



**ENVIRONMENT  
AGENCY**

## Variation Notice with introductory note

Pollution Prevention and Control Regulations 2000

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**Lafarge Cement UK  
Aberthaw Works  
Blue Circle Industries plc  
East Aberthaw  
Barry  
Vale of Glamorgan  
CF62 3ZR**

Variation Notice number

**JP3134SY**

Permit number

**BL3986**

# Introductory note

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

The following Notice is issued under Regulation 17 of The Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No. 1973 (as amended) (the "Regulations") to vary the conditions of Permit number BL3986 (the "Permit") issued under the Regulations to operate the Aberthaw cement works (the "Installation").

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

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

This variation is to comply with the requirements of the Waste Incineration (England and Wales) Regulations 2002 (SI 2002 No. 2980) (The WI Regulations) and the Pollution Prevention and Control (Waste Incineration Directive) (England and Wales) Direction 2002, which together implement the requirements of the Waste Incineration Directive (Directive EC 2000/76/EC on the Incineration of Waste (WID)). The Installation regulated under this Permit is an existing Waste Co-incineration Installation (as defined in the WI Regulations) in which the incineration of waste in a co-incineration plant is carried out. Conditions delivering the corresponding requirements of the relevant articles of the Waste Incineration Directive have been incorporated into this variation to the Permit.

The Aberthaw site operates a single dry process kiln (Number 6) with a maximum production capacity of 565,000 tonnes per annum of clinker.

The main raw materials consist of carboniferous and siliceous materials suitable for cement clinker production. The raw materials are normally stored in covered reception hoppers, or if full, on an open stockpile adjacent to the hoppers and then blended with PFA and an iron oxide substitute before transportation to stone storage silos. Raw materials are then secondary crushed prior to being weighed and milled in a closed circuit grinding mill system to produce raw meal. Transport of stone is carried out on covered belt conveyors. Dust laden air from the primary and secondary crushers is treated by bag filtration before release to atmosphere via 13.5 metre and 4.2 metre stacks.

The raw meal is pneumatically transported to a system of blending silos before discharge to storage silos prior to being fed to the kiln for clinker manufacture. The raw material is extracted from storage, weighed and pneumatically conveyed to a four stage preheater which precedes the rotary kiln. The material is converted at the kiln to cement clinker at a production rate of typically 1720 tonnes per day. Dust laden air from the raw meal blending and storage silos and feed systems are treated by bag filtration before release to atmosphere via a 17.8 metre stack.

The kiln is fired at high temperature with pulverised fuel, usually a coal and petroleum coke mixture. The pulverised fuels are stored in open stockpiles. Following kiln repairs gas oil is used to preheat the kiln; gas oil is only occasionally used to produce clinker.

The cement clinker passes through planetary coolers attached to the kiln before transportation to enclosed storage areas prior to final grinding into cement. Exhaust gases from the kiln are treated by a bag filter before discharge to atmosphere via a 100.6 metre chimney. There is no external exhaust from the coolers as the gases are drawn into the kiln. Dust laden gases from the clinker conveying and coal-grinding systems are treated by bag filtration systems before discharge to atmosphere via stacks of height 6.5 to 38 metres above ground level.

A closed circuit cement mill system (3000 HP mill) grinds the cement clinker with gypsum and limestone to produce the finished cement. Dust laden air from the 3000 HP cement mill is treated by bag filtration systems before release to the atmosphere via stacks of height 30 and 29 metres.

The cement is pneumatically transported from the mill house to storage silos. Storage silos are fitted with unitary fabric filters which discharge direct to atmosphere at the height of the silos. Cement held in these silos is loaded into road tankers or bagged. Occasionally clinker is despatched directly for processing elsewhere at other locations. Dust laden air from the cement bag and bulk loading facility are treated by fabric filtration systems before release to atmosphere through stacks of height 25 and 15 metres above ground level.

Particulate material is released at high level from the cement kiln, relatively high level from the 3000 HP cement mill and at lower level from a wide range of abatement plant fitted to contain emissions from other sources. Sulphur dioxide, oxides of nitrogen, carbon dioxide and carbon monoxide are also released at high level from the cement kiln chimney.

Drainage from the coal stockpile areas passes through two settling pits, fitted with surface interceptor plates, prior to mixing with other site water from the quarry in the works feed aqueduct. The combined stream is discharged to the River Kenson. Water draining from the lorry wash is discharged to the works feed aqueduct or directly to the River Thaw following successive treatment in three oil interceptor systems. There are no releases to public sewers.

Releases to land consist mainly of general industrial waste, cement waste, kiln bricks and general office waste. The onsite landfill does not fall within the installation boundary.

In 2004 a variation notice, NP3437PH, was issued by the Agency permitting the installation to burn meat and bone meal (MBM) to provide up to 30% of the total thermal energy required by the kiln.

**Other PPC Permits relating to this Installation**

Permit holder	Permit Number	Date of Issue
None		

**Superseded Licenses/Consents/Authorisations relating to this Installation**

Holder	Reference Number	Date of Issue
Blue Circle Industries plc IPC Authorisation	AI0713	27/08/1993
Variation to IPC Authorisation	AP6826	18/01/1995
Variation to IPC Authorisation	BA2679	28/04/1998
Variation to IPC Authorisation	BE2379	30/11/1998
Variation to IPC Authorisation	BF2013	31/01/1999
Variation to IPC Authorisation	BF9131	23/07/1999
Variation to IPC Authorisation	BH7911	28/01/2000
Variation to IPC Authorisation	BK4545	14/02/2001
Variation to IPC Authorisation	BK7439	01/04/2001

## Talking to us

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

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

## Confidentiality

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

## Variations to the permit

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

## Surrender of the permit

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

## Transfer of the permit or part of the permit

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

## Status Log

Detail	Date	Comment
Application BL3986	Received 28/08/01	
Commercial Confidentiality Claim	Received 28/08/01	Company withdrew claim by letter dated 12/09/01
Response to request for information	Request dated 12/10/01	Response dated 02/01/02 Final submission of revised application on CD format
Response to request for information	Request dated 10/01/02	Response dated 31/07/02 Response dated 15/08/02 Response dated 06/12/02
Operator's first request to extend deadline of response to request for information	Request dated 05/04/02	Request accepted and confirmed on 08/07/02
Operator's second request to extend deadline of response to request for information	Request dated 02/08/02	Request accepted and confirmed on 07/08/02
Operator's third request to extend deadline of response to request for information	Request dated 08/08/02	Request accepted and confirmed on 08/08/02. Information received on 15/08/02
Response to request for information	Request dated 03/10/02	Response dated 21/10/02
Permit BL3986	Determined 21/01/03	
Application to use MBM as a substitute fuel	Received 13/07/04	Duly made 27/07/04
Schedule 7 notice for Additional information	Issued 30/07/04	Response 27/08/04
Variation NP3437PH	Determined 10/12/04	
Application for variation	Received 21/03/05	WID
Request for further information	Request dated 31/08/05	Response received 21/09/05
Request for further information, HCl emissions	Request dated 24/11/05	Response received 25/11/05
Request for further information, SO <sub>2</sub> model and location of ammonia storage tank	Request dated 30/11/05	Response received 30/11/05
Variation JP3134SY	Determined 08/12/05	

*End of introductory Note*

**Variation Notice**

Pollution Prevention and Control  
(England and Wales) Regulations 2000



**ENVIRONMENT  
AGENCY**

## Variation Notice

Permit number

BL3986 (the "Permit")

Variation Notice number

JP3134SY

The Environment Agency in exercise of its powers under Regulation 17 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I. 2000 No. 1973) (as amended) (the "Regulations"), hereby varies the Permit held by **Blue Circle Industries plc** (the "Operator"),

Whose Registered Office is

**The Old Rectory**

**Misterton**

**Lutterworth**

**Leicestershire**

**LE17 4JP**

**Company registration number 00066558**

which relates to the operation of the Installation at

**Lafarge Cement UK**

**Aberthaw Works**

**East Aberthaw**

**Barry**

**CF62 3ZR**

**(the "Installation")**

to the extent set out in Schedules 1 to 3 of this Variation Notice.

Signed

A rectangular box containing a handwritten signature in black ink, which appears to be 'S. McFarlane'.

**S. McFarlane**

Authorised to sign on behalf of the Environment Agency

Date

A rectangular box containing the handwritten date '8/12/05' in black ink.

## SCHEDULE A - CONDITIONS TO BE DELETED

Conditions to be deleted	Effective from
2.10.4; 6.1.3; 6.1.11; 6.1.12; 6.1.13; 6.1.15; Schedule 3 Forms A1, A2	The first time on or after 28 December 2005 when waste is burned in the kiln

## SCHEDULE B - CONDITIONS TO BE AMENDED

Conditions to be amended	Effective from
2.1.5; 2.2.3; 2.2.4; 2.3.1; 2.3.2; 2.3.3; 2.3.4; 2.3.5; 2.10.1; 4.1.2; 5.1.1; 5.1.2; 6.1.1; 6.1.2; Schedule 1; Schedule 2; Schedule 3; 6.1.14 to be renumbered as 6.1.11	The first time on or after 28 December 2005 when waste is burned in the kiln

## 2 Operational Matters

### 2.1 Management techniques and control

- 2.1.5 All staff shall be fully conversant with those aspects of the Permit conditions which are relevant to their duties and shall be provided with adequate professional technical development and training and written operating instructions to enable them to carry out their duties.

### 2.2 Raw materials (including water)

- 2.2.3 All MBM burned at the Permitted Installation shall comply with the concentrations or ranges specified in Table 2.2.2.

**Table 2.2.2: MBM specifications**

Parameter	mg/kg (max) – unless otherwise stated
Calorific Value	14 - 24 MJ/kg
Sulphur	1.5 % w/w
Chlorine	0.75 % w/w
Fluorine	0.11%
Bromine	0.1%
Phosphorus	15.0%
Zinc	0.2%
Ash	30%
Mercury and its compounds, as Hg	5
Cadmium and thallium and their compounds as metals	20
Antimony, arsenic, cobalt, chromium, copper, nickel, and vanadium, as metals	1500
Manganese	1500
Lead	200

- 2.2.4 The materials detailed in Table 2.2.4 shall be stored in the location and manner specified in that table.

**Table 2.2.4 : Raw materials (including water)**

<b>Material</b>	<b>Location of Storage on site</b>	<b>Storage Conditions</b>
Coal/petcoke blend	Dedicated fuel stockyard	Open stockpile
Ferrous sulphate	Dedicated storage silo	Silo
MBM	Dedicated storage silo	Silo equipped with dust filter and carbon filter
Ammonia solution for SNCR	Ammonia bulk storage tank	Within bunded area.

## 2.3 Operating Techniques

- 2.3.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the documentation specified in Table 2.3.1, or as otherwise agreed in writing by the Agency in accordance with conditions 11.1.1 and 11.1.2 of the Permit.

**Table 2.3.1: Operating techniques**

<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	The response to questions 2.3 given in section 2.3 of the application	Final Resubmitted Application (CD format) on 04/01/02
Response to Second Schedule 4 Part 1 Notice	Response to questions B2.3 (1 to 8) and B2.3.8	15/08/02
Application to use MBM as a substitute fuel	Application details related to MBM as a fuel	13/07/04
Response to Schedule 7 request for information dated 27/08/04	All parts	27/08/04
Application for WID Variation JP31342SY	The response to questions given in sections C2.1, C2.7 and C2.10 of the Application for variation	21/03/05

- 2.3.2 Only the substitute fuel and quantities specified in Table 2.3.2 shall be used at the Permitted Installation.

**Table 2.3.2: Permitted substitute fuel**

Description	European Waste Catalogue Number (where available), other specification or limitation	Thermal input at any time	
		Minimum	Maximum
MBM	EWC 02 02 02 and Conditions 2.2.3 and 2.2.5	0% thermal substitution	25,000te/year 2.9te/hr 30% thermal substitution

2.3.3 The Operator shall adopt procedures and practices to, as far as practicable, identify and manage the substitute fuels delivered to the process such that the conditions of this permit are not breached. This shall include, as a minimum, prior to accepting delivery of a substitute fuel:

- a Determination of the mass of the material.
- b The checking of those documents required by Directive 91/689/EEC and where applicable, those required by Council Regulation (EEC) No 259/93 of February 1993 on the supervision and control of shipments of waste within, into and out of the European Community and by dangerous goods transport regulations.
- c It is sampled and analysed as agreed in writing with the Agency.
- d The samples should be retained for at least one calendar month after the substitute fuel has been burned.
- e A record shall made and retained detailing the origin and date of the delivery.

2.3.4 Substitute fuel shall not be burned, or the feed of substitute fuel shall be shut-down, on the kiln during periods of unstable operation or if:

- the kiln is in start-up (as agreed in writing with the Agency); or
- the kiln is in shutdown (as agreed in writing with the Agency); or
- any continuous emission limit value in Table 6.1.2 is exceeded; or
- when the raw meal feed rate is less than 85te/hr; or
- the temperature in the kiln, as indicated by the surrogate thermocouple in stage four of the preheater tower, is below or falls below 850°C; or
- monitoring devices required to demonstrate compliance with any continuous emission limit value in Table 6.1.2 are out of service for a period of four hours uninterrupted duration; or
- the cumulative duration of periods of CEMs failure over one calendar year on the kiln exceeds 60 hours

2.3.5 The Operator shall record the beginning and end of each period of CEMs failure.

## 2.10 Monitoring

2.10.1 The Operator shall, subject to the conditions of this Permit, carry out, evaluate and assess monitoring as described in the documentation specified in Table 2.10.1, and in accordance with condition 2.10.7 of this variation, or as otherwise agreed in writing by the Agency.

**Table 2.10.1 : Monitoring**

<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Final Resubmitted Application (CD format)	The response to question 2.10 given in section 2.10 of the application	04/01/02
Response to Second Schedule 4 Part1 Notice	Response to questions B2.10 (1 to 18)	15/08/02
Response to Third Schedule 4 Part1 Notice	Response to Second Schedule 4 Part1 Notice	21/10/02
Application to use MBM as a substitute fuel	Application details related to MBM as a fuel	13/07/04
Response to Schedule 7 request for information dated 27/08/04	All parts	27/08/04
Application for WID Variation JP3134SY	Section C2.10 of the application for variation	21/03/05

## **4 Reporting**

- 4.1.2 The Operator shall, unless otherwise agreed in writing, submit reports of the monitoring and assessment carried out in accordance with the conditions of this Permit, as follows:-
- 4.1.2.1 in respect of the parameters and emission points specified in Table S2 to Schedule 2;
  - 4.1.2.2 for the reporting periods specified in Table S2 to Schedule 2 and using the forms specified in Table S3 to Schedule 3;
  - 4.1.2.3 giving the information from such results and assessments as may be required by the forms specified in those Tables; and
  - 4.1.2.4 to the Agency within 28 days of the end of the reporting period.

## **5 Notifications**

- 5.1.1 The Operator shall notify the Agency **without delay** of:-
- 5.1.1.1 the detection of an emission of any substance which exceeds any limit or criterion in this Permit specified in relation to the substance;
  - 5.1.1.2 the detection of any fugitive emission which has caused, is causing or may cause significant pollution;
  - 5.1.1.3 the detection of any malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution;
  - 5.1.1.4 any accident which has caused, is causing or has the potential to cause significant pollution; and
  - 5.1.1.5 any incident while burning substitute fuel(s) which has led to CEMs failure.
- 5.1.2 The Operator shall submit written confirmation to the Agency of any notification under condition 5.1.1, by sending:-
- 5.1.2.1 the information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification; and

5.1.2.2 the more detailed information listed in Part B of that Schedule as soon as practicable thereafter;

5.1.2.3 for notifications of incidents of CEMs failure under condition 5.1.1.5, only the information listed in Part C of that Schedule as soon as practicable thereafter;

and such information shall be in accordance with that Schedule

## 6.1 Emissions to air

6.1.1. Emissions to air from the emission points specified in Table 6.1.1 shall only arise from the sources specified in that Table.

Table 6.1.1: Emission points into air		
Emission point reference	Source	Location of emission point
A1	Chimney to No.6 cement kiln	Point A1 on the site layout plan, resubmitted in response to the request for further information Notice.
A2	3000 HP cement mill dust plant	Point A2 on the site layout plan, resubmitted in response to the request for further information Notice.
A3	3000 HP cement mill separator	Point A3 on the site layout plan, resubmitted in response to the request for further information Notice.
A4	3000 HP cement mill- conveyor to cement mill clinker hopper	Point A4 on the site layout plan, resubmitted in response to the request for further information Notice.
A5	Combined discharge from closed circuit venting system on coal milling plant	Point A5 on the site layout plan, resubmitted in response to the request for further information Notice.
A6	OPC bag loading facility	Point A6 on the site layout plan, resubmitted in response to the request for further information Notice.
A7	OPC bag loading facility	Point A7 on the site layout plan, resubmitted in response to the request for further information Notice.
A8	Silo reserved for bulk cement	Point A8 on the site layout plan, resubmitted in response to the request for further information Notice.
A9	Silo reserved for bagged cement	Point A9 on the site layout plan, resubmitted in response to the request for further information Notice.
A10	Raw meal blending, storage, handling and kiln feed facility	Point A11 on the site layout plan, resubmitted in response to the request for further information Notice.
A11	Clinker handling system from kiln to storage	Point A12 on the site layout plan, resubmitted in response to the request for further information Notice.
A12	Primary stone crusher at Aberthaw Quarry	Point A13 on the site layout plan, resubmitted in response to the request for further information Notice.
A13	Secondary stone crusher within the cement works	Point A14 on the site layout plan, resubmitted in response to the request for further information Notice.
A14	Coal mill vacuum plant	Point A15 on the site layout plan, resubmitted in response to the request for further information Notice.
A15	Rapid hardening cement bulk loading facility	Point A17 on the site layout plan, resubmitted in response to the request for further information Notice.
A16	Clinker conveyors to main clinker store	Point A18 on the site layout plan, resubmitted in response to the request for further information Notice.
A17	PLC bulk cement loading dust plant	Point A20 on the site layout plan, resubmitted in response to the request for further information Notice.
A18	Carbon filter vent on MBM storage silo	Top of MBM storage silo
A19	Ammonia storage	Point A19 on plan supplied on 30/11/05

6.1.2 The limits for emissions to air for the parameters and emission points set out in Tables 6.1.2 and 6.1.4 shall not be exceeded.

<b>Table 6.1.2 : Emission limits to air and monitoring</b>				
<b>Emission point reference</b>	<b>Parameter</b>	<b>Limit (including Reference Period)</b>	<b>Monitoring frequency</b>	<b>Monitoring method</b>
A1	Particulate matter <sup>4</sup>	30 mg/m <sup>3</sup> daily average	Continuous measurement	BS EN 13284-2 <sup>5</sup>
A1	Total Organic Carbon (TOC) <sup>4</sup>	50 mg/m <sup>3</sup> daily average	Continuous measurement	BS EN 12619 <sup>5</sup>
A1	Hydrogen chloride <sup>4</sup>	10 mg/m <sup>3</sup> daily average	Continuous measurement	MCERTS certified instruments <sup>7</sup>
A1	Hydrogen chloride <sup>4,7</sup>	15 mg/m <sup>3</sup> daily average	Continuous measurement	MCERTS certified instruments <sup>7</sup>
A1	Carbon monoxide <sup>4</sup>	1000 mg/m <sup>3</sup> daily average	Continuous measurement	ISO 12039 <sup>5</sup>
A1	Sulphur dioxide <sup>4</sup>	1200 mg/m <sup>3</sup> hourly average 800 mg/m <sup>3</sup> daily average	Continuous measurement	BS 6069-4.4 <sup>5</sup>
A1	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> ) <sup>4</sup>	1200 mg/m <sup>3</sup> daily average to 31/12/07	Continuous measurement	ISO 10849 <sup>5</sup>
A1	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> ) <sup>4</sup>	800 mg/m <sup>3</sup> daily average from 01/01/08	Continuous measurement	ISO 10849 <sup>5</sup>
A1	Hydrogen fluoride	1 mg/m <sup>3</sup> periodic over minimum 1-hour period	6 monthly periodic monitoring.	USEPA Method 26/26A
A1	Cadmium & thallium and their compounds (total) <sup>2</sup>	0.05 mg/m <sup>3</sup> periodic over minimum 30 minute, maximum 8 hour period	6 monthly periodic monitoring.	BS EN 14385
A1	Mercury and its compounds <sup>2</sup>	0.05 mg/m <sup>3</sup> periodic over minimum 30 minute, maximum 8 hour period	6 monthly periodic monitoring.	BS EN 13211
A1	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total) <sup>2</sup>	0.5 mg/m <sup>3</sup> periodic over minimum 30 minute, maximum 8 hour period	6 monthly periodic monitoring.	BS EN 14385
A1	Dioxins / furans (I-TEQ)	0.1 ng/m <sup>3</sup> periodic over minimum 6 hours, maximum 8 hour period <sup>3</sup>	6 monthly periodic monitoring.	BS EN 1948
A1	Ammonia	To be set by the Agency on completion of Improvement Condition 9.1.2.8	Continuous measurement	MCERTS certified instruments <sup>6</sup>

Note 1: See Section 10.1.4 for reference conditions

Note 2: Metals include gaseous, vapour and solid phases as well as their compounds (expressed as the metal or the sum of the metals as specified). Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V mean antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium respectively.

Note 3: The I-TEQ sum of the equivalence factors to be reported as a range based on: All congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum.

Note 4: For continuous monitors, conditions 6.1.12 to 6.1.17 apply.

Note 5: MCERTS certification to the appropriate ranges and determinands is a demonstration of compliance to the applicable standards.

Note 6: The certification range for MCERTS equipment should be 1.5 times the daily emission limit value.

Note 7: This limit only applies when: -

- The burning of substitute fuels has ceased during the day
- The raw mill is off-line
- For not more than 3,720 hours per year

The average emission concentration of HCl during substitute fuel burning shall be no greater than 10 mg/m<sup>3</sup>

# Schedule 1 - Notification of abnormal emissions

This page outlines the information that the Operator must provide to satisfy conditions 5.1.1 and 5.1.2 of this Permit.

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 PPC Regulations.

## Part A

<b>Permit Number</b>	
<b>Name of Operator</b>	
<b>Location of Installation</b>	
<b>Location of the emission</b>	
<b>Time and date of the emission</b>	

<b>Substance(s) emitted</b>	<b>Media</b>	<b>Best estimate of the quantity or the rate of emission</b>	<b>Time during which the emission took place</b>

<b>Measures taken, or intended to be taken, to stop the emission</b>	
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## Part B

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

**Part C**

Permit Number	
Name of Operator	
Location of Installation	

Time at which CEMS failed	
Time at which CEMs returned to operation or substitute fuel feed ceased	
Duration of this incidence of CEMs failure	
Cumulative duration of periods of CEMs failure in current year (at end of present incidence)	
Description of failure	
How did the period of CEMs failure end? (e.g. CEMs returned to service, substitute fuel feed stopped, etc.)	
If failure of the particulate, CO or TOC CEM, attach a copy of the alternate monitoring data which was used to demonstrate compliance with the abnormal operation emission limit values.	

Name*	
Post	
Signature	
Date	

\*Authorised to sign on behalf of Blue Circle Industries plc

## Schedule 2 - Reporting of monitoring data

Parameters for which reports shall be made, in accordance with condition 4.1.2 of this Permit, are listed below.

**Table S2: Reporting of monitoring data**

Parameter	Emission point	Reporting period	Period begins
Fuel Usage	N/A	Monthly	01/01/2006
Particulate Matter mg m <sup>-3</sup>	A1	Continuous: monthly Periodic: 6 monthly	01/01/2006
Particulate Matter mg m <sup>-3</sup>	A2,A3	Continuous: 3 monthly Periodic: annually	01/01/2006
Particulate matter, mass releases, kg	A1-A18	Annually	01/01/2006
Total Organic Carbon (TOC) mg m <sup>-3</sup>	A1	Continuous: monthly Periodic: 6 monthly	01/01/2006
Hydrogen chloride mg m <sup>-3</sup>	A1	Continuous: monthly Periodic: 6 monthly	01/01/2006
Carbon Monoxide mg m <sup>-3</sup>	A1	Continuous: monthly Periodic: 6 monthly	01/01/2006
Sulphur dioxide mg m <sup>-3</sup>	A1	Continuous: monthly Periodic: 6 monthly	01/01/2006
Oxides of nitrogen mg m <sup>-3</sup>	A1	Continuous: monthly Periodic: 6 monthly	01/01/2006
Ammonia mg m <sup>-3</sup>	A1	Continuous: monthly Periodic: 6 monthly	01/01/2006
Hydrogen fluoride mg m <sup>-3</sup>	A1	Periodic: 6 monthly	01/01/2006
Cadmium & Thallium and their compounds (total)	A1	Periodic: 6 monthly	01/01/2006
Mercury and its compounds	A1	Periodic: 6 monthly	01/01/2006
Antimony, Arsenic, Lead, Chromium, Cobalt, Copper, Manganese, Nickel and Vanadium and their compounds (total)	A1	Periodic: 6 monthly	01/01/2006
Dioxins/furans (I-TEQ)	A1	Periodic: 6 monthly	01/01/2006
Dioxins/furans (WHO-TEQ Humans/Mammals, Fish & Birds)	A1	Periodic: 6 monthly	01/01/2006
Dioxin-like PCBs (WHO-TEQ Humans/Mammals, Fish & Birds)	A1	Periodic: 6 monthly	01/01/2006
Poly-cyclic aromatic hydrocarbons (PAHs)	A1	Periodic: 6 monthly	01/01/2006
Nitrous oxide mg m <sup>-3</sup>	A1	Periodic: 6 monthly	
Oil and grease mg/l	W1, W2	Every 3 months	01/01/2006
Suspended solids mg/l	W1, W2	Every 3 months	01/01/2006
pH	W1, W2	Every 3 months	01/01/2006
Raw materials use	Installation	Every 12 months	01/01/2006

**Table S2: Reporting of monitoring data**

<b>Parameter</b>	<b>Emission point</b>	<b>Reporting period</b>	<b>Period begins</b>
Waste disposal and/or recovery.	Installation	Every 12 months	01/01/2006
Electricity and water use	Installation	Every 12 months	01/01/2006

## Schedule 3 - Forms to be used

<b>Table S3: Reporting Forms</b>		
<b>Media or parameter</b>	<b>Form Number</b>	<b>Date of Form</b>
Air: 6 monthly periodic monitoring.	Agency Form / BL3986/ A1 / Form dated 01/11/05	01/11/05
Air: Continuously monitored emissions of particulates	Agency Form / BL3986 / A2 / Form dated 01/11/05	01/11/05
Air: Continuously monitored emissions of TOC	Agency Form / BL3986/ A3 / Form dated 01/11/05	01/11/05
Air: Continuously monitored emissions of Hydrogen chloride	Agency Form / BL3986 / A4a and A4b/ Form dated 01/11/05	01/11/05
Air: Continuously monitored emissions of Carbon monoxide	Agency Form / BL3986 / A5 / Form dated 01/11/05	01/11/05
Air: Continuously monitored emissions of Sulphur dioxide	Agency Form BL3986 / A6 / Form dated 01/11/05	01/11/05
Air: Continuously monitored emissions of oxides of nitrogen	Agency Form / BL3986/ A7 / Form dated 01/11/05	01/11/05
Air: Continuously monitored emissions of ammonia	Agency Form / BL3986/ A8 / Form dated 01/11/05	01/11/05
Air: annual periodic monitoring of particulates, points A2 and A3	Form A9, amended form A1 in original permit	ND
Air: annual mass releases of particulates	Form A10, amended form A2 in original permit	ND
Waste Return	Agency Form / BL3986/ R1 / Form dated 01/11/05	01/11/05
Performance indicators	Agency Form / BL3986 / PI1 / Form dated 01/11/05	01/11/05
Monthly Fuel Usage Summary	Agency Form / BL3986 / Fuel 1 / Form dated 01/11/05	01/11/05
Releases to surface water	W1	N.D.
Raw materials use	RM1	N.D.
Electricity and water use	E1	N.D.

## SCHEDULE C - CONDITIONS TO BE ADDED

Conditions to be added	Effective from
2.1.6; 2.2.4; 2.2.5; 2.2.6; 2.2.7; 2.3.6; 2.3.7; 2.3.8; 2.5.3; 2.6.2; 2.10.4; 2.10.5; 2.10.6; 2.10.7; 2.10.8; 2.10.9; 4.1.6; 4.1.7; 6.1.12; 6.1.13; 6.1.14; 6.1.15; 6.1.16; 6.1.17; 6.1.18; 9.1.2; 10.1.1; 10.1.5; Schedule 4	The first time on or after 28 December 2005 when waste is burned in the kiln

## 2 Operational Matters

### 2.1 Management techniques and control

- 2.1.6 The Operator shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and shall keep records of all relevant training.

### 2.2 Raw materials

- 2.2.5 All substitute fuels used at the Permitted Installation are subject to the following conditions:
- a No substances that are radioactive materials or radioactive wastes (as defined by sections 1 and 2 respectively of the Radioactive Substances Act 1993) shall be included in any substitute fuel formulation.
  - b No substances with PCB concentrations greater than 10 mg/kg shall be included in any substitute fuel formulation.
  - c No substances with PCP concentrations greater than 100 mg/kg shall be included in any substitute fuel formulation.
  - d No pharmaceutical products, pesticide products, biocide products and iodine compounds shall be included in any substitute fuel formulation except as constituents of other materials and at levels which are minimised as far as reasonably practicable.
  - e No dioxins/furans shall be included in any substitute fuel formulation.
  - f No medical/clinical waste shall be included in any substitute fuel formulation.
- 2.2.6 Unless agreed with the Agency in writing, all new waste materials used, other than as fuels and excluding naturally occurring raw materials from the quarry, shall be subject to the following conditions:
- a All such materials shall have a mineral content of at least 90% by dry weight and shall contain no more than 5% organic materials.
  - b No new raw materials shall be used except with the written approval of the Agency.
  - c No materials which are defined as carcinogens for the purposes of the COSHH Regulations 1994 shall be used.
- 2.2.7 Unless agreed with the Agency in writing, the delivery, handling, transport and storage of odorous or corrosive materials associated with the process shall be carried out in such a manner so as to prevent releases into the environment. Closed loop delivery systems shall be used wherever practicable.

## **2.3 Operating techniques**

- 2.3.6 The Operator shall restore normal operation of the failed CEMs or replace the failed CEMs as rapidly as possible.
- 2.3.7 The Operator shall interpret the end of the period of CEMs failure, as the earliest of the following:
- when the failed CEMs is repaired and brought back into normal operation; or
  - when the Operator initiates a shut-down of the feed of substitute fuels to the relevant kiln, as described in the Application; or
  - when a period of 4 hours has elapsed from when the CEMs failed; or
  - when, in any calendar year, an aggregated period of CEMs failure, reaches 60 hours for a given kiln.
- 2.3.8 In the case of continuous emission monitor(s) being out of service for more than 4 hours the Operator shall make arrangements for alternative methods of measurement: these are to be made in agreement with the Agency.

## **2.5 Waste Handling and Storage**

- 2.5.3 The Operator shall design, maintain and operate all facilities for the storage and handling of waste on the Permitted Installation such that there are no releases to water or land during normal operation and that emissions to air and the risk of accidental release to water or land are minimised.

## **2.6 Waste Recovery or Disposal**

- 2.6.2 Waste produced at the Permitted Installation shall be:
- 2.6.2.1 recovered to no lesser extent than described in the Application; and
- 2.6.2.2 where not recovered, disposed of while avoiding or reducing any impacts on the environment provided always that this is not done in any way that would have a greater effect on the environment than that described in the Application.

## **2.10 Monitoring**

- 2.10.4 The Operator shall maintain and implement an emissions monitoring programme which ensures that emissions are monitored from the specified points, for the parameters listed in and to the frequencies and methods described in Table 6.1.2, unless otherwise agreed in writing, and that the results of such monitoring are assessed. The programme shall ensure that monitoring is carried out under an appropriate range of operating conditions.
- 2.10.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in Table 6.1.2, the Operator shall perform a QAL2 test as specified in BS EN 14181 at least every three years and when there are significant changes to either the process, the fuel used or to the CEMs themselves.
- 2.10.6 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in Table 6.1.2, the Operator shall perform an Annual Surveillance Test (AST) at least annually, as specified within BS EN 14181.

2.10.7 The Operator shall carry out environmental or other specified substance monitoring to the frequencies and methods described in Table 2.10.2.

**Table 2.10.2 : Other monitoring requirements**

<b>Emission point reference or source or description of point of measurement</b>	<b>Substance or parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring method</b>	<b>Other specifications</b>
Sampling Point A1	pressure	continuous	As described in the Application	
Sampling Point A1	oxygen content	continuous	As described in the Application	
Sampling Point A1	water vapour content	continuous	As described in the Application	
Sampling Point A1	Temperature	continuous	As described in the Application	
Sampling Point A1	Nitrous oxide (N <sub>2</sub> O) Periodic over minimum 1 hour period	6 monthly periodic monitoring.	VDI 2469-1 or VDI 2469-2	
Sampling Point A1	Particulates	6 monthly periodic monitoring.	BS EN 13284-1	
Sampling Point A1	Total Organic Carbon (TOC)	6 monthly periodic monitoring.	BS EN 12619	
Sampling Point A1	Hydrogen chloride	6 monthly periodic monitoring.	BS EN 1911	
Sampling Point A1	Carbon monoxide	6 monthly periodic monitoring.	ISO 12039	
Sampling Point A1	Sulphur dioxide	6 monthly periodic monitoring.	BS 6069-4.1	
Sampling Point A1	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	6 monthly periodic monitoring.	ISO 10849	
Sampling Point A1	Ammonia	6 monthly periodic monitoring	MCERTS certified instruments	
Sampling Point A1	Dioxin-like PCBs (WHO-TEQ Humans/Mammals, Fish & Birds) <sup>2</sup>	6 monthly periodic monitoring, average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)	
Sampling Point A1	Specific individual polycyclic aromatic hydrocarbons (PAHs), as specified in condition 10.1.2	6 monthly periodic monitoring, average value over sample period of between 6 and 8 hours.	Procedure shall use BS ISO 11338-1 and BS-ISO 11338-2.	
Sampling Point A1	Dioxins/furans (WHO-TEQ Humans/Mammals, Fish & Birds) <sup>1</sup>	6 monthly periodic monitoring, average value over sample	To be determined utilising sampling and analytical techniques developed for	

**Table 2.10.2 : Other monitoring requirements**

<b>Emission point reference or source or description of point of measurement</b>	<b>Substance or parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring method</b>	<b>Other specifications</b>
		period of between 6 and 8 hours.	dioxins/furans (BS EN 1948)	
Stage 4 of the preheater tower	Temperature (° C)	Continuous	Traceable to National Standards	

Note 1: The TEQ sum of the equivalence factors to be reported as a range based on: All congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum.

2.10.8 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme in condition 2.10.4 of this Permit and the environmental or other monitoring specified in condition 2.10.7 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing. 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 Table 6.1.2. 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.

2.10.9 Sampling ports shall comply with the requirements of ISO 9096 or relevant Agency guidance.

## **4 Reporting**

4.1.6 The Operator shall submit to the Agency a report on the performance of the Permitted Installation over the previous year, by 28<sup>th</sup> February each year, providing the information listed in Table S4.1 of Schedule 4, assessed at any frequency specified therein, and using the form specified in Table S3 to Schedule 3

4.1.7 The Operator shall submit an annual performance report on the functioning and monitoring of the incineration process, in a format agreed with the Environment Agency, by the 28<sup>th</sup> February each year. The report shall, as a minimum requirement, give an account of the running of the process and the emissions into air and water compared with the emission standards in the Waste Incineration Directive, as required by Article 12(2) of the Waste Incineration Directive. The first report shall be submitted by the 28<sup>th</sup> February 2007.

## **6.1 Emissions to air**

6.1.12 The valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down period) from the measured values after having subtracted the value of the confidence interval specified at condition 6.1.14. The daily average values shall be determined from those validated average values.

6.1.13 Where it is necessary to calibrate or maintain the monitor and this means that data is not available for a complete half-hour period, the half-hourly average shall nonetheless 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.

6.1.14 The continuous emission monitors used shall be such that, at the daily emission limit value, the values of the 95% confidence intervals of a single measured result shall not exceed the following percentages;

Carbon monoxide	10%
Sulphur dioxide	20%
Oxides of nitrogen (NO & NO <sub>2</sub> expressed as NO <sub>2</sub> )	20%
Particulate matter	30%
Total organic carbon	30%
Hydrogen chloride	40%

6.1.15 The daily average will be considered valid if:

6.1.15.1 no more than five half-hourly average values in the day have been determined not to be valid; and

6.1.15.2 the kiln has operated for at least 16 hours in the day.

6.1.16 No more than ten daily average values per year shall be discarded due to malfunction or maintenance of the continuous measurement system.

6.1.17 Only CEMs monitoring results used to demonstrate compliance with limits set in this permit for the substances identified in condition 6.1.14 are to be reported after deduction of the relevant confidence interval.

6.1.18 The emission limits specified in Table 6.1.2 do not apply during start-up of the kiln or shutdown of the kiln but combustion and other process parameters shall be controlled to minimise emissions. All such events shall be recorded, including details of the corrective actions taken.

## **9 Improvement Programme**

9.1.2 The Operator shall complete the requirements specified in Table 9.1.2 by the dates specified in that Table, and shall send written notification of the date of completion of each requirement to the Agency, at the Reporting Address, within 14 days of the completion of each such requirement.

**Table 9.1.2 Improvement programme (WID)**

<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
9.1.2.1	The Operator shall calibrate and verify the performance of Continuous Emission Monitors for release points and parameters as specified in Table 6.1.2 to BS EN 14181 and submit a summary report to the Environment Agency as evidence of compliance with the requirements of BS EN 14181.	Report to be submitted to the Agency by 28/12/2006.
9.1.2.2	The Operator shall provide to the Agency a report on the improvements required to achieve the emission levels of nitrogen oxides to air which are required from 01/01/08. The report shall propose a plan and timescale for implementation of the improvements and demonstrate how they represent BAT for the Permitted Installation.	Report to be submitted to the Agency by the earlier of 01/01/07 or 6 months before the proposed installation date.
9.1.2.3	The Operator shall review the Best Available Techniques for control of oxides of nitrogen from the kiln. This should include an appraisal of the costs and benefits of both primary (i.e. combustion) and secondary (i.e. abatement) measures, using the Agency's IPPC Guidance Note H1, or equivalent methodology. The Operator should submit to the Agency a report outlining this assessment, its conclusions and the timescales for implementation of any further control measures identified.	31/12/06
9.1.2.4	The Operator shall, having received written agreement from the Agency, undertake the measures to control emissions of NOx identified in Improvement Condition 9.1.2.3 and to the timescales identified in that condition.	Defined by 9.1.2.3
9.1.2.5	The Operator shall complete a comprehensive audit of all low level point source and fugitive emissions of particulate matter from the installation. The Operator shall further identify those sources that have the greatest potential to cause environmental impact and which should be investigated for further assessment and/or control. The Operator shall submit a report to the Agency, outlining the scope of all of the sources identified in the audit and those proposed to be further investigated.	30/06/06
9.1.2.6	The operator shall, having received written agreement from the Agency, assess the combined impact of the priority emissions identified in Improvement Condition 9.1.2.5 on air quality, for both short term and long term scenarios. The Operator shall then review BAT for preventing or minimising any such emissions. A report outlining the assessment, its conclusions, proposed measures to address any issues and timescales for implementation should be submitted to the Agency.	Within 6 months of completion of 9.1.2.5
9.1.2.7	The Operator shall, having received written agreement from the Agency, undertake the measures to control emissions of particulate matter from low level sources identified in Improvement Condition 9.1.2.6 and to the timescales indicated in that condition.	Defined by 9.1.2.6
9.1.2.8	The Operator shall provide the Agency with a report in writing on the commissioning and performance of the SNCR unit.	31/03/06
9.1.2.9	The Operator shall provide the Agency with a report in writing on emissions of ammonia from the kiln, emission point A1, once the SNCR unit is fully operational and shall demonstrate that measures to control excessive ammonia slip constitute BAT.	30/06/06

- 9.1.2.10 The Operator shall provide the Agency with a report in writing on emissions of ammonia from the ammonia solution storage tank, emission point A19, and shall demonstrate that measures to prevent releases of ammonia gas constitute BAT. Monitoring shall be undertaken during a range of ambient temperatures and shall include times when the tank is being filled. 30/09/06
- 9.1.2.11 The Operator shall provide to the Agency a report on the improvements required to achieve the Waste Incineration Directive emission levels of hydrogen chloride to air when the raw mill is off. The report shall propose a plan and timescale for implementation of the improvements and demonstrate how they represent BAT for the Permitted Installation. 31/12/06
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## 10 Interpretation

### 10.1.1 "CEM" Continuous emission monitor

"CEN" means Comité Européen de Normalisation

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

"Dioxin and Furans" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

"ELV" means emission limit value.

"ISO" means International Standards Organisation.

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

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

"PCB" means Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in condition 10.1.5

3 monthly" 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.

"6 monthly periodic monitoring" means periodic monitoring in each 6 month period (January-June and July-December) with at least 4 months between sampling dates.

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

"Waste Incineration Directive" means Directive 2000/76/EC on the incineration of waste.

"Waste oil" has the same meaning as in Directive 75/439/EEC

"WHO" means the World Health Organisation

- 10.1.5 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
<b>Dioxins</b>				
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	-	-
<b>Furans</b>				
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
<b>Non-ortho PCBs</b>			
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
<b>Mono-ortho PCBs</b>			
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 4 - Reporting of performance data

Data required to be recorded and reported by Condition 4.1.6. The data should be assessed at the frequency given and reported annually to the Agency.

Table S4.1: Annual Substitute Fuel Usage	
Total substitute fuels burned	tonnes
Total hazardous substitute fuels burned	tonnes

END OF PERMIT VARIATION