and quantities for use as substitute fuel in kiln 4 shall be amended to:

Table S.3.2: Permitted waste types and quantities for use as substitute fuel in kiln 4

EWC code	Description	Thermal input at any time ¹	
		Minimum	Maximum
19 02 08*	Liquid combustible wastes containing dangerous substances consisting of Cemfuel® only	0 tonnes/hour 0% thermal substitution	14.80 tonnes / hour 40% thermal substitution
19 02 10	Combustible wastes other than those mentioned in 19 02 08 and 19 02 09 consisting of Profuel® only	0 tonnes/hour 0% thermal substitution	20.35 tonnes/hour 55% thermal substitution
16 01 03	Chipped tyres only	0 tonnes/hour 0% thermal substitution	6.17 tonnes/hour 25% thermal substitution
02 02 03	MBM	0 tonnes/hour 0% thermal substitution	31.08 tonnes/hour 84% thermal substitution
19 12 10	SRF	0 tonnes/hour 0% thermal substitution	25.2 tonnes/hour 68% thermal substitution

Note 1 Refers to the combined calciner and main kiln burner inputs. NB Maximum thermal substitution from hazardous waste < 40% to comply with WID co-incineration requirements (due to operating temperatures hazardous waste may only be substituted as a main kiln burner input, not as a calciner input)

7. Schedule 3 Table S3.4 Raw material, fuel (including substitute fuel) and waste storage shall be amended to:

Table S3.4 Raw material, fuel (including substitute fuel) and waste storage

Raw material, fuel or waste	Location of Storage on site	Storage Conditions
Limestone	Crane Store	Enclosed Building
Shale	Crane Store	Enclosed Building
Sand	Crane Store	Enclosed Building/Covered Area
Pulverised Fuel Ash	Crane Store/Coal Store	Enclosed Building/Covered Area
Petcoke	Coal Store	Covered Area
Coal	Coal Store	Covered Area/uncovered on concrete plinth
Gypsum	Crane Store	Enclosed Building
Gas oil or kerosene	Oil storage tank	Within bunded area
Tyres	Tyres Storage Facility	Bunded area/specially designed enclosed trailers
Cemfuel®	Cemfuel® Storage Facility	Bunded Storage Tanks
Profuel®	Profuel® Storage Facility	Enclosed Building/specially designed enclosed trailers
MBM	As detailed in Sch7 response dated 19/07/07	Enclosed storage silo
SRF	As detailed in Sch7 response dated 24/08/07	Enclosed Building/specially designed enclosed trailers
Lubricating oils and other maintenance fluids.	As detailed in application.	Bunded storage points.
Fuel oil for site vehicles.	As detailed in application.	Double walled tank
Grinding aids and air entrainers.	As detailed in application.	Receipt containers
Ferrous sulphate	As detailed in application	Dedicated hopper
Stannous chloride	Cement Mill Buildings	Receipt containers
Cement kiln dust from Kiln 4	Crumbeliser plant	Dedicated enclosed storage silo as a dry powder then conditioned with water for transport
Other waste	As detailed in application and the site's IMS	As detailed in application and the site's IMS

8. Schedule 7 shall be amended to:

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

"abnormal operation" means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices [other than continuous emission monitors for releases to air of particulates, TOC and/or CO], during which the concentrations in the discharges into air and the purified waste water of the regulated substances may exceed the normal emission limit values

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

"annually" means once every year.

"APC residues" means air pollution control residues

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 4 to the PPC Regulations.

"authorised officer" means any person authorised by the Agency 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.

"Background concentration" means such concentration of that substance as is present in:

- For emissions to surface water, the surface water quality up-gradient of the site; or
- For emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge; or

- For emissions of landfill gas, the ground or air outside the site and not attributable to the site.

"bi-annual" means twice per year with at least five months between tests;

"CEM" Continuous emission monitor

"CEN" means Comité Européen de Normalisation

"Commissioning" relates to the period after construction has been completed or when a modification has been made to the plant or the raw materials when the Permitted Installation process is being tested and modified to operate according to its design;

"Decommissioned" means permanently de-activated;

"Construction Proposals" means written information, at a level of detail appropriate to the complexity and pollution risk, on the design, specifications of materials selected, stability assessment (where relevant) and the construction quality assurance (CQA) programme in relation to the New Cell or Landfill Infrastructure.

"CQA Validation Report" means the final "as built" construction and engineering details of the New Cell or of the Landfill Infrastructure. It must provide a comprehensive record of the construction and must include, where relevant:

- The results of all testing required by the CQA programme - this must include the records of any failed tests with a written explanation, details of the remedial action taken, referenced to the appropriate secondary testing;
- Plans showing the location of all tests;
- "As-built" plans and sections of the works;
- Copies of the site engineer's daily records;
- Records of any problems or non-compliances and the solution applied;
- Any other site specific information considered relevant to proving the integrity of the New Cell or Landfill Infrastructure;
- Validation by a qualified person that all of the construction has been carried out in accordance with the Construction Proposals.

"daily average" for releases of substances to air means the average of half-hourly averages over a calendar day during normal operation. Where any of abnormal operation, start-up or shut-down occur during the day in such a way that there are less than 43 half-hourly averages recorded during normal operation, no daily average shall be recorded for that day.

"dioxin and furans" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

"emissions to land", includes emissions to groundwater.

"fugitive emission" means an emission to air, water or land from the activities which is 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.

"Groundwater Regulations" means the Groundwater Regulations SI 1998 No. 2746, and words and expressions used in this permit which are also used in the Regulations shall have the same meanings as in those Regulations.

"Group III metals" means antimony (Sb), arsenic (As), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb), manganese (Mn), nickel (Ni) and vanadium (V)

"H1" means Agency horizontal guidance note H1 "Environmental Assessment and Appraisal of BAT"

"H3" means Agency horizontal guidance note H3 "Noise Guidance"

"IMS" means the site Integrated Management System, which replaces the site Safety Health and Environment System ("SHEMS")

"incineration line" means all of the incineration equipment related to a common discharge to air location.

"infectious clinical waste" means clinical waste incorporating substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms

"ISO" means International Standards Organisation.

"Kiln 4" means the new kiln 4, including the calciner and pre-heater with all directly associated activities.

" $L_{Aeq,T}$ " means the equivalent continuous A-weighted sound pressure level in dB determined over time period, T.

"Landfill Infrastructure" means any specified element of the:

- permanent capping;
- temporary capping (i.e. engineered temporary caps not cover materials);
- leachate abstraction systems;

- leachate transfer, treatment and storage systems;
- surface water drainage systems;
- leachate monitoring wells;
- groundwater monitoring boreholes;
- landfill gas monitoring boreholes;
- landfill gas management systems;

within the site.

"*Landfill Regulations*" means the Landfill (England and Wales) Regulations SI 2002 No. 1559, and words and expressions used in this permit which are also used in the Regulations shall have the same meanings as in those Regulations.

"*land protection guidance*", means Agency guidance "H7 - Guidance on the protection of land under the PPC Regime: application site report and site protection monitoring programme".

"*Liquids*" means any liquid other than leachate within the engineered landfill containment system.

"*LFTGN 05*" means Environment Agency Guidance for monitoring enclosed landfill gas flares, September 2004.

"*LFTGN 08*" means Environment Agency Guidance for monitoring landfill gas engines, September 2004.

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

"*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 other animals.

MBM is classified as a non-hazardous waste by the European Waste Code (EWC Code) 02 02 03, defined under the heading "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.

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

"*New Cell*" means any new cell, part of a cell or other similar new area of the site where waste deposit is to commence after issue of this permit and can comprise:

- groundwater under-drainage system;
- permanent geophysical leak location system;
- leak detection layer;
- sub-grade;
- barriers;
- liners;
- leachate collection system;
- leachate abstraction system;
- separation bund/layer;
- cell or area surface water drainage system;
- side wall subgrade and containment systems;

for the New Cell.

"*No impact*" means that the change made to the construction process will not alter the agreed design criteria, specification or performance.

"*Monitoring*" includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.

"*notify without delay*" and "*notified without delay*" means that a telephone call can be used, whereas all other reports and notifications must be supplied in writing, either electronically or on paper.

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

"*PCB*" means Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in condition 6.1.5

"Permitted Installation" means the activities and the limits to those activities described in Table 1.1.1 of this Permit.

"PPC Regulations" means the Pollution, Prevention and Control (England and Wales) Regulations SI 2000 No.1973 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

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

"Release point" followed by the letter A, W, E or S means respectively a point shown on a map or plan forming part of the Application for the release from the Permitted Installation into the air, into controlled waters, into an on-site effluent treatment plant or into a sewer.

"relevant person" and *"relevant conviction"* shall have the meanings given to them in the Environmental Protection Act 1990

"Review of the Hydrogeological Risk Assessment" means a written review of the hydrogeological risk assessment included in the Application, together with any other parts of the Application that addressed the requirements of the Groundwater Regulations. The review shall assess whether the activities of disposal or tipping for the purpose of disposal of waste authorised by the permit continue to meet the requirements of the Groundwater Regulations

"SFP" means the Agency's Substitute Fuels Protocol for Use on Cement and Lime Kilns

"site protection and monitoring programme" means a document which meets the requirements for site protection and monitoring programmes described in the Land Protection Guidance.

"SRF" means Solid Recovered Fuel. It is a low toxicity material based on bio-degraded and shredded combustible waste mainly consisting of paper and plastics from household sources

"Staff" includes employees, directors or other officers of the Operator, and any other person under the Operator's direct or indirect control, including contractors.

"Substances prescribed for water" means those substances mentioned in paragraph 13 of Part 2 of Schedule 1 to the PPC Regulations.

"Substitute Fuel" *"SF"* means a fuel other than "conventional fuels". Conventional fuels are coal, petroleum coke, natural gas or oil.

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

"Waste Incineration Directive" means Directive 2000/76/EC on the incineration of waste (O.J. L 332, 28.12.2000)

"technically competent management" and *"technical competence"* shall have the meanings given to them in the Environmental Protection Act 1990.

"waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

"WHO" means the World Health Organisation

"year" means calendar year ending 31 December.

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

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 10% dry.

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.

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

TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF (1997/8)		
	Humans / mammals	Fish	Birds
Non-ortho PCBs			
3,4,4',5'-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0001	0.0001	0.05
3,3',4,4',5'-PeCB (126)	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.01	0.00005	0.001
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	0.0001	<0.000005	0.0001
2,3,4,4',5'-PeCB (114)	0.0005	<0.000005	0.0001
2,3',4,4',5'-PeCB (118)	0.0001	<0.000005	0.00001
2',3,4,4',5'-PeCB (123)	0.0001	<0.000005	0.00001
2,3,3',4,4',5'-HxCB (156)	0.0005	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.0005	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00001	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.0001	<0.000005	0.00001

SCHEDULE C-CONDITIONS TO BE ADDED

9. Condition 2.3.29 to be added:

- 2.3.29 The Operator shall, subject to the conditions of the permit, be permitted to technically evaluate the use of SRF in Kiln 4 as described in the documentation specified in Table S1.2, or as otherwise agreed in writing by the Agency.

10. Condition 2.3.30 to be added:

- 2.3.30 The Operator may only burn SRF on Kiln 4, after the completion of the technical evaluation described in condition 2.3.29, with the written approval of the Environment Agency and in accordance with the other conditions of this permit.

11. Condition 2.3.31 to be added:

- 2.3.31 The subsequent conditions 2.3.32 – 41 shall cease to have effect in the following circumstances:
- If the Environment Agency permits the use of SRF as a substitute fuel after the completion of the technical evaluation, as in Condition 2.3.30, or
 - If the SRF trials are aborted before completing the Technical Evaluation Programme and Monitoring requirements in Tables S1.9 and S4.15 of this Variation.

12. Condition 2.3.32 to be added:

- 2.3.32 If the technical evaluation is aborted before completing the Technical Evaluation Programme and Monitoring requirements, the Operator shall immediately cease burning SRF and notify the Environment Agency.

13. Condition 2.3.33 to be added:

- 2.3.33 The technical evaluation of burning SRF in Kiln 4 shall be completed within 18 months from the effective date of this Variation, unless otherwise agreed in writing by the Environment Agency.

14. Condition 2.3.34 to be added:

- 2.3.34 The Operator shall give the Environment Agency 14 days notice, in writing, before loading any SRF into the feed system.

15. Condition 2.3.35 to be added:

- 2.3.35 The Operator shall give the Environment Agency 14 days notice, in writing, of the intention to commence burning SRF in Kiln 4. The commencement date indicated in this notification shall be taken as the start of the SRF technical evaluation period.

16. Condition 2.3.36 to be added:

- 2.3.36 The Operator shall notify the Environment Agency in writing within 7 days of the completion of the technical evaluation of burning of SRF in Kiln 4.

17. Condition 2.3.37 to be added:

- 2.3.37 Within 4 calendar months following notification that the SRF technical evaluation has been completed, the Operator shall submit a report on the outcome of the technical evaluation to the Environment Agency. The report shall include an assessment of the environmental performance measured against the Critical Success Factors shown in Table S1.8, and a comparison of emissions with and without using SRF. Data obtained in previous Substitute Fuels technical evaluations on Kiln 4 may be included for comparison.

18. Condition 2.3.38 to be added:

2.3.38 The Critical Success Factors for defining the outcome of the SRF technical evaluation on Kiln 4 are shown in Table S1.8.

19. Schedule 1, Table S1.8 to be added

Table S1.8: Critical Success Factors for the SRF Technical Evaluation

Critical Success Factors	DESCRIPTION
Effects on the Overall Environmental Impact	
The Overall Environmental Impact (and particularly the impact of emissions) will be calculated when SRF is used and compared with the baseline case when SRF is not used.	
CSF 1	There will be no net environmental detriment to the local environment resulting from a change in emissions caused by burning SRF. The assessment will be based on the Environment Agency's H1 methodology (Integrated Pollution Prevention and Control (IPPC) Environmental Assessment and Appraisal of BAT) and will take account of other benchmark criteria established to protect the environment.
CSF 2	Reduction in releases of Carbon Dioxide as calculated using the WBCSD Cement Sustainability Initiative CO ₂ Emissions Inventory Protocol version 2.0.
CSF 3	No discernible odours from the burning or storage of SRF detectable outside the site boundary as perceived by an Authorised Officer of the Environment Agency.
Compliance with Waste Incineration Directive (WID) Emission Limits	
Stack emissions will be monitored continuously for particulates, SO ₂ , NO _x , HCl, TOC and CO as required in the current Permit and there will be additional non-continuous monitoring carried out during the trials. The data from all monitoring will be used to confirm compliance with current WID limits defined in the Permit.	
CSF4	The current specified emission limit values will not be exceeded for any reason directly attributable to the use of SRF.
CSF5	No notifiable unauthorised releases of SRF to air, land or water.
Management Procedures In Place for the Use of SRF	
Management systems relevant to the operation and handling of SRF will be included within the site Integrated Management System (IMS) and demonstrated to be effective.	
These procedures and management systems shall be audited during the technical evaluation.	
CSF 6	The management systems and relevant procedures specific to the use, storage and handling of SRF will be demonstrated as being effective.

20. Condition 2.3.39 to be added:

2.3.39 The technical evaluation will be suspended, and SRF must cease to be burnt as soon as practicable if it becomes apparent that there is a non-compliance with any of the CSFs. Any such non-compliance shall be treated as a Notifiable Incident in Condition 4.3.1 of this permit. The trials may only resume after written approval of the Environment Agency.

21. Condition 2.3.40 to be added:

2.3.40 The Operator shall carry out the technical evaluation programme shown in Table S1.9. Any changes to the programme must be agreed in writing by the Environment Agency

22. Schedule 1, Table S1.9 to be added

Table S1.9: SRF Technical Evaluation Programme

Fuel Combination 1	Baseline Testing Coal, Cemfuel® MBM & Tyres	Main Programme 2 Coal, Cemfuel®, MBM, Tyres & SRF	Additional Testing 2 Coal & SRF
Trial weeks 1	1	6	1

Note 1 Minimum length of time required to obtain stable Kiln operation and enable monitoring programme to take place.

Note 2 SRF used at or as near as possible to the ???% substitution rate (Table S3.2). Other substitute fuels used at their optimum substitution rates in the Main Programme.

23. Condition 2.3.42 to be added:

2.3.41 The Operator shall carry out monitoring at the stated frequency from the sources indicated in Table S4.15 for the substances or criteria shown in that table. Any changes must be agreed in writing by the Environment Agency.

24. Schedule 4, Table S4.15 to be added

Table S4.15: SRF Technical Evaluation Monitoring & Sampling

Substance or Criteria to be measured	Minimum Number of Samples Required ^B								
	Kiln Feed	Coal	MBM	Cemfuel®	Kiln Stack A8	SRF	Tyres	Clinker	Bypass
Total Particulates					C+3				
>PM ₁₀					3				
<PM ₁₀ >PM _{2.5}					3				
<PM _{2.5}					3				
NO _x (as NO ₂)					C				
SO ₂					C				
CO					C				
HCl					C				
HF					3				
VOC (as TOC)					C				
Group I ^D Group II and Group III metals	2	2	2	A	3	2		2	2
Total of each S, F, Cl, Br, I	2	2	2	A		2	2	2	2
Dioxins and furans.					3				
PCBs					3				
PAHs					3				
Moisture, temp., and O ₂					C+3				
Flow	C	C	C	C	S	2	C	C	2
Calorific value (gross and net)		2	2	A		A			
Solids and ash content		2	2	A		2	2		
Free lime and pH of leachate									2

Note A All batches.

Note B During testing, when SRF is used it shall be as near as possible to the maximum thermal substitution rate.

Multiple sampling applies only to the Main Programme in Table S1.9. Where multiple sampling is specified no more than one sample shall be taken in each week. Single samples only required for the Baseline and Additional Testing periods.

Note C Continuous Monitoring

Note D Group 1 metal means Mercury;
Group II metals means Cadmium & Thallium;
Group III metals means Sb, As, Pb, Cr, Co, Cu, Mn, Ni, and V and their compounds;
Group II & III metals reported in total for each group and by species.

Note S Simultaneously during periods of stack monitoring