

Annual performance report for Hanson Cement Ltd, Ketton works.

Permit number BM0486IT / LP3532SL

Calendar year 2010

This report is required under the Waste Incineration Directive (WID) Article 12(2): - requirements on access to information and public participation. This requires the operator of an incineration or co-incineration plant to produce an annual report to the Regulator on the functioning and monitoring of the plant and to make this available to the public. To satisfy the requirements of the Directive the following information should be provided clearly in the report:

1. Introduction

Name of company	Hanson Cement
Name of plant	Ketton works
Permit number	BM0486IT / LP3532SL
Address	Ketton Stamford Lincs PE9 3SX
Telephone	01780 720501
Contact name	T Fox
Position	Quality and Environmental Manager
Further information	

2. Plant description

The principle purpose of the activities at the installation is to manufacture cement.

Limestone and clay are extracted quarry adjacent to the works. This material is then crushed in a dedicated crushing plant together with a number of minor additives to produce a raw material that is no larger than 100 mm. The crushed stone and clay is, after homogenisation in a blending store fed to a vertical roller mill to produce raw meal, a fine powder that is the feedstock for both of the cement kilns.

The site operates two kilns that for historic reasons are known as kiln 7 and Kiln 8.

Kiln 7

Remained mothballed through out the year.

8 kiln

This is a “pre-calciner” kiln and was commissioned in 1986. The ground raw meal is heated in a series of cyclones by the exhaust gases from the kiln. An additional combustion chamber is located between the base of the lowest cyclone and the kiln inlet. This raises the meal temperature to 880°C while providing sufficient residence time at this temperature to achieve partial calcination or decomposition of the meal (to oxides). This is achieved using a combination of coal, petcoke Profuel[®] and MBM. The partially reacted material then enters the kiln, a refractory lined steel tube 4.2 metres in diameter and 68 metres long. The kiln inclined downwards from the feed end (a few degrees only) and rotates up to 4 revolutions per minute meaning that the material gradually moves towards the discharge end of the kiln undergoing complex chemical reactions to produce clinker.

The heat required for the reactions is provided by two 63 MW burners, one in the kiln burning coal, petcoke, Cemfuel[®] and MBM and the second, in the pre-calciner burning coal, petcoke and Profuel[®]. The clinker leaves the kiln via a series of moving grate coolers to a purpose built store.

The clinker is ground in one of 6 cement mills. Gypsum, plaster moulds, waste plaster board, limestone, tin chloride and ferrous sulfate may also be added in the milling process to control the properties of the finished cement. The cement is transported pneumatically to storage silos before being despatched in bulk road tankers or in palletised paper sacks.

3. Summary of plant operation

a) Plant details

Two cement kiln burning waste materials operates on site, for historic reasons these are known as kiln 7 and Kiln 8.

b) Annual waste throughputs

The amount of waste burned in 2010 is summarised in the table below.

Waste type	EWC code	Tonnes used	
		Kiln 7	Kiln 8
Cemfuel	19 02 08	0	30394
Tyres	16 01 03	0	-
Profuel	19 02 10	0	51379
Meat and bone meal (MBM)	02 02 02	0	19746

c) Operational hours

The total hours of operation of the kiln and the total tonnage of cement clinker produced in 2008 is summarised in the table below.

Equipment	Annual production	Operational hours
Kiln 7	0	0
Kiln 8	808516	7243

The first of two shutdowns on kiln 8 it took place in January and lasted 2.5 weeks with the second taking place in June and lasting 4 weeks. During this time major maintenance to the plant took *place*.

d) Residues

The following residues were produced during the year.

Residue	EWC code	Annual production
Cement kiln dust (CKD)	10-13-12	4583 t
Cement Kiln dust (CKD)	19-02-04	591

The material produced for EWC code 10-13-12 was disposed of in the landfill at Grange Top Quarry (Permit Number BV14531R). The material produced for EWC code 19-02-04 was stored on site for use in 2011 for soil conditioning.

4. Summary of plant monitoring.

a) Pollutants measured.

Emissions from kiln 7 & 8 stacks are monitored continuously for particulate matter, carbon monoxide, sulfur dioxide, hydrogen chloride, oxides of nitrogen, and total organic carbon. In addition to this periodic spot sampling is carried out for metals, dioxin and furans, dioxin like PCBs, hydrogen fluoride, benzene, 1,3-butadiene,

and polycyclic aromatic hydrocarbons. The table below summarises the emissions measured and frequency.

Emission	Continuously	Periodically
Particulates	✓	
Carbon monoxide	✓	
Sulfur dioxide	✓	
Oxides of nitrogen	✓	
Hydrogen chloride	✓	
Total organic carbon	✓	
Hydrogen fluoride		✓
Mercury and its compounds		✓
Cadmium and thallium and their compounds		✓
Group III metals* and their compounds		✓
Benzene		✓
1,3-butadiene		✓
Dioxins and furans		✓
Dioxin-like PCBs		✓
Polycyclic aromatic hydrocarbons		✓

* Group III metals are antimony, arsenic, chromium, cobalt, copper, lead, manganese, nickel, and vanadium.

b) Availability of continuous emissions monitors

The percentage of time during the year when the kiln was in operation that the continuous emission monitors were operating normally is summarised in the table below.

Emission monitor	% time operating normally	
	Kiln 7	Kiln 8
Particulates	-	100
Carbon monoxide	-	100
Sulfur dioxide	-	100
Oxides of nitrogen	-	100
Hydrogen chloride	-	100
Total organic carbon	-	100

c) Summary of continuous emissions monitor data.

Continuous emission data is submitted quarterly to the Environment Agency. This information is required by the permit and shows the average daily emission result for each day of the month.

A summary of emission data is shown graphically in Appendix 1.

d) Results of periodic monitoring.

Results of periodic monitoring of emissions are shown in the table below. The permit requires that periodic monitoring is carried out in the first and second half of each year for the species listed in the table.

	Unit	Kiln 7		Kiln 8	
		1 st half	2 nd half	1 st half	2 nd half
Hydrogen fluoride	mg/m ³	Kiln off	Kiln off	<0.042	0.044
Mercury and its compounds	mg/m ³	Kiln off	Kiln off	0.0073	0.0056
Cadmium and thallium and their compounds	mg/m ³	Kiln off	Kiln off	0.0010	0.0010
Group III metals and their compounds	mg/m ³	Kiln off	Kiln off	0.15	0.20
Benzene	mg/m ³	Kiln off	Kiln off	4.8	8.9
1,3-butadiene	mg/m ³	Kiln off	Kiln off	0.054	5.3
Dioxins and furans (I-TEQ)	ng/m ³	Kiln off	Kiln off	0.015	0.00097
Dioxin like PCBs (WHO-TEQ)	ng/m ³	Kiln off	Kiln off	0.0021	0.00025
Polycyclic aromatic hydrocarbons (total)	mg/m ³	Kiln off	Kiln off	0.38	0.24

Summary of plant compliance

Kiln 7

Kiln off.

Kiln 8

The plant exceeded its particulate daily limits once during the year. The limits for Sulfur dioxide, nitrogen oxides, hydrogen chloride, total organic carbon, and carbon monoxide were met 100% of the time.

5. Summary of plant improvements.

There were no improvement conditions relating to the burning of waste materials due in 2010.

6. Summary of information made available

Monthly emission data reported to the Environment Agency is published in the public register. Copies of the register are held at Rutland county Council.

Hanson Cement hosts a Liaison Committee meets three times a year. This meeting provides a forum for elected representatives of local parish and District councils to discuss matters of concern with the company. Representatives of the Environment Agency and councils also attend this meeting.

Hanson Cement operates an 'open door' policy where members of the public can contact the company to arrange a visit to the site or obtain information. The company can be contacted by the following methods:

By post: Hanson Cement, Ketton, Stamford, Lincs, PE9 3SX

By e mail: enquiries@hanson.com

By 'phone: 01780 720501

Hanson Cement occasionally publishes a community newsletter titled 'Open Door' and this is delivered to every household within a five mile radius of Ketton works.

Appendix 1