Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Cauldon Works

Lafarge Cement UK Ltd
Cauldon Works
Yelsway Lane
Waterhouses
Stoke-on-Trent
ST10 3EQ

Variation notice number
EPR/BJ9509IC/V014

Permit number

EPR/BJ9509IC

Cauldon Works
Permit number EPR/BJ9509IC

Introductory note

This introductory note does not form a part of the notice.

The following notice gives notice of the variation and consolidation of an environmental permit.

Brief description of the changes introduced by this variation notice:

This is a normal variation applied for by the applicant. The main changes to the permit include:-:

- Incorporation of a revised Environmental Management System - adopting the principles and procedures outlined in the Code of Practice

- Revised specifications for fuels including
  i. removal of specification for group III metals in solid and liquid fuels,
  ii. renaming of fuels to generic nomenclature,
  iii. inclusion of list of waste codes of materials that could be used as fuels or alternative raw materials subject to completion of EMS requirements

Brief description of the process:

Cauldon works (the Installation) is operated by Lafarge Cement UK Limited and is located in Waterhouses, Staffordshire, England.

The main purpose of the activities undertaken at the Cauldon Works is to produce cement; the plant has the capacity to manufacture up to 1.1 million tonnes of clinker and from this, to produce around 1.4 million tonnes of cement per annum. The production of cement is listed under the following activity of 'The Environmental Permitting (England and Wales) Regulations 2010':-

- Section 3.1 A (1) (a) - Producing cement clinker or producing and grinding cement clinker.

The installation includes:

- The quarries and associated activities except drilling and blasting
- All raw material handling and raw meal preparation operations
- All associated fuel handling and storage operations.
- All clinker manufacturing, handling, grinding and storage operations
- All cement handling, storage and bagging operations

Raw Materials and Materials Handling

The main raw materials used in the single dry process kiln at Cauldon are limestone, shale and sand. The raw materials are normally stored in open stockpiles, and are blended in pre-determined ratios before being transported into the process. Alternative raw materials (ARM's) may be blended at this stage of raw material preparation, or fed directly into the system. Limestone and shale are both quarried on site – the limestone quarry is located to the south of the main works area, and the shale quarry is to the north. These materials are crushed on site and transported via covered conveyor into the main works processing area, blended with sand, which is imported by road, and appropriate ARM's (when available). This material is then weighed and ground to form a fine dry powder, known as raw meal, in a vertical mill. The raw meal is pumped into blending silos opposite the vertical mill, where it may be analysed and mixed before storage and then use in the kiln feed system.

Cement Clinker production

The raw meal is extracted from storage, weighed and transported via an enclosed bucket elevator to the top of the four-stage preheater system which precedes the kiln. Hot exhaust gases taken from the kiln system rise up through the four stages of cyclones, as the raw meal passes down the cyclones. This starts the calcination process, preparing the material to an optimum temperature to enter the rotary kiln. In the final stage of the preheater tower, or precalciner, temperatures will reach around 900^{o}C, so that most of the raw meal is calcined before it enters the kiln. This allows for a more efficient kiln process to produce the final product, known as clinker.

The calcined raw meal now passes from the precalciner into the back end of the kiln. The kiln rotates slowly and this, together with the slight gradient of the kiln, allows the raw meal to slowly travel down to the burning zone, where temperatures reach around 1450^{o}C. The main kiln burner is fuelled in pre-determined and tightly controlled ratio to provide a flame at about 2000^{o}C. Various fuels are used in this process including pulverised coal and Waste Derived Fuels (WDFs). At these temperatures, the material in the kiln converts to nodules of hydraulic calcium silicates, or clinker. The clinker drops out of the kiln into the cooler where the temperatures are reduced from around 1100^{o}C to 100^{o}C to allow storage of the clinker prior to cement manufacture. Whilst the majority of the clinker cooler gases are drawn into the kiln process, around 10% of the exhaust is vented externally and are treated by a bag filter system before discharge to atmosphere.

Clinker is transported by bucket conveyors to the clinker store and is then extracted from beneath the clinker store and conveyed to the cement mill reception silos. Occasionally clinker is despatched directly for processing at other cement works and it may also be imported to the site.

There are 5 cement mills at Cauldon Works, 3 open circuit and 2 closed circuit mills. These grind the cement clinker along with gypsum and limestone to produce the finished cement products. Dust laden air from all mills is treated by bag filtration systems, which are continuously monitored, before release to atmosphere via specific low level stacks. Cement is pneumatically transported from the mill house to designated storage silos. Cement silos are fitted with appropriate dust filters which discharge to atmosphere at the height of the silos. Cement stored in silos is either loaded into bulk tankers or bagged in the packing plant on site; all finished product is transported by road. Occasionally clinker may be despatched directly for processing elsewhere at other locations. Dust laden air from the bulk loading facilities and the packing plant is treated by fabric filtration systems and discharged to atmosphere at the height of the silos or buildings.

The exhaust gases from the kiln process are abated and then released to atmosphere through the single chimney (clearly visible at the top of the pre-heater tower). Abatement plant includes an electro-static precipitator which provides abatement for dust laden air. Emissions released from this stack include particulates; oxides of nitrogen, sulphur dioxide, carbon dioxide and carbon monoxide, organic carbons, hydrogen chloride and ammonia. Particulates are also released from other processes on site (including the cement mills) and abated and discharged from lower level stacks.

Emissions to Water

Surface water runoff and other site drainage passes through the main site oil interceptor, prior to being gravity fed to the on-site Shale Lake. Overflow water from this lake may be discharged into the River Hamps. There are no releases to public sewer.

The schedules specify the changes made to the permit.

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

Status Log of the Permit		
Detail	Date	Comment
Application BJ9509	Received 24/4/01	Dated 23/4/01
Response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	Received 28/09/01	Partial
IPC Variation application to increase tyre chip use	Received 29/10/01 and 21/01/02	IPC regime
Response to Schedule 4 Notice issued 04/01/02	08/01/02	Re-formatted application BJ9509
IPC Variation application to trial sewage sludge pellets as substitute fuel	Received 27/05/02, 31/07/02 and 09/09/02	
Response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	25/07/02	Partial
Response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	13/02/03	Complete
Request to extend sewage sludge trial and further information for application	Received 13/03/03	
Request to include IPC Variation applications within PPC permit application	Received 17/03/03	
Permit BJ9509	Determined 31/03/03	
Application BW9131 for partial surrender and variation to store and permanently use PSP.	Duly made 22/12/03	
VariationBW9131	Determined 29/03/04	
Application for WID variation VP3234SF	Received 14/03/05	
Response to schedule 4 notice issued 23/05/05	Received 26/07/05	
Variation VP3234SF	Determined 05/12/05	
Application to conduct a limited trial using RFO variation ZP3237SY	Received 05/10/05	
Variation ZP3237SY	Determined 23/04/07	
Application for SRF variation HP3038XX	Duly made 19/02/08	
Further information	Received 25/03/08	
Variation HP3038XX	Determined 25/04/08	
Application for WLF variation EPR/BJ9509IC/V008 (WP3038KK PAS reference)	Duly made 10/09/09	
Variation EPR/BJ9509IC/V008	Determined 24/03/10	
Variation EPR/BJ9509IC/V009 (RP3234TK PAS reference)	Determined 02/09/10	Environment Agency generated variation to cover Cement and Lime sector review.
Application for variation EPR/BJ9509IC/V010 to use shredded rubber conveyor belts as a waste derived fuel	Duly made 19/09/11	
Variation EPR/BJ9509IC/V010	Determined 24/10/11	

Status Log of the Permit		
Application for variation EPR/BJ9509IC/V011 to change of company name and registered office address	Duly made 19/09/13	Name changed to Lafarge Tarmac Cement and Lime Limited
Variation issued EPR/BJ9509IC/V011	18/11/13	Varied permit issued to Lafarge Tarmac Cement and Lime Limited.
Variation EPR/BJ9509IC/V012 (Billing Ref: GP3537VF)	Determined 30/06/14	Agency variation to implement chapter IV of the Industrial Emissions Directive.
Variation EPR/BJ9509IC/V013	Determined 06/10/14	Agency initiated variation to add an HCL limit in Table S3.1.
Application EPR/BJ9509IC/V014 (Variation and consolidation)	Duly Made 03/10/14	MPA Code of Practise: Application to add list of waste codes suitable in principle, remove Group iii metals specification in fuels and consolidate waste derived fuels naming.
Variation determined. EPR/BJ9509IC	19/12/14	Varied and consolidated permit issued

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies and consolidates

permit number
EPR/BJ9509IC

issued to
Lafarge Cement and Lime Limited ("the operator"),

whose registered office is

Portland House
Bickenhill Lane
Solihull
B37 7BQ

company registration number **00066558**

to operate a regulated facility at

Cauldon Works
Yelsway Lane
Waterhouses
Stoke-on-trent
ST10 3EQ

to the extent set out in the schedules.

The notice shall take effect from 19/12/2014

Name	Date
A.J. Nixon	19 December 2014

Authorised on behalf of the Environment Agency

Schedule 1

The following conditions were varied as a result of the application made by the operator:

Condition 1.1.4 is added to the permit:-

1.1.4 The operator shall comply with the MPA Code of Practice dated October 2014.

Condition 2.3.3 is amended to read.

2.3.3 "Waste shall be accepted only if:

(a) it is of a type listed in schedule 2 table S2.1 and

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

Condition 2.3.6 is amended to read:-

2.3.6 Hazardous waste shall not be burned, other than in the main burner of the kiln.

Conditions 2.3.12, 2.3.13, 2.3.14 and 2.3.15 are amended to remove reference to the Waste Incineration Directive (WID) following the implementation of the Industrial Emissions Directive (IED).

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

(a) the kiln is in the process of starting up (as agreed in writing by the Environment Agency); or

(b) the kiln is in the process of shutting down (as agreed in writing by the Environment Agency); or

(c) the kiln raw meal feed rate is less than 120 tonnes/hr ; or

(d) the temperature in the gas exit duct from the stage 4 cyclone post-calciner vessel is below or falls below 850°C when using non-hazardous waste or hazardous waste where the content of halogenated organic substances (as chlorine) does not exceed 1%; or

(e) the temperature in the kiln combustion chamber is below or falls below 1100°C 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 "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 " abnormal operating conditions".

2.3.13 The operator shall record the beginning and end of each period of "abnormal operation", and shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.

2.3.14 Where, during "abnormal operation", 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:

- **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 monitors are out of service, as the case may be, for a total of four hours uninterrupted duration;**
- **the cumulative duration of abnormal operation periods over one calendar year exceeds 60 hours on each kiln.**

2.3.15 The operator shall interpret the end of the period of "abnormal operation" 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 shut down of the waste derived fuels, as described in the application or as agreed in writing by the Environment Agency;

(c) when a period of four hours has elapsed from the start of the" abnormal operation";

(d) when, in any calendar year, an aggregated period of 60 hours "abnormal operation" has been reached for a given kiln.

Condition 3.1.4 is added to the permit in accordance with the requirements of the Industrial Emissions Directive (IED).

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

Condition 4.2.2 is amended in accordance with the requirements of the Industrial Emissions Directive (IED).

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

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

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

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

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

Condition 4.3.1 is amended in accordance with the requirements of the Industrial Emissions Directive (IED).

4.3.1 The Operator shall

(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 the Environment Agency,

(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 the Environment Agency, 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.

Condition 4.4.2 is amended in accordance with the requirements of the Industrial Emissions Directive (IED).

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

Table S1.2 is amended to read:-

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
PPC Application BJ9509	All management and control techniques described in the application	24/4/01
Partial response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	All management and control techniques described in the response	28/09/01
IPC Variation application to increase tyre chip use	All management and control techniques described in the application	29/10/01 and 21/01/02
Response to Schedule 4 Notice issued 04/01/02	All management and control techniques described in the response	08/01/02
IPC Variation application to trial sewage sludge pellets as substitute fuel	All management and control techniques described in the application	27/05/02, 31/07/02 and 09/09/02
Partial response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	All management and control techniques described in the response	25/07/02
Final response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	All management and control techniques described in the response	13/02/02
Request to extend sewage sludge trial and further information for application	All management and control techniques described in the further information	13/03/03
Amendment to tyre chipper details	All management and control techniques described in the further information	28/03/03
Application BW9131 for partial surrender and variation to store and permanently use PSP.	All management and control techniques described in the application	27/11/03
Application for WID variation VP3234SF	All management and control techniques described in the application	14/03/05
Response to schedule 4 notice issued 23/05/05	All management and control techniques described in the response	26/07/05
Application to conduct a limited trial using RFO variation ZP3237SY	All management and control techniques described in the application	05/10/05
Application for SRF variation HP3038XX	All management and control techniques described in the application	25/01/08
Further information	All management and control techniques described in the further information	25/03/08
Application for WLF variation EPR/BJ9509IC/V008	All management and control techniques described in the application	18/08/09
Application for variation EPR/BJ9509IC/V010 to use shredded rubber conveyor belts as a waste derived fuel.	All management and control techniques described in the application	19/09/11
Application EPR/BJ9509IC/V014 Code of Practice variation application	All, including Changes to Environment Management System for the introduction of Alternative Raw Materials and waste derived fuels.	07/07/14

Table S1.3 is amended to confirm the completion of improvement conditions, with the exception of IP06 which is yet to be closed out.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP01	The operator shall carry out a technical evaluation of the burning of WLF as an alternative waste derived fuel in the cement kiln. The technical evaluation programme shall comply with the requirements of the "Technical Evaluation of the burning of WLF as a Cement Kiln Fuel - Cauldon Works" document produced by the Environment Agency.	completed
IP02	The operator shall submit a written report for approval by the Environment Agency on the technical evaluation of the burning of WLF as an alternative waste derived fuel in the kiln. The report shall explain how the use of WLF on a permanent basis at the levels used during the evaluation represents the use of Best Available Techniques. It will also include an assessment of the environmental performance of the kiln while burning WLF and a comparison of emissions with and without using WLF. Data obtained during routine operation prior to the evaluation, or in previous technical evaluations of other waste derived fuels in the kiln may be included for comparison.	completed.
IP03	The operator shall carry out a technical evaluation of the burning of SRF as an alternative waste derived fuel in the front end of the cement kiln. The technical evaluation programme shall comply with the requirements of the "Technical Evaluation of the burning of SRF as a Cement Kiln Fuel - Cauldon Works" document produced by the Environment Agency.	completed
IP04	The operator shall submit a written report for approval by the Environment Agency on the technical evaluation of the burning of SRF as an alternative waste derived fuel in the kiln. The report shall explain how the use of SRF on a permanent basis at the levels used during the evaluation represents the use of Best Available Techniques. It will also include an assessment of the environmental performance of the kiln while burning SRF and a comparison of emissions with and without using SRF. In particular any reductions in NO_x releases will be highlighted. Data obtained during routine operation prior to the evaluation, or in previous technical evaluations of other waste derived fuels in the kiln may be included for comparison.	completed
IP05	The operator shall produce and submit a project plan setting out how releases of NO_x in the exhaust gases from the kiln will be minimised and at least reduced to <500 mg/m^3 as a daily average by the target date of 30 June 2014. The project plan will be based on consideration of costs and benefits of all relevant options and using options appraisal methodology H1 or equivalent.	completed
IP06	The operator shall assess and submit a report on the impacts of the ammonia emissions from the kiln stack, in particular on non-statutory sites such as local wildlife sites, and SSSI's within 2km of the installation and Natura 2000 and Ramsar habitat sites within 10km of the installation. The assessment shall cover both background NH_3 emissions and the maximum ammonia slip when SNCR is optimised for NOx abatement.	Date to be agreed with the Environment Agency.
IP07	The operator shall produce and submit a project plan setting out how releases of particulates in the exhaust gases from the kiln will be minimised and at least reduced to <10 - 20 mg/m^3 as a daily average by the target date of 30 June 2014. The project plan will be based on consideration of costs and benefits of all relevant options and using options appraisal methodology H1 or equivalent.	completed
IP08	The operator shall produce and submit a project plan setting out how releases of particulates from all significant non-kiln sources will be minimised and at least reduced to <10 - 20 mg/m^3 as a daily average by the target date of 30 June 2014. The plan will have a prioritised approach for reducing particulate releases from these sources. The project plan will be based on consideration of costs and benefits of all relevant options and using options appraisal methodology H1 or equivalent.	completed

Table S2.1 is amended to read:-

Table S2.1 Raw materials and fuels			
Raw materials and fuel description	**Specification**		
Alternative Raw Materials			
Wastes used as raw materials (not as fuels)	Minimum Mineral Content	At least 80% dry weight (w/w)	
	Organic Materials	Organic Materials as measured by net CV should be <10MJ/kg	
	Mercury	2 ppm	
	TOC/VOC	5000 mg/kg as organic hydrocarbon	
	No materials which are defined as carcinogens for the purposes of the COSHH Regulations 2002 (as amended) shall be used.		
EWC Numbers (excluding domestic municipal wastes)			
01 Wastes resulting from exploration, mining, quarrying, physical and chemical treatment of minerals	wastes from mineral metalliferous excavation		01 01 01
	wastes from mineral non-metalliferous excavation		01 01 02
	waste gravel and crushed rocks other than those mentioned in 01 04 07		01 04 08
	waste sand and clays		01 04 09
	wastes from stone cutting and sawing other than those mentioned in 01 04 07		01 04 13
02 Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing	soil from cleaning and washing beet		02 04 01
	off-specification calcium carbonate		02 04 02
03 Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard	lime mud waste		03 03 09
04 Wastes from the leather, fur and textile industries	liming waste		04 01 02
05 Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal	spent filter clays		05 01 15*
06 Wastes from inorganic chemical processes	solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13		06 03 14
	calcium-based reaction wastes other than those mentioned in 06 09 03		06 09 04
	calcium-based reaction wastes from titanium dioxide production		06 11 01
10 Wastes from thermal processes	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)		10 01 01
	Coal fly ash		10 01 02

Table S2.1 Raw materials and fuels		
Raw materials and fuel description	**Specification**	
	fly ash from peat and untreated wood	10 01 03
	calcium-based reaction wastes from flue-gas desulphurisation in solid form	10 01 05
	calcium-based reaction wastes from flue-gas desulphurisation in sludge form	10 01 07
	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14	10 01 15
	fly ash from co-incineration containing dangerous substances	10 01 16*
	Fly ash from co-incineration other than those mentioned in 10 01 16	10 01 17
	Mill scales	10 02 10
	sludges and filter cakes from gas treatment containing dangerous substances.	10 02 13*
	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05	10 09 06
	Casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07	10 09 08
	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05	10 10 06
	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07	10 10 08
	Waste glass-based fibrous materials	10 11 03
	Discarded moulds	10 12 06
	waste ceramics, bricks, tiles and construction products (after thermal processing)	10 12 08
	waste preparation mixture before thermal processing	10 13 01
	wastes from calcination and hydration of lime	10 13 04
	Particulates and dust (except 10 13 12 and 10 13 13)	10 13 06
	Wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10	10 13 11
	Solid wastes from gas treatment containing dangerous substances	10 13 12*
	Solid wastes from gas treatment other than those mentioned in 10 13 12	10 13 13
	Waste concrete and concrete sludge	10 13 14
16 Wastes not otherwise specified in the list	Spent catalysts containing transition metals or transition metal compounds not otherwise specified	16 08 03
	Spent fluid catalytic cracking catalysts (except 16 08 07)	16 08 04
	spent catalysts contaminated with dangerous substances	16 08 07*
17 Construction and demolition wastes (including excavated	concrete	17 01 01
	bricks	17 01 02

Table S2.1 Raw materials and fuels			
Raw materials and fuel description	**Specification**		
soil from contaminated sites)	tiles and ceramics		17 01 03
	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06*.		17 01 07
	soil and stones other than those mentioned in 17 05 03		17 05 04
	dredging spoil other than those mentioned in 17 05 05		17 05 06
	track ballast other than those mentioned in 17 05 07		17 05 08
	Gypsum-based construction materials other than those mentioned in 17 08 01		17 08 02
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	Aqueous liquid wastes from gas treatment and other aqueous liquid wastes		19 01 06*
	Fly ash containing dangerous substances		19 01 13*
	Premixed wastes composed only of non-hazardous wastes		19 02 03
	Premixed wastes composed of at least one hazardous waste		19 02 04*
	Sludges from treatment of urban waste water		19 08 05
	Sludges from water clarification		19 09 02
	minerals (for example sand, stones)		19 12 09
	Other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances		19 12 11*
	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11		19 12 12
Fuels (including Waste Derived Fuels)			
Distillate Fuel Oil	Sulphur Content	0.1% (w/w (max)	
Waste generated on-site in connection with the handling and storing of waste derived fuels	Burnt with chipped tyres at a rate that constitutes less than 1.0% by mass of the chipped tyre feed rate.		
New waste derived fuel for feasibility trials	Specification to be agreed in writing with the Environment Agency.		
Chipped Tyres	EWC Number		16 01 03
	Gross CV		15 – 40 MJ/kg
	Sulphur		≤2.0%
Meat & Bone Meal	EWC Number		02 02 03
	Gross CV		10 – 40 MJ/kg
	Sulphur		≤2.0%

Table S2.1 Raw materials and fuels		
Raw materials and fuel description	**Specification**	
	Chlorine	≤2.0%
Solid Recovered Fuel (SRF)	Gross CV	10 – 40 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Total Fluorine, Bromine & Iodine	≤1.5%
	Mercury	≤10 mg/kg
	Total Group II Metals (Cd + Tl)	≤30 mg/kg
Waste Liquid Fuels (WLF)	Gross CV	10 – 40 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Total Fluorine, Bromine & Iodine	≤1.5%
	Mercury	≤10 mg/kg
	Total Group II Metals (Cd + Tl)	≤40 mg/kg
Processed Sewage Pellets (PSP)	Gross CV	10 – 40 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Mercury	≤10 mg/kg
	Total Group II Metals (Cd + Tl)	≤30 mg/kg
Recovered Fuel Oil (RFO)	Gross CV	30 – 48 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Mercury	≤10 mg/kg
	Total fluorine, bromine and iodine	≤1.5 mg/kg
	Total Group II Metals (Cd + Tl)	≤40 mg/kg
Wood	Gross CV	10 – 40 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Total Fluorine, Bromine & Iodine	≤1.5%
	Mercury	≤10 mg/kg
	Total Group II Metals (Cd + Tl)	≤30 mg/kg
EWC Numbers (excluding domestic municipal wastes)		

Table S2.1 Raw materials and fuels		
Raw materials and fuel description	**Specification**	
02 Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing	Waste plastics (except packaging)	02 01 04
	Wastes from forestry	02 01 07
	materials unsuitable for consumption or processing	02 02 03
03 Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard	Waste bark and cork	03 01 01
	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04	03 01 05
	Waste bark and wood	03 03 01
	De-inking sludges from paper recycling	03 03 05
	Mechanically separated rejects from pulping of waste paper and cardboard	03 03 07
	Wastes from sorting of paper and cardboard destined for recycling	03 03 08
	Fibre rejects, fibre-, filler- and coating-sludges from mechanical separation	03 03 10
04 Wastes from the leather, fur and textile industries	Wastes from dressing and finishing	04 01 09
	Wastes from composite materials (impregnated textile, elastomer, plastomer)	04 02 09
	Wastes from unprocessed textile fibers	04 02 21
	Wastes from processed textile fibers	04 02 22
05 Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal	other tars	05 06 03*
07 Wastes from organic chemical processes	Waste plastic.	07 02 13
09 Wastes from the photographic industry	Photographic film and paper free of silver or silver compounds	09 01 08
12 Wastes from shaping and physical and mechanical surface treatment of metals and plastics	Plastic shavings and turnings	12 01 05
13 Oil wastes and wastes of liquid fuels (except edible oils, 05 and 12)	Fuel oil and diesel	13 07 01*
15 Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified	Paper and cardboard packaging	15 01 01
	Plastic packaging	15 01 02
	Wooden packaging	15 01 03
	Composite packaging	15 01 05
	Mixed packaging	15 01 06
	Textile packaging	15 01 09

Table S2.1 Raw materials and fuels		
Raw materials and fuel description	**Specification**	
16 Wastes not otherwise specified in the list	End-of-Life Tyres	16 01 03
	Plastic	16 01 19
	Components not otherwise specified	16 01 22
17 Construction and demolition wastes (including excavated soil from contaminated sites)	Wood	17 02 01
	Plastic	17 02 03
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	Liquid combustible waste containing dangerous substances	19 02 08*
	Combustible waste other than those in 19 02 08* and 19 02 09*	19 02 10
	Sludges from treatment of urban waste water	19 08 05
	Paper and cardboard	19 12 01
	Plastic and rubber	19 12 04
	Wood other than mentioned in 19 12 06	19 12 07
	Textiles	19 12 08
	Combustible waste (refuse-derived fuel)	19 12 10
	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	19 12 12
20 Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions	Paper and cardboard	20 01 01
	Clothes	20 01 10
	Textiles	20 01 11
	Wood other than that mentioned in 20 01 37	20 01 38
	Plastics	20 01 39

Table S2.2 is removed

Condition 4.2.6 is added to the permit:-

4.2.6 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency, using the form specified by the Environment Agency for the purpose, 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."

Schedule 6 is amended to include a definition of the MPA Code of Practice:

"MPA Code of Practice" means the Code of Practice for the Use of Waste Materials in Cement and Dolomitic Lime Manufacture, dated October 2014"

The following descriptions are changed within **Schedule 6** as a result of the Industrial Emissions Directive (IED).

"abnormal operation" **means any technically unavoidable stoppages, disturbances, or failures of the abatement plant 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.**

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

"Operation at Reduced Feed" **means**

For Cement processes

The kiln may operate at below the 120 tonne per hour feed rate and continue to use waste-derived fuels, provided the operator can demonstrate compliance with the combustion requirements of chapter IV of IED i.e. temperature and residence time. Emission limit values continue to apply in these circumstances. Should process conditions require a reduced feed rate, the kiln may operate at below the 120 tonne per hour feed rate without waste-derived fuels. Emission limit values do not apply in these circumstances unless the process conditions requiring the reduced feed rate continue for more than 8 hours.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number
EPR/BJ9509IC

This is the consolidated permit referred to in the variation and consolidation notice EPR/Bj9509IC/V014 authorising,

Lafarge Cement and lime limited ("the operator"),

whose registered office is

Portland House
Bickenhill Lane
Solihull
B37 7BQ

company registration number **00066558**

to operate an installation at

Cauldon Works
Yelsway Lane
Waterhouses
Stoke-on-treat
ST10 3EQ

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

Name	Date
A.J. Nixon	19 December 2014

Authorised on behalf of the Environment Agency

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

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:

(a) take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment;

(b) review and record at least every four years whether changes to those measures should be made; and

(c) 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 red 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 the Environment Agency.

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

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 only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.1 and

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

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 hazard classification associated with the waste; 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 Hazardous waste shall not be burned, other than in the main burner of the kiln.

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 sections 1 and 2 of the Radioactive Substances Act 1993) 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 No new waste derived fuels shall be used for the purposes of carrying out a feasibility trial without obtaining the Environment Agency's prior written approval 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 No new waste materials shall be used as raw materials in the process except with the prior written approval of the Environment Agency, and shall be subject to the specification in table S2.1 of schedule 2 or otherwise agreed in writing by the Environment Agency.

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 Unless otherwise agreed in writing by the Environment Agency, the operator shall take representative samples of all waste derived fuels delivered to the site and test a representative selection of these samples to verify conformity with the information obtained as required by condition 2.3.10. These samples shall be retained for inspection by the Environment Agency for a period of at least 1 month after the material is burned and results of any analysis made of such samples shall 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 the process of starting up (as agreed in writing by the Environment Agency); or

(b) the kiln is in the process of shutting down (as agreed in writing by the Environment Agency); or

(c) the kiln raw meal feed rate is less than 120 tonnes/hr ; or

(d) the temperature in the gas exit duct from the stage 4 cyclone post-calciner vessel is below or falls below 850°C when using non-hazardous waste or hazardous waste where the content of halogenated organic substances (as chlorine) does not exceed 1%; or

(e) the temperature in the kiln combustion chamber is below or falls below 1100°C 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 “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 “ abnormal operating conditions”.

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

2.3.14 Where, during “abnormal operation”, 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:

- 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 monitors are out of service, as the case may be, for a total of four hours uninterrupted duration;
- the cumulative duration of abnormal operation periods over one calendar year exceeds 60 hours on each kiln.

2.3.15 The operator shall interpret the end of the period of “abnormal operation” 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 shut down of the waste derived fuels, as described in the application or as agreed in writing by the Environment Agency;

(c) when a period of four hours has elapsed from the start of the” abnormal operation”;

(d) when, in any calendar year, an aggregated period of 60 hours “abnormal operation” has been reached for a given kiln.

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 the Environment Agency.

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

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2, S3.3 and S3.4.

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

3.1.3 Process waste dusts 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:

1. (a) disposal or recovery routes change; or

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

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

3.2 Emissions 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 the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan;

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

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 the Environment Agency, 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 the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan;

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

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 the Environment Agency, 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 the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan;

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

3.5 Monitoring

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

(a) point source emissions specified in tables S3.1, S3.2, S3.3 and S3.4;

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

(c) process waste dust monitoring 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) unless otherwise agreed in writing by the Environment Agency. 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 tables 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 and S3.4 unless otherwise agreed in writing by the Environment Agency.

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	20%
Particulate matter	30%
Total organic carbon	30%
Hydrogen chloride	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 (a);

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

(d) daily average values shall be determined as the average of all the valid half-hourly average values within a 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; and

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

(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 the Environment Agency, 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 the Environment Agency.

4.2 Reporting

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

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

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

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

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

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

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

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

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

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

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, 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 the Environment Agency 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 the Environment Agency, using the form specified by the Environment Agency for the purpose, 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 The Operator shall

(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 the Environment Agency,

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

4.3.4 The Environment Agency 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.

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) the Environment Agency 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 The Environment Agency 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, the Environment Agency shall be notified within one month of:

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

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

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

4.4 Interpretation

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

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

Schedule 1 - Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	**Description of specified activity**	**Limits of specified activity**
3.1 A(1) (a) Producing cement clinker or producing and grinding cement clinker.	Producing cement clinker on the cement kiln system	Recovery of raw materials from the quarry floor and receipt on site of other raw materials and fuels, through storage, crushing, milling, pulverising, drying, blending, other processing and feeding into the kiln system through to transfer of cooled clinker to the clinker store, and emissions to air from the chimney or other process vents.
	All cement milling	Receipt of clinker from the kiln and import facility through storage and transfer to the cement mills and export off site. Receipt, on site of all other raw materials, through storage, blending and feeding, to the cement mills through to discharge of cement to storage and emissions to air from process vents.
Directly Associated Activity	All cement storage, blending, packing and loading.	Receipt of cement, through bulk storage to discharge to road transport or bagging, storage and loading to road transport.
	Waste storage and handling.	From waste generation, storage and monitoring to waste despatch.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
PPC Application BJ9509	All management and control techniques described in the application	24/4/01
Partial response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	All management and control techniques described in the response	28/09/01
IPC Variation application to increase tyre chip use	All management and control techniques described in the application	29/10/01 and 21/01/02
Response to Schedule 4 Notice issued 04/01/02	All management and control techniques described in the response	08/01/02
IPC Variation application to trial sewage sludge pellets as substitute fuel	All management and control techniques described in the application	27/05/02, 31/07/02 and 09/09/02
Partial response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	All management and control techniques described in the response	25/07/02
Final response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	All management and control techniques described in the response	13/02/02
Request to extend sewage sludge trial and further information for application	All management and control techniques described in the further information	13/03/03
Amendment to tyre chipper details	All management and control techniques described in the further information	28/03/03
Application BW9131 for partial surrender and variation to store and permanently use PSP.	All management and control techniques described in the application	27/11/03
Application for WID variation VP3234SF	All management and control techniques described in the application	14/03/05
Response to schedule 4 notice issued 23/05/05	All management and control techniques described in the response	26/07/05
Application to conduct a limited trial using RFO variation ZP3237SY	All management and control techniques described in the application	05/10/05
Application for SRF variation HP3038XX	All management and control techniques described in the application	25/01/08
Further information	All management and control techniques described in the further information	25/03/08
Application for WLF variation EPR/BJ9509IC/V008	All management and control techniques described in the application	18/08/09
Application for variation EPR/BJ9509IC/V010 to use shredded rubber conveyor belts as a waste derived fuel.	All management and control techniques described in the application	19/09/11
Application EPR/BJ9509IC/V014 Code of Practice variation application	All, including Changes to Environment Management System for the introduction of Alternative Raw Materials and waste derived fuels.	07/07/14

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP01	The operator shall carry out a technical evaluation of the burning of WLF as an alternative waste derived fuel in the cement kiln. The technical evaluation programme shall comply with the requirements of the "Technical Evaluation of the burning of WLF as a Cement Kiln Fuel - Cauldon Works" document produced by the Environment Agency.	completed
IP02	The operator shall submit a written report for approval by the Environment Agency on the technical evaluation of the burning of WLF as an alternative waste derived fuel in the kiln. The report shall explain how the use of WLF on a permanent basis at the levels used during the evaluation represents the use of Best Available Techniques. It will also include an assessment of the environmental performance of the kiln while burning WLF and a comparison of emissions with and without using WLF. Data obtained during routine operation prior to the evaluation, or in previous technical evaluations of other waste derived fuels in the kiln may be included for comparison.	completed.
IP03	The operator shall carry out a technical evaluation of the burning of SRF as an alternative waste derived fuel in the front end of the cement kiln. The technical evaluation programme shall comply with the requirements of the "Technical Evaluation of the burning of SRF as a Cement Kiln Fuel - Cauldon Works" document produced by the Environment Agency.	completed
IP04	The operator shall submit a written report for approval by the Environment Agency on the technical evaluation of the burning of SRF as an alternative waste derived fuel in the kiln. The report shall explain how the use of SRF on a permanent basis at the levels used during the evaluation represents the use of Best Available Techniques. It will also include an assessment of the environmental performance of the kiln while burning SRF and a comparison of emissions with and without using SRF. In particular any reductions in NO_x releases will be highlighted. Data obtained during routine operation prior to the evaluation, or in previous technical evaluations of other waste derived fuels in the kiln may be included for comparison.	completed
IP05	The operator shall produce and submit a project plan setting out how releases of NO_x in the exhaust gases from the kiln will be minimised and at least reduced to <500 mg/m^3 as a daily average by the target date of 30 June 2014. The project plan will be based on consideration of costs and benefits of all relevant options and using options appraisal methodology H1 or equivalent.	completed
IP06	The operator shall assess and submit a report on the impacts of the ammonia emissions from the kiln stack, in particular on non-statutory sites such as local wildlife sites, and SSSI's within 2km of the installation and Natura 2000 and Ramsar habitat sites within 10km of the installation. The assessment shall cover both background NH_3 emissions and the maximum ammonia slip when SNCR is optimised for NOx abatement.	Date to be agreed with the Environment Agency.
IP07	The operator shall produce and submit a project plan setting out how releases of particulates in the exhaust gases from the kiln will be minimised and at least reduced to <10 - 20 mg/m^3 as a daily average by the target date of 30 June 2014. The project plan will be based on consideration of costs and benefits of all relevant options and using options appraisal methodology H1 or equivalent.	completed
IP08	The operator shall produce and submit a project plan setting out how releases of particulates from all significant non-kiln sources will be minimised and at least reduced to <10 - 20 mg/m^3 as a daily average by the target date of 30 June 2014. The plan will have a prioritised approach for reducing particulate releases from these sources. The project plan will be based on consideration of costs and benefits of all relevant options and using options appraisal methodology H1 or equivalent.	completed

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels			
Raw materials and fuel description	**Specification**		
Alternative Raw Materials			
Wastes used as raw materials (not as fuels)	Minimum Mineral Content	At least 80% dry weight (w/w)	
	Organic Materials	Organic Materials as measured by net CV should be <10MJ/kg	
	Mercury	2 ppm	
	TOC/VOC	5000 mg/kg as organic hydrocarbon	
	No materials which are defined as carcinogens for the purposes of the COSHH Regulations 2002 (as amended) shall be used.		
EWC Numbers (excluding domestic municipal wastes)			
01 Wastes resulting from exploration, mining, quarrying, physical and chemical treatment of minerals	wastes from mineral metalliferous excavation		01 01 01
	wastes from mineral non-metalliferous excavation		01 01 02
	waste gravel and crushed rocks other than those mentioned in 01 04 07		01 04 08
	waste sand and clays		01 04 09
	wastes from stone cutting and sawing other than those mentioned in 01 04 07		01 04 13
02 Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing	soil from cleaning and washing beet		02 04 01
	off-specification calcium carbonate		02 04 02
03 Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard	lime mud waste		03 03 09
04 Wastes from the leather, fur and textile industries	liming waste		04 01 02
05 Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal	spent filter clays		05 01 15*
06 Wastes from inorganic chemical processes	solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13		06 03 14
	calcium-based reaction wastes other than those mentioned in 06 09 03		06 09 04
	calcium-based reaction wastes from titanium dioxide production		06 11 01
10 Wastes from thermal processes	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)		10 01 01
	Coal fly ash		10 01 02

Table S2.1 Raw materials and fuels		
Raw materials and fuel description	**Specification**	
	fly ash from peat and untreated wood	10 01 03
	calcium-based reaction wastes from flue-gas desulphurisation in solid form	10 01 05
	calcium-based reaction wastes from flue-gas desulphurisation in sludge form	10 01 07
	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14	10 01 15
	fly ash from co-incineration containing dangerous substances	10 01 16*
	Fly ash from co-incineration other than those mentioned in 10 01 16	10 01 17
	Mill scales	10 02 10
	sludges and filter cakes from gas treatment containing dangerous substances.	10 02 13*
	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05	10 09 06
	Casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07	10 09 08
	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05	10 10 06
	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07	10 10 08
	Waste glass-based fibrous materials	10 11 03
	Discarded moulds	10 12 06
	waste ceramics, bricks, tiles and construction products (after thermal processing)	10 12 08
	waste preparation mixture before thermal processing	10 13 01
	wastes from calcination and hydration of lime	10 13 04
	Particulates and dust (except 10 13 12 and 10 13 13)	10 13 06
	Wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10	10 13 11
	Solid wastes from gas treatment containing dangerous substances	10 13 12*
	Solid wastes from gas treatment other than those mentioned in 10 13 12	10 13 13
	Waste concrete and concrete sludge	10 13 14
16 Wastes not otherwise specified in the list	Spent catalysts containing transition metals or transition metal compounds not otherwise specified	16 08 03
	Spent fluid catalytic cracking catalysts (except 16 08 07)	16 08 04
	spent catalysts contaminated with dangerous substances	16 08 07*
17 Construction and demolition wastes (including excavated soil	concrete	17 01 01
	bricks	17 01 02

Table S2.1 Raw materials and fuels			
Raw materials and fuel description	**Specification**		
from contaminated sites)	tiles and ceramics		17 01 03
	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06*.		17 01 07
	soil and stones other than those mentioned in 17 05 03		17 05 04
	dredging spoil other than those mentioned in 17 05 05		17 05 06
	track ballast other than those mentioned in 17 05 07		17 05 08
	Gypsum-based construction materials other than those mentioned in 17 08 01		17 08 02
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	Aqueous liquid wastes from gas treatment and other aqueous liquid wastes		19 01 06*
	Fly ash containing dangerous substances		19 01 13*
	Premixed wastes composed only of non-hazardous wastes		19 02 03
	Premixed wastes composed of at least one hazardous waste		19 02 04*
	Sludges from treatment of urban waste water		19 08 05
	Sludges from water clarification		19 09 02
	minerals (for example sand, stones)		19 12 09
	Other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances		19 12 11*
	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11		19 12 12
Fuels (including Waste Derived Fuels)			
Distillate Fuel Oil	Sulphur Content	0.1% (w/w (max)	
Waste generated on-site in connection with the handling and storing of waste derived fuels	Burnt with chipped tyres at a rate that constitutes less than 1.0% by mass of the chipped tyre feed rate.		
New waste derived fuel for feasibility trials	Specification to be agreed in writing with the Environment Agency.		
Chipped Tyres	EWC Number	16 01 03	
	Gross CV	15 – 40 MJ/kg	
	Sulphur	≤2.0%	
Meat & Bone Meal	EWC Number	02 02 03	
	Gross CV	10 – 40 MJ/kg	
	Sulphur	≤2.0%	
	Chlorine	≤2.0%	

Table S2.1 Raw materials and fuels		
Raw materials and fuel description	**Specification**	
Solid Recovered Fuel (SRF)	Gross CV	10 – 40 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Total Fluorine, Bromine & Iodine	≤1.5%
	Mercury	≤10 mg/kg
	Total Group II Metals (Cd + Tl)	≤30 mg/kg
Waste Liquid Fuels (WLF)	Gross CV	10 – 42 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Total Fluorine, Bromine & Iodine	≤1.5%
	Mercury	≤20 mg/kg
	Total Group II Metals (Cd + Tl)	≤40 mg/kg
Processed Sewage Pellets (PSP)	Gross CV	10 – 40 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Mercury	≤10 mg/kg
	Total Group II Metals (Cd + Tl)	≤30 mg/kg
Recovered Fuel Oil (RFO)	Gross CV	30 – 48 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Mercury	≤10 mg/kg
	Total fluorine, bromine and iodine	≤1.5 mg/kg
	Total Group II Metals (Cd + Tl)	≤40 mg/kg
Wood	Gross CV	10 – 40 MJ/kg
	Sulphur	≤2.0%
	Chlorine	≤2.0%
	Total Fluorine, Bromine & Iodine	≤1.5%
	Mercury	≤10 mg/kg
	Total Group II Metals (Cd + Tl)	≤30 mg/kg

Table S2.1 Raw materials and fuels		
Raw materials and fuel description	**Specification**	
EWC Numbers (excluding domestic municipal wastes)		
02 Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing	Waste plastics (except packaging)	02 01 04
	Wastes from forestry	02 01 07
	materials unsuitable for consumption or processing	02 02 03
03 Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard	Waste bark and cork	03 01 01
	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04	03 01 05
	Waste bark and wood	03 03 01
	De-inking sludges from paper recycling	03 03 05
	Mechanically separated rejects from pulping of waste paper and cardboard	03 03 07
	Wastes from sorting of paper and cardboard destined for recycling	03 03 08
	Fibre rejects, fibre-, filler- and coating-sludges from mechanical separation	03 03 10
04 Wastes from the leather, fur and textile industries	Wastes from dressing and finishing	04 01 09
	Wastes from composite materials (impregnated textile, elastomer, plastomer)	04 02 09
	Wastes from unprocessed textile fibers	04 02 21
	Wastes from processed textile fibers	04 02 22
05 Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal	other tars	05 06 03*
07 Wastes from organic chemical processes	Waste plastic.	07 02 13
09 Wastes from the photographic industry	Photographic film and paper free of silver or silver compounds	09 01 08
12 Wastes from shaping and physical and mechanical surface treatment of metals and plastics	Plastic shavings and turnings	12 01 05
13 Oil wastes and wastes of liquid fuels (except edible oils, 05 and 12)	Fuel oil and diesel	13 07 01*
15 Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified	Paper and cardboard packaging	15 01 01
	Plastic packaging	15 01 02
	Wooden packaging	15 01 03
	Composite packaging	15 01 05
	Mixed packaging	15 01 06
	Textile packaging	15 01 09
16 Wastes not otherwise	End-of-Life Tyres	16 01 03

Table S2.1 Raw materials and fuels		
Raw materials and fuel description	**Specification**	
specified in the list	Plastic	16 01 19
	Components not otherwise specified	16 01 22
17 Construction and demolition wastes (including excavated soil from contaminated sites)	Wood	17 02 01
	Plastic	17 02 03
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	Liquid combustible waste containing dangerous substances	19 02 08*
	Combustible waste other than those in 19 02 08* and 19 02 09*	19 02 10
	Sludges from treatment of urban waste water	19 08 05
	Paper and cardboard	19 12 01
	Plastic and rubber	19 12 04
	Wood other than mentioned in 19 12 06	19 12 07
	Textiles	19 12 08
	Combustible waste (refuse-derived fuel)	19 12 10
	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	19 12 12
20 Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions	Paper and cardboard	20 01 01
	Clothes	20 01 10
	Textiles	20 01 11
	Wood other than that mentioned in 20 01 37	20 01 38
	Plastics	20 01 39

Schedule 3 – Emissions and monitoring

Table S3.1 Kiln and Raw mill - Exhaust Emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A31 Main stack on preheater tower	Particulate matter	30 mg/m^3	Daily average	Continuous	BS EN 15267-3
	Oxides of nitrogen	500 mg/m^3			
	Sulphur dioxide	400 mg/m^3			
		600 mg/m^3 Up to 5 times each year if raw mill is stopped.			
	Carbon monoxide	2,200 mg/m^3			
	Total organic carbon (TOC)	150 mg/m^3			
	Hydrogen chloride[1]	10 mg/m^3 or 20mg/m^3			
	Ammonia	No limit set			
	Hydrogen fluoride	1 mg/m^3	periodic average value over minimum 1-hour period	Bi-annual	ISO 15713
	Cadmium & thallium and their compounds (total)	0.05 mg/m^3	periodic average value over minimum 30 minute, maximum 8 hour period		BS EN 14385
	Mercury and its compounds	0.05 mg/m^3			BS EN 13211
	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m^3			BS EN 14385
	Dioxins / furans (I-TEQ)	0.1 ng/m^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			
	PCBs [Dioxin-like PCBs (WHO-TEQ Humans / Mammals / fish / birds)]	No limit set			BS EN 1948 parts 1, 2 and 3 BS EN/TS 1948 part 4
	PAHs Specific individual poly-cyclic aromatic hydrocarbons (PAHs).	No limit set			BS ISO 11338 parts 1 and 2

Table S3.2 Non-kiln point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A32, A33, A34, A35, A36, A37, A38, A76 and A77	Particulate matter	Clinker handling and cement mills	30 mg/m^3	Daily average	Continuous and annual periodic (as CEMs check)	BS EN 15267-3
Vents on bag filters	No parameters set	Storage silos and conveyor lines	No limit set			Permanent sampling access not required
Vents on ammonia system		Ammonia storage				
Vents on liquid fuels storage tanks		Liquid fuels storage				

Table S3.3 Point source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 Release to River Hamps via shale lake	Total suspended solids as defined by Directive 91/271/EEC	Cooling water and site drainage	30 mg/l	Spot	Monthly	BS EN 872
	pH		9 max 6 min			BS6068-2.50
	Oil or grease		None visible			Visual check
W2 River Hamps via settlement lagoons	Total suspended solids as defined by Directive 91/271/EEC	Shale quarry drainage	30 mg/l			BS EN 872
	pH		9 max 6 min			BS6068-2.50
	Oil or grease		None visible			Visual check
W3 River Hamps	Total suspended solids as defined by Directive 91/271/EEC	Reed bed	30 mg/l			BS EN 872
	pH		9 max 5 min			BS6068-2.50
	Oil or grease		None visible			Visual check
	Ammoniacal nitrogen		15 mg/l as N			BS EN ISO 11732
	BOD		5 mg/l		Annual	BS EN 1899-2

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	**Parameter**	**Source**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
-	-	-	-	-	-	-

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**
Electricity usage	MWh	Monthly		
Fuels usage	Tonnes			
Waste derived fuels usage	Tonnes			
Water usage (permitted abstraction)	m^3			
Relative thermal input of waste derived fuels	%			
Ammonia usage	Tonnes			
Gas exit duct from the stage 4 cyclone post calciner vessel	Temperature deg C	Continuous		

Table S3.6 Process waste monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Process waste dust	Group I, Group II and Group III metals, zinc and their compounds.	6 Monthly	Environment Agency ash sampling protocol for cement.	None
	Dioxins/furans and dioxin-like PCBs			
	Halides (chloride, bromide and fluoride)			
	Total soluble fraction for Group I, Group II and Group III metals, zinc and their compounds.	Before use of a new disposal or recovery route		

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	A31 to A37, A76 and A77	Continuous: Every 3 Months	1 January, 1 April, 1 July, 1 October
	A32 to A37, A76 and A77	Periodic: Every 12 months	1 January
Functioning and monitoring of the plant involved in the burning of waste derived fuels, as required by condition 4.2.2		Every 12 months	1 January

Table S4.2: Annual production/treatment	
Parameter	**Units**
-	**-**

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Fuels usage	Quarterly	Tonnes
Waste derived fuels usage	Quarterly	Tonnes
Relative thermal input of waste derived fuels	Quarterly	%

Table S4.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	Forms air 1 to 10 or other forms as agreed in writing by the Environment Agency	31/08/10
Fuel Usage Summary	Form fuel 1 or other form as agreed in writing by the Environment Agency	31/08/10
Waste Alternative Raw Materials and Waste-Derived Fuels	List of waste based Alternative Raw Materials and Waste-Derived Fuels that are authorised for use at the installation under the October 2014 Code of Practice.	2014

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	**EPR/BJ9509IC**
Name of operator	**Lafarge Cement UK PLC**
Location of Regulated Facility	**Cauldon Works**
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

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

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

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Lafarge Cement UK PLC

Schedule 6 - Interpretation

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

"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, during which the concentrations in the discharges into air or waste water of the regulated substances may exceed the normal emission limit values.

"*annual average*" means the average of all daily averages in a calendar year.

"annually" means once every year.

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

"authorised officer" means any person authorised by the Environment 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:

(a) for emissions to surface water, the surface water quality up-gradient of the site; or

(b) for emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge; or

(c) for emissions to land, the ground water and subsoil quality below the site.

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

"*CEM*" means continuous emission monitor

"*CEN*" means European Committee for Standardisation.

"*Climate Change Agreement*" means an agreement made between the Secretary of State and the operator, either directly or through the offices of any association of which he is a member, in which he agrees to secure energy efficiency improvements as set out in a plan agreed with the Secretary of State in that agreement in return for a discount from the amount he would otherwise pay as a Climate Change Levy.

"*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.

"*CO trip*" means a de-energisation of electrical precipitators following detection of carbon monoxide in the kiln gases above a pre-determined concentration. This is a safety system.

"*COSHH Regulations 2002 (as amended)*" means The Control of Substances Hazardous to Health Regulations 2002 (as amended) (SI 2002 No. 2677).

"*daily*" means a 24 hour period commencing at 12:00 hrs (midday).

"daily average" for releases of substances to air means the average of valid half-hourly averages over consecutive discrete periods of 24 hours as agreed in writing by the Environment Agency during normal operation.

"*dioxins and furans*" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans listed in the table below.

"ELV" means emission limit value.

"emissions to land" includes emissions to groundwater.

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 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**..**

"*EWC Code*" means the code number from the European Waste Catalogue.

"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 I metals*" means mercury (Hg).

"Group II Metals" means Cadmium (Cd) and Thallium (Tl)

"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 the Environment Agency's H1 Risk Assessment Framework version 2.0 April 2010

"*half-hour or half-hourly*" means a 30 minute period commencing on the hour or at half past the hour.

"*hourly*" means a 60 minute period commencing on the hour.

"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.

"*kiln flush*" refers to a kiln upset due to a surge of feed material into the kiln which passes through without reacting fully.

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

"*management system*" means Environmental Management System (EMS) complying with the Environment Agency's Horizontal Guidance Note H6, Environmental Management Systems published April 2010.

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

"MPA Code of Practice" means the Code of Practice for the Use of Waste Materials in Cement and Dolomitic Lime Manufacture, issued by the Mineral Products Association in May 2013"

"Operation at Reduced Feed" means

<u>For Cement processes</u>

The kiln may operate at below the 120 tonne per hour feed rate and continue to use waste-derived fuels, provided the operator can demonstrate compliance with the combustion requirements of chapter IV of IED i.e. temperature and residence time. Emission limit values continue to apply in these circumstances.

Should process conditions require a reduced feed rate, the kiln may operate at below the 120 tonne per hour feed rate without waste-derived fuels. Emission limit values do not apply in these circumstances unless the process conditions requiring the reduced feed rate continue for more than 8 hours.

"*oxides of nitrogen (NO_x)*" means nitric oxide (NO) plus nitrogen dioxide (NO_2) expressed as NO_2

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

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

"*PCP*" means pentachlorophenol.

"*PFA*" means pulverised fuel ash and is the fine ash recovered from the gas stream from the combustion of pulverised coal in coal-fired power stations

"PSP" means processed sewage pellets.

"permitted installation" means the activities and the limits to those activities described in schedule 1 table S1.1 of this Permit.

"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.

"*RFO*" means recovered fuel oil.

"*SNCR*" means selective non catalytic reduction.

"*SRF*" means solid recovered fuel.

"*SSSI*" means a site of special scientific interest designated under the Wildlife and Countryside Act 1981 being a site in the UK which is of particular importance because of its geology, topography, or ecology.

"shut down" or *"shutting down"* is any period where the plant is being returned to a non-operational state and there is no waste being burned as described in the application or agreed in writing by the Environment Agency.

"start up" is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste derived fuel has been fed to the kiln in sufficient quantity to initiate steady-state conditions as described in the application or agreed in writing by the Environment Agency.

"TOC" means total organic carbon. In respect of releases to air, this means the gaseous and vaporous organic substances, expressed as TOC.

"*thermal input"* refers to the combined pre-calciner and main kiln burner inputs. Maximum thermal substitution of hazardous waste shall not exceed 40% to comply with IED co-incineration requirements. Hazardous waste may be substituted only as a main kiln burner input due to IED minimum thermal operating requirements.

"*WHO*" means the World Health Organisation

"*WDF*" means waste derived fuel.

"*WLF*" means waste liquid fuel.

"*waste oil*" has the same meaning as in Directive 75/439/EC on the disposal of waste oils (O.J.L 194, 25.07.1075)

"year" means calendar year ending 31 December.

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

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

(a) in relation to emissions from cement kilns, 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;

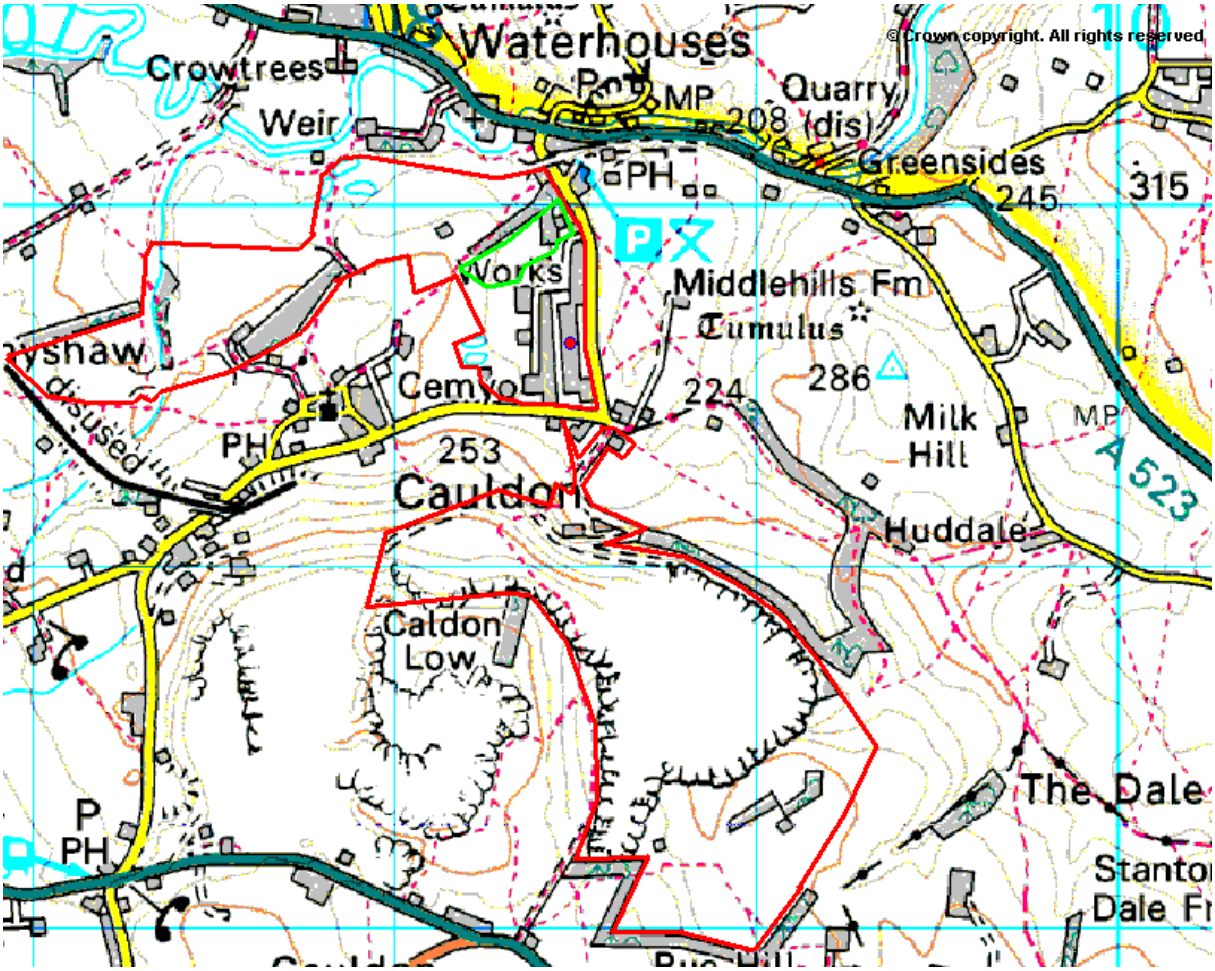
(b) in relation to emissions from non-combustion sources, no correction is required for temperature, pressure, oxygen or water vapour content.

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

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 7 - Site plan



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Notice of transfer with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Lafarge Tarmac SPV Limited

Cauldon Cement Works
Yelsway Lane
Waterhouses
Stoke-on-Trent
ST10 3EQ

Transfer application number

EPR/TP3334AW/T001

Permit number

EPR/TP3334AW

Cauldon Cement Works
Permit number EPR/TP3334AW

Introductory note

This introductory note does not form a part of the notice.

The following notice gives notice of the transfer of an environmental permit to a new operator (the transferee).

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

Status log of the permit		
Description	**Date**	**Comments**
Application BJ9509	Received 24/4/01	Dated 23/4/01
Response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	Received 28/09/01	Partial
IPC Variation application to increase tyre chip use	Received 29/10/01 and 21/01/02	IPC regime
Response to Schedule 4 Notice issued 04/01/02	08/01/02	Re-formatted application BJ9509
IPC Variation application to trial sewage sludge pellets as substitute fuel	Received 27/05/02, 31/07/02 and 09/09/02	
Response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	25/07/02	Partial
Response to Schedule 4 Notices issued 13/07/01, 26/07/01 and 22/08/01	13/02/03	Complete
Request to extend sewage sludge trial and further information for application	Received 13/03/03	
Request to include IPC Variation applications within PPC permit application	Received 17/03/03	
Permit BJ9509	Determined 31/03/03	
Application BW9131 for partial surrender and variation to store and permanently use PSP.	Duly made 22/12/03	
VariationBW9131	Determined 29/03/04	
Application for WID variation	Received 14/03/05	

Status log of the permit		
Description	**Date**	**Comments**
VP3234SF		
Response to schedule 4 notice issued 23/05/05	Received 26/07/05	
Variation VP3234SF	Determined 05/12/05	
Application to conduct a limited trial using RFO variation ZP3237SY	Received 05/10/05	
Variation ZP3237SY	Determined 23/04/07	
Application for SRF variation HP3038XX	Duly made 19/02/08	
Further information	Received 25/03/08	
Variation HP3038XX	Determined 25/04/08	
Application for WLF variation EPR/BJ9509IC/V008 (WP3038KK PAS reference)	Duly made 10/09/09	
Variation EPR/BJ9509IC/V008	Determined 24/03/10	
Variation EPR/BJ9509IC/V009 (RP3234TK PAS reference)	Determined 02/09/10	Environment Agency generated variation to cover Cement and Lime sector review.
Application for variation EPR/BJ9509IC/V010 to use shredded rubber conveyor belts as a waste derived fuel	Duly made 19/09/11	
Variation EPR/BJ9509IC/V010	Determined 24/10/11	
Application for variation EPR/BJ9509IC/V011 to change of company name and registered office address	Duly made 19/09/13	Name changed to Lafarge Tarmac Cement and Lime Limited
Variation issued EPR/BJ9509IC/V011	18/11/13	Varied permit issued to Lafarge Tarmac Cement and Lime Limited.
Variation EPR/BJ9509IC/V012 (Billing Ref: GP3537VF)	Determined 30/06/14	Agency variation to implement chapter IV of the Industrial Emissions Directive.
Variation EPR/BJ9509IC/V013	Determined 06/10/14	Agency initiated variation to add an HCL limit in Table S3.1.
Application EPR/BJ9509IC/V014 (Variation and consolidation)	Duly Made 03/10/14	MPA Code of Practise: Application to add list of waste codes suitable in principle, remove Group iii metals specification in fuels and consolidate waste derived fuels naming.

Status log of the permit		
Description	**Date**	**Comments**
Variation determined. EPR/BJ9509IC	19/12/14	Varied and consolidated permit issued
Application EPR/TP3334AW/T001 (full transfer of permit EPR/BJ9509IC)	Duly made 06/05/15	Application to transfer the permit in full to Lafarge Tarmac SPV Limited.
Transfer determined EPR/TP3334AW	22/05/2015	Full transfer of permit complete.

End of introductory note

Notice of transfer

The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 21 of the Environmental Permitting (England and Wales) Regulations 2010 transfers

Permit number

EPR/BJ9509IC

to

Lafarge Tarmac SPV Limited ("the operator")

whose registered office is

Portland House
Bickenhill Lane
Solihull
Birmingham
B37 7BQ

company registration number **9326237**

to operate a regulated facility at

Cauldon Cement Works
Yelsway Lane
Waterhouses
Stoke-on-Trent
ST10 3EQ

from Lafarge Cement and Lime Limited

The notice shall take effect from 22/05/2015

The number of the new permit granted to Lafarge Tarmac SPV Limited is EPR/TP3334AW

Name	Date
Simon Paterson	**22/05/2015**

Authorised on behalf of the Environment Agency

Notice of variation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Lafarge Cauldon Limited

Cauldon Cement Plant
Yelsway Lane
Waterhouses
Stoke-on-Trent
ST10 3EQ

Variation application number

EPR/TP3334AW/V003

Permit number

EPR/TP3334AW

Cauldon Cement Plant
Permit number EPR/TP3334AW

Introductory note

This introductory note does not form a part of the notice

The following notice gives notice of the variation of an environmental permit.

The permit has been varied at the request of the operator to reflect a change in the company name from Lafarge Tarmac SPV Limited to Lafarge Cauldon Limited and the registered office address from Portland House, Bickenhill Lane, Solihull, Birmingham, B37 7BQ to Bardon Hall, Copt Oak Road, Markfield, Leicestershire, LE67 9PJ.

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

Status log of the permit		
Description	**Date**	**Comments**
Application for WID variation VP3234SF	Received 14/03/05	
Response to schedule 4 notice issued 23/05/05	Received 26/07/05	
Variation VP3234SF	Determined 05/12/05	
Application to conduct a limited trial using RFO variation ZP3237SY	Received 05/10/05	
Variation ZP3237SY	Determined 23/04/07	
Application for SRF variation HP3038XX	Duly made 19/02/08	
Further information	Received 25/03/08	
Variation HP3038XX	Determined 25/04/08	
Application for WLF variation EPR/BJ9509IC/V008 (WP3038KK PAS reference)	Duly made 10/09/09	
Variation EPR/BJ9509IC/V008	Determined 24/03/10	
Variation EPR/BJ9509IC/V009 (RP3234TK PAS reference)	Determined 02/09/10	Environment Agency generated variation to cover Cement and Lime sector review.
Application for variation EPR/BJ9509IC/V010 to use shredded rubber conveyor belts as a waste derived fuel	Duly made 19/09/11	
Variation EPR/BJ9509IC/V010	Determined 24/10/11	

Status log of the permit		
Description	**Date**	**Comments**
Application for variation EPR/BJ9509IC/V011 to change of company name and registered office address	Duly made 19/09/13	Name changed to Lafarge Tarmac Cement and Lime Limited
Variation issued EPR/BJ9509IC/V011	18/11/13	Varied permit issued to Lafarge Tarmac Cement and Lime Limited.
Variation EPR/BJ9509IC/V012 (Billing Ref: GP3537VF)	Determined 30/06/14	Agency variation to implement chapter IV of the Industrial Emissions Directive.
Variation EPR/BJ9509IC/V013	Determined 06/10/14	Agency initiated variation to add an HCL limit in Table S3.1.
Application EPR/BJ9509IC/V014 (Variation and consolidation)	Duly Made 03/10/14	MPA Code of Practise: Application to add list of waste codes suitable in principle, remove Group iii metals specification in fuels and consolidate waste derived fuels naming.
Variation determined. EPR/BJ9509IC	19/12/14	Varied and consolidated permit issued
Application EPR/TP3334AW/T001 (full transfer of permit EPR/BJ9509IC)	Duly made 06/05/15	Application to transfer the permit in full to Lafarge Tarmac SPV Limited.
Transfer determined EPR/TP3334AW	22/05/15	Full transfer of permit complete.
Variation EPR/TP3334AW/V002 returned to customer	23/06/15	
Notified of change of company name	Duly made 07/08/15	Company name changed to Lafarge Cauldon Limited, and registered office address changed to Bardon Hall, Copt Oak Road, Markfield, Leicestershire, LE67 9PJ.
Variation issued EPR/TP3334AW/V003	11/08/15	Varied permit issued to Lafarge Cauldon Limited

End of introductory note

Notice of variation

The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies

permit number
EPR/TP3334AW

issued to
Lafarge Cauldon Limited ("the operator")

whose registered office is

Bardon Hall
Copt Oak Road
Markfield
Leicestershire
LE67 9PJ

company registration number **09326237**

to operate a regulated facility at

Cauldon Cement Plant
Yelsway Lane
Waterhouses
Stoke-on-Trent
ST10 3EQ

as follows:

on the permit page the company name of the operator is changed from Lafarge Tarmac SPV Limited to Lafarge Cauldon Limited, and the registered office address is changed from Portland House, Bickenhill Lane, Solihull, Birmingham, B37 7BQ to Bardon Hall, Copt Oak Road, Markfield, Leicestershire, LE67 9PJ.

The notice shall take effect from 11/08/2015.

Name	Date
Damien Matthias	**11/08/2015**

Authorised on behalf of the Environment Agency