Ref 3 Post-Conviction Plan

Company Name……Castle Cement Limited

Company Address…Hanson House, 14 Castle Hill, Maidenhead, Berkshire. SL6 4JJ

Date 18th February 2010

1.0 List of offences covered by this Plan

Offence	When & where	Person convicted	Sentence	Current business relationship.
Breach of Conditions of Authorisation – Between 8th May and 28th July 2007 in breach of Condition 2.1.2	Castle Cement Padeswood Works	Castle Cement Limited	£100,000 Fine	N/A
Breach of Conditions of Authorisation – Between 16th March and 14th September 2007 failed to comply with Enforcement Notice in breach of Regulation 32 (1)(d)	Castle Cement Padeswood Works	Castle Cement Limited	£50,000 Fine	N/A
Breach of Conditions of Authorisation – Between 1st August 2005 and 17th August 2007 in breach of condition Condition 2.3.1	Castle Cement Padeswood Works	Castle Cement Limited	£50,000 Fine	N/A
Breach of Conditions of Authorisation – Between 1st August 2005 and 24th August 2007 in breach of condition 2.9.1.	Castle Cement Padeswood Works	Castle Cement Limited	£50,000 Fine	N/A

2.0 Authorisation to which this Plan relates if appropriate

Permit number	Principal place of business
BL1096	Castle Cement Ltd Hanson House 14 Castle Hill Maidenhead Berkshire SL6 4JJ

3.0 List of Persons / Relevant persons to which this plan relates;

Persons Convicted	Date of Birth
The prosecution was brought against the company. No individuals were identified.	N/A

Other relevant persons at the time of conviction	Date of Birth
N/A	

4.0 Circumstances of the Offence

Please provide details of events which led to the commission of the offence including accountability and any mitigating circumstances you feel are relevant. Continue on a separate sheet if necessary.

The breaches related to failures in complying with the requirements set out in the permit application for kiln 4 and certain system failures.

Castle Cement invested over £70 million in a new kiln line at Padeswood which commenced commissioning in 2005 following a lengthy public planning enquiry. The new process is highly visible and there was an active campaign against the development which resulted in heightened awareness in the local community. In fact this new kiln significantly reduced emissions from the cement making process. The replacement of the old kilns with kiln 4 made significant improvements in environmental performance per tonne of clinker produced

reduced energy consumption by around 40%,

reduced dust emissions by 70%

reduced SO2 emissions by 90%

reduced NOx emissions by 70%

Charge 1 Failure to maintain all plant equipment and technical means used in operating the installation in good operating condition

The convictions under condition 2.1.2 related to failures in maintaining the tyre feeding system so as not to cause fires between 14th May 2007 and 3rd July 2007. It also relates to the use of a clinker loading facility with no dust extractor fan working for 6 hours and, not maintaining a diverter gate on the tower called DG01.

Charge 2 Between 16 March 2007 and 14 September 2007 failed to comply with the requirements of Enforcement notice EN 2 dated 5 December 2006, in that it failed to implement all techniques described in the application at or by the agreed dates.

Enforcement notice EN 2 was breached due to “failure to progress on time the agreed programme submitted to meet the requirements of Enforcement Notice 2.” In enforcement notice 2, Padeswood site was required to carry out improvement work that was either missing from what was said in the application or was seen as a failing with regards the permit. All the requirements set out in EN2 were completed but not by the original date stated in the EN2 response. This was due, in the main, to having limited control on outside contractors who were carrying out much of the work, and a site understanding that from the responses received from the EA regarding our monthly update submissions that slippage was accepted by the agency. The specific details of the reasons for slippage in meeting

the requirements of EN2 were given in the company response to enforcement notice EN3.

Charge 3 Between 1 August 2005 and 17 August 2007 Castle cement failed to operate the installation using the appropriate techniques and in the appropriate manner to minimise fugitive dust emissions. The particular of the charges are:

- Failed to clean spillages (on site) as soon as reasonably practicable and or
- Failed to ensure that activities which were likely to create dust would be conducted in completely enclosed building. This related to the permit application.
- Failed to install bag filters in the limestone intake area and conveyors and to minimise the release of fugitive dust. This related to the permit application
- Failed completely to enclose the limestone conveyors
- Failed to stop clinker loading operation immediately on 21st May 2007 notwithstanding the extract fan was not working.

Charge 5 Castle Cement Limited between 01 August 2005 and 24 May 2007 failed to control excessive noise and vibration in plant equipment as required.

(Note charge 4 was dropped)

From the start up of Kiln 4 on 1st August 2005 to 24th May 2007 when the noise survey was completed by AES (CASTLECEM_13707) the site failed to control excessive noise and vibration in plant and equipment as required in our permit BL 1096.

. Whilst the noise limits set in the permit for sensitive receptors outside the site boundary at various locations were complied with, the permit application included a design objective to meet certain noise levels generated one metre from the outside of specific items of plant or buildings.

In the application, a number of specific items of plant were listed where, even when operating properly and within their normal capacity, higher noise levels were expected and these were accepted by the Environment Agency. There are some items of plant which were not listed in the application where noise levels (when measured one metre from the item of plant) were higher than the design objective discussed with the Environment Agency. It follows that the application did not give an exhaustive list nor did it specify that the performance criteria would be met by all items of plant

5.0 Investigation into how and why the offence occurred

Please give full details of any action you have taken to establish the cause of the offence.

The text in **bold** summarises the various findings add actions the company has taken to identify the causes of the offences and the actions taken at the time of the offence or subsequently.

Charge 1 Failure to maintain all plant equipment and technical means used in operating the installation in good operating condition

- The slide gate on level 5 of the pre heater tower in kiln 4 which protects the screw conveyor and bucket elevator on the tyre feeding installation was jamming on 9th May 2007, 11th May 2007, 12th May 2007 13th May 2007 and or
- The said damaged slide gate removed on 2nd July 2007 from the tyre feeder installation. It was not replaced before the installation was again in operation on 3rd

July 2007 and or

- The automatic fire suppression (water drencher) system damaged in a fire on 14th May 2007, was not in good operating condition when fire broke out in the tyre feeding installation on 3rd July 2007 and or

An internal investigation was completed and submitted to the Environment agency shortly after the fire on 3rd July. Between May and July the tyre feed system was not operated, in this period the slide valve remained closed and was only removed once a replacement had been fabricated. This report was accepted and the feed system has been redesigned, the company is currently working with the Environment Agency on a replacement tyre feed system.

- On 21st May 2007 the extractor fan in the clinker export loading point at the loading head was not operating for at least 6 hours allowing dust to be emitted to atmosphere and or – **The fugitive dust emissions released on 21 May 2007 were not excessive in that the staff operating the clinker loading area did not notice significant emissions, they were not capable of being seen by the works' CCTV cameras and the complaints profile does not suggest an impact locally. The dust emission was viewed on CCTV with the officer at the time and the immediate investigation identified the fault with extract fan at the loading point and only partially de-dusts the loading head, The local procedure was rewritten and specific instructions issued to contractors operating the clinker loading system to prevent a recurrence.**
- The diverter gate DG01 was not properly maintained in good operating condition as noted on 9th July 2007 and 27th July 2007 and or – **This was inspected and also stripped down during this period showing no issue. The issue relates to an off site camera seeing some emission from the tower (gas?) and the inspector finding dust under DG01 which was found following the root cause analysis to be from a cardox firing (a system used to clear build ups with the preheater tower that results in an increase in pressure with the tower that will the force dust out of the preheater cyclones and duct work which normally operate under suction)**.
- On 12th July 2007 there was a large gap in the cladding of a cement mill building. The wheel wash and conveyor were not maintained in good operating condition creating loud and regular noise. – The building was the slurry mill motor room and had not been operating for at least 5 years. Sheeting had been removed to extract machinery.- **This opening has since been fitted with a roller shutter door, the wheel wash was at this time only recently installed and now operates correctly.**

Charge 2 Between 16 March 2007 and 14 September 2007 failed to comply with the requirements of Enforcement notice EN 2 dated 5 December 2006, in that it failed to implement all techniques described in the application at or by the agreed dates.

During this period the Agency wrote on 26 February and 30 May 2007 stating "The Environment Agency is satisfied that the response meets the requirements of the Enforcement Notice thus far."

- Site CCTV system for monitoring fugitive dust releases was installed but the software was not optimised by the agreed date, likewise a second camera planned for installation in April 2007 was not installed until May 2007. **– This was installed later than planned due to supply delays of the equipment.** ***More detail***
- Enclosure of crane store building - **Enclosure of the cranes store building was delayed 2 weeks due a change in design to improve the original proposal, completed in May 2007**.
- Grassing and landscaping of waste areas- A number of areas had been soiled and

grassed but little progress in areas scheduled for completion 30/06/2007 **– this was due to very wet weather stopping heavy earth moving machinery from operating.**

- Noise studies – Noise levels from 1 m slipped from the original completion date of 16/02/2007 to 30/4 and 23/05/2007. - **due to availability of the external noise monitoring company.**
- Annual audits of SRM was to have started by 30/04/2007 but was delayed until October 2007. **– Annual audits of the Cemfuel supplier are now carried out.**
- PPC improvement conditions. These should have been completed by 30/09/2007. – **The PPC permit improvement conditions were timed to be completed after the completion of commissioning of kiln 4, as certain parts of the plant a still to be fully commissioned the date of 30 September was agreed with the Agency as an alternative approach.**
- Sheeting of pre-heater tower penthouse was planned to be completed by 04/05/2007.- **Slippage was noted in an EA response and cladding completed 30/09/2007. This was a capital project which when authorisation was granted resulted in the original target date being too tight**.
- Sheeting of quarry vehicles. - **This was not a requirement of the permit but offered by the site as a proactive improvement for completion 27/04/2007. Completion was August 2007 as the contract vehicle owner had to have each vehicle cover system made.**
- Vehicle wash. - **This was not a requirement of the permit but offered by the site as a proactive improvement for completion 3/05/2007. Completion was 2 weeks late due to late supply to the site.**
- Directional dust gauges. - **This was held up due to ground work for Mill 5 project and was completed mid-August 2007.**
- Improvements to coal stock yard - **this was not a permit requirements and it was agreed to apply for capital as a site improvement which at the time was turned down. - This was eventually approved in 2009.**

Charge 3 Between 1 August 2005 and 17 August 2007 Castle cement failed to operate the installation using the appropriate techniques and in the appropriate manner to minimise fugitive dust emissions

- Failed to clean spillages (on site) as soon as reasonably practicable and or – **Areas identified in corners not swept by road sweeper.**
- Failed to ensure that activities which were likely to create dust would be conducted in completely enclosed building. This related to the permit application. – **Many parts of the process were not fitted with doors when the plant was built/extended. These areas were addressed largely under enforcement notice EN2.**
- Failed to install bag filters in the limestone intake are and conveyors and to minimise the release of fugitive dust. This related to the permit application – **On investigation the conveyor design had been changed from that given in the PPC application because limestone conveyor belts which carry a moisture material which can contain up to 5% water which suppresses fugitive dust during handling. The Agency were not informed of the change during the permit application/determination process.**
- Failed completely to enclose the limestone conveyors **– The internal investigation identified a different interpretation of full enclosed was being used by the company and Environment Agency. The conveyors are enclosed above the**

belt to prevent material blowing off the conveyors.

- Failed to stop clinker loading operation immediately on 21st May 2007 notwithstanding the extract fan was not working. **–see charge 1 above**

Charge 5 Castle Cement Limited between 01 August 2005 and 24 May 2007 failed to control excessive noise and vibration in plant equipment as required.

(Note charge 4 was dropped)

Noise surveys are carried out routinely this has been used to identify particular items of plant that give rise to high noise levels that may lead to complaints. The results from these surveys have been used to prioritise improvements to noise control around the plant.

6.0 Effects of offences on people and/or the environment

Charges 1, 2 and 3

The fire on 3rd July give rise to a short term emission of smoke and dust, the Environment Agency officer at the time stated there was no immediate risk to health or the environment.

Fugitive dust emissions from the site were measured in the locality by the Environment. As part of the Company's mitigation an expert report was commissioned which demonstrated that no air quality objectives were exceeded for PM10 and other pollutants. The contribution of the cement works to public exposure to $PM_{10-2.5}$ is small. The reports conclusions are reproduced below.

Conclusions

I conclude that the cement works is and has been a source of off-site $PM_{10-2.5}$ concentrations. However, it is not the only, or indeed the most, significant source of particles as measured at the monitoring facility in Pen-y-ffordd during the period considered (2006 and 2007).

There were no measured exceedances of the air quality objectives, limit values or target values. However, during the 2006 to 2007 monitoring period there were 15 exceedances of the EPAQS 24-hour guideline value (the objective allows for 35 exceedances per year). However, of these exceedances, the cement works was the most significant contributor to only four, ten were the result of an alternative source of particles and one appeared to be related to neither source. Potential emissions for this secondary source include an unpaved road and a substantial house build and demolition development in close proximity to the monitor.

The contribution of the cement works to public exposure to $PM_{10-2.5}$ is small. Although the potential exists for an increased health risk from this increased exposure, this is unlikely to

result in any health impact. Furthermore, there is no evidence of any form of actual harm to health of local residents.

Emissions from the two fires would not have resulted in an exceedance of stringent guidelines and target values set for the protection of public health.

Therefore, I conclude that the incidents relating to this prosecution cannot have resulted in an actual risk to health of the local population.

Charge 5

Noise – Only occasional potential to cause complaints from the local community. Noise measurements at sensitive receptors were largely below noise limits set in the permit. When the limit was exceeded this was as a result of extraneous noise from other sources such as traffic, birdsong and leaf rustle.

Potential for Repetition

Do you rate the potential for repetition of the offence(s) as?

☐ High

☐ Medium

☑ Low

Please tick one box.

Reasons:

1. Tyre feeding system has been redesigned. This equipment also has a fail safe fire suppression system.
2. DG01 diverter gate. This has been sealed to prevent any escape of fugitive dust.
3. Hole in side of building. This is now been sheeted.
4. Dust extraction on clinker loading. Loading procedure in place and loading head now fully enclosed in building.
5. Dust/housekeeping. Robust system in place to audit and clean lead by shift managers.
6. Covered belts/conveyors in buildings/Limestone belt dust plants. These are all permit application issues that still stand as they are not required to be done but need agreeing with the EA.

7.0 Other licences or registrations held

Please detail other licences, permits or registrations issued by the Environment Agency which you hold.

Licence/Registration Type and Number	Site to which it relates
PPC permit BM0486	Ketton Works
PPC permit B V1453	Ketton Works landfill
EAWML 71063 102	Ketton Works landfill (closed)
EA/ETCO2/0054	Ketton Works EUETS
PPC permit BL1096	Padeswood Works
EAWML 37012 152/87	Padeswood Works Landfill (closed)
EAWML307029 SL/01/92	Cefn Mawr Landfill (closed)
EA/ETCO2/0055	Padeswood Works EUETS
PPC permit BL7272	Ribblesdale Works
EA/ETCO2/0026	Ribblesdale Works EUETS
WML131	Coplow Quarry Landfill

9.0 Remedial and Preventative Measures

Please detail the measures you have taken to prevent recurrence of the offence including plans for audit and review.

General Matters

All offences that do not relate to difference between the installed plant and the permit application issues have been rectified. The resolution of these differences needs to be agreed with the Environment Agency.

There has been extensive training at Padeswood in relation the reporting and notification requirements of the PPC permit.

An on site environmental team has been set up to deal with improvements going forward.

Charge 1 Failure to maintain all plant equipment and technical means used in operating the installation in good operating condition

- The slide gate on level 5 of the pre heater tower in kiln 4 which protects the screw conveyor and bucket elevator on the tyre feeding installation was jamming on 9th May 2007, 11th May 2007, 12th May 2007 13th May 2007 and or –**This system has been redesigned and is being rebuilt following discussions with the Environment Agency.**
- The said damaged slide gate removed on 2nd July 2007 from the tyre feeder installation. It was not replaced before the installation was again in operation on 3rd July 2007 and or – **This system has been redesigned and is being rebuilt following discussions with the Environment Agency.**
- The automatic fire suppression (water drencher) system damaged in a fire on 14th

May 2007, was not in good operating condition when fire broke out in the tyre feeding installation on 3rd July 2007 and or – **This system has been redesigned and is being rebuilt following discussions with the Environment Agency.**

- On 21st May 2007 the extractor fan in the clinker export loading point at the loading head was not operating for at least 6 hours allowing dust to be emitted to atmosphere and or – **The local procedure was rewritten and specific instructions issued to contractors operating the clinker loading system to prevent a recurrence. Since this incident the clinker loading head is now within a building so fugitive dust arising from this vehicle loading operation will be contained with in the building.**
- The diverter gate DG01 was not properly maintained in good operating condition as noted on 9th July 2007 and 27th July 2007 and or – **The diverter gate continues to be maintained in accordance with the manufacturers requirements, the area around the gate has been partially sheeted in to prevent a release of fugitive dust.**
- On 12th July 2007 there was a large gap in the cladding of a cement mill building creating the potential for dust and noise to escape, and the wheel wash and conveyor were not maintained in good operating condition creating loud and regular noise. – The building was the slurry mill motor room and had not been operating for at least 5 years. Sheeting had been removed to extract machinery.- **This opening has since been fitted with a roller shutter door, the wheel wash was at this time only recently installed and now operates correctly.**

Charge 2 Between 16 march 2007 and 14 September 2007 failed to comply with the requirements of Enforcement notice EN 2 dated 5 December 2006, in that it failed to implement all techniques described in the application at or by the agreed dates.

During this period the Agency wrote on 26 February and 30 May 2007 stating "The Environment Agency is satisfied that the response meets the requirements of the Enforcement Notice thus far."

All actions completed as detailed in section 5 above except

- PPC improvement conditions. These should have been completed by 30/09/2007. – **The PPC permit improvement conditions were timed to be completed after the completion of commissioning of kiln 4, as certain parts of the plant a still to be fully commissioned the date of 30 September 2007 was agreed with the Agency as an alternative approach. All the improvement condition responses were submitted by this date with the exception of the post commissioning report that was submitted on 5 October 2007.**
- **The requirement to undertake specific measurements on the preheater tower which was not completed as the kiln has not operated at the maximum alternative fuels substitution rate that is required by the improvement condition. Furthermore, the company considered that the work required placed employees and contractors at an unacceptable risk to health safety due to potential exposure to high temperatures and hot (over 800°C) calcined limestone dust. This improvement condition remains in the current version of the PPC permit.**
- Improvements to coal stock yard - **this was not a permit requirements and it was agreed to apply for capital as a site improvement which at the time was turned down. - This was eventually approved in 2009 and is currently under construction.**

Charge 3 Between 1 August 2005 and 17 August 2007 Castle cement failed to operate the installation using the appropriate techniques and in the appropriate manner to minimise fugitive dust emissions.

From 2007 to 2009 the company has invested almost £1,000,000 on improvements to reduce the potential for fugitive dust emissions.

- Failed to clean spillages as soon as reasonably practicable and or – **Areas identified in corners not swept by road sweeper. Housekeeping audits extended to reduce potential for areas of plant being missed. The road sweeper and water bowser now operate 24 hours per day at an additional cost of £60,000 per year.**
- Failed to ensure that activities which were likely to create dust would be conducted in completely enclosed building. This related to the permit application. – **Many parts of the process were not fitted with doors when the plant was built/extended. These areas were addressed largely under enforcement notice EN2.**
- Failed to install bag filters in the limestone intake are and conveyors and to minimise the release of fugitive dust. –**This related to the limestone conveyor belts which carry a moisture material which can contain up to 5% water which inherently minimises fugitive dust during handling. On the basis of this knowledge the design was altered but the Agency were not informed of the change in the permit application. The permit is currently being reviewed and this matter will be discussed with the Environment Agency as part of the review process.**
- Failed completely to enclose the limestone conveyors **– The conveyors are enclosed above the belt to prevent material blowing off the conveyors. There were not enclosed underneath the belts. Enclosing the underside of belt conveyors is not considered best practice as in the event of material being carried over it could build up and lead to a structural failure as it would not be possible to see such carryover.**
- Failed to stop clinker loading operation immediately on 21st May 2007 notwithstanding the extract fan was not working. – **Following the incident the works local procedure was rewritten and the contractors retrained. The clinker loading head is now within a building thus the potential for fugitive dust emissions have been minimised. The construction of the building around the loading area cost £100,000.**

Charge 5 Castle Cement Limited between 01 August 2005 and 24 May 2007 failed to control excessive noise and vibration in plant equipment as required.

(Note charge 4 was dropped)

Noise surveys are carried out routinely this has been used to identify particular items of plant that give rise to high noise levels that may lead to complaints. The results from these surveys have been used to priorities improvements to noise control around the plant. This includes the construction of new enclosures and the fitting of addition noise attenuation equipment. Since 2007 over £100,000 has been spent on noise abatement measures, including the installation of attenuators and baffles to the cooler stack and fans, enclosure of the kiln ID fan, raw meal silo dust plant and dust plant fan.