	EPR Compliance Assessment Report	Report ID: BL1096IB/0249818
This form will report compliance with your permit as determined by an NRW officer		
Site	Padeswood Cement Works EPR/BL1096IB	Permit Ref BL1096IB
Operator/ Permit holder	Castle Cement Limited	
Date	07/10/2015	Time in 09:30 Out 16:15
What parts of the permit were assessed	Waste Acceptance & Incineration Control	
Assessment	Audit	EPR Activity: Installation X Waste Op Water Discharge
Recipient's name/position	David Quick	
Officer's name	Stuart Ross, Lara Cubley	Date issued 27/10/2015

Section 1 - Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations. A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS scores can be consolidated or suspended, where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit Conditions and Compliance Summary			Condition(s) breached
a) Permitted activities	1. Specified by permit	N	
b) Infrastructure	1. Engineering for prevention & control of pollution	A	
	2. Closure & decommissioning	N	
	3. Site drainage engineering (clean & foul)	N	
	4. Containment of stored materials	N	
	5. Plant and equipment	N	
c) General management	1. Staff competency/ training	N	
	2. Management system & operating procedures	N	
	3. Materials acceptance	A	
	4. Storage handling, labelling, segregation	N	
d) Incident management	1. Site security	N	
	2. Accident, emergency & incident planning	N	
e) Emissions	1. Air	N	
	2. Land & Groundwater	N	
	3. Surface water	N	
	4. Sewer	N	
	5. Waste	N	
f) Amenity	1. Odour	N	
	2. Noise	N	
	3. Dust/fibres/particulates	N	
	4. Pests, birds & scavengers	N	
	5. Deposits on road	N	
g) Monitoring and records, maintenance and reporting	1. Monitoring of emissions & environment	A	
	2. Records of activity, site diary, journal & events	N	
	3. Maintenance records	N	
	4. Reporting & notification	C4	3.5.5, 4.2.3
h) Resource efficiency	1. Efficient use of raw materials	N	
	2. Energy	N	

KEY: C1, C2, C3, C4 = CCS breach category (* suspended scores are marked with an asterisk),
A = Assessed (no evidence of non-compliance), N = Not assessed, NA = Not Applicable, O = Ongoing non-compliance – not scored

Number of breaches recorded	1	Total compliance score (see section 5 for scoring scheme)	0.1
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If the Total No Breaches is greater than zero, then please see Section 3 for details of our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- the part(s) of the permit that were assessed (e.g. maintenance, training, combustion plant, etc)
- where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- any non-compliances identified
- any non-compliances with directly applicable legislation
- details of any multiple non-compliances
- information on the compliance score accrued inc. details of suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

This report should be clear, comprehensive, unambiguous and normally completed within 14 days of an assessment.

In this document 'Natural Resources Wales' means the Natural Resources Body for Wales established by Article 3 of the Natural Resources Body for Wales (Establishment) Order 2012.

This audit was completed on 07/10/15 (09:30 – 16:15)

1.0 Scope of Audit

Padeswood Cement works is a co-incinerator utilising a range of alternative fuels (waste materials) in the cement manufacturing process, including Cemfuel (hazardous waste), Solid Recovered Fuel (SRF) and Meat and Bone Meal (MBM). Shredded tyres are permitted for use at the plant but due to commercial reasons they have not been used for >5 years. The site is also permitted to use alternative raw materials which are added to the raw meal to replace virgin raw materials or achieve the correct raw meal chemistry – alternative raw materials are not widely used at Padeswood and were not specifically covered by this audit.

The combustion of waste materials has the potential to result in an adverse environmental impact, primarily from emissions to air, if the waste composition and combustion conditions are not suitably controlled. Accordingly, the site's Environmental Permit includes a range of conditions that reflect the waste co-incineration requirements of Chapter IV of the Industrial Emissions Directive (formally the Waste Incineration Directive).

This audit assessed compliance with the relevant waste co-incineration conditions as set out in the permit (see below), including the conditions related to 'abnormal operating conditions' and continuous emissions monitor (CEM) availability.

During the audit compliance was assessed through discussion with site personnel a review of procedures and other documents/records.

Personnel interviewed / present during the audit included the Plant Manager, Site Chemist, Hanson Environment & Sustainability Manager, the Kiln Controller and Electrical Engineer.

2.0 Permit Conditions

The permit conditions assessed during this audit can be summarised as follows (refer to permit for specific condition wording);

1. Operating Techniques – conditions 2.3.2 to 2.3.15 inclusive.
2. Monitoring Data / CEMs– condition 3.5.5

3.0 Audit Observations

The audit observations have been summarised by subject area;

3.1 Alternative Fuels - Waste Acceptance (2.3.2 – 2.3.11)

The procurement of fuels and alternative fuels is managed centrally across the business and is controlled via dedicated procedure and guidance note. The procedure ensures that waste can only be approved for use if it meets the requirements of the permit. If a commercially viable waste stream, which meets the permit requirements is identified then the plant is consulted at a local level to consider the operational aspects e.g. waste handling.

3.1.1 SRF

SRF is currently produced by a single waste producer who supplies the Padeswood and Ribblesdale works. The supply contract includes the waste specification detailed in the permit and the exclusions (e.g. PCB containing wastes). A copy of the contract was viewed.

SRF is sampled by the waste producer, reportedly one sample per every 500 tonnes manufactured. This may equate to around 3 – 4 samples per month depending on the kiln fuel requirements. The waste producer collected samples are sent for analysis by a third party laboratory and results shared with Castle Cement once per month.

The sample is also sent to Castle Cement to allow for analysis and compliance assessment against the SRF waste specification detailed in the permit. Castle Cement produce a monthly composite sample and complete calorific value (CV), sulphur and halides analysis in house and send a sample to a third party laboratory for metals (Group II, III and mercury).

Castle Cement enter sample analysis results into a conditionally formatted spreadsheet that identifies if any of the parameters are in excess of the permit specification. Such instances are reportedly rare and the operator reports that where samples do indicate an exceedance of the relevant limit a sample re-test often delivers a significantly different result such is the varied and heterogeneous nature of the sample matrix.

Sample data for 2015 was reviewed and it was noted that whilst sample analysis results were available some determinants had not been added to the spreadsheet for review. This was corrected by the site Chemist during the audit. It was noted that cobalt analysis has not been completed for samples collected in 2015.

A procedure for EU-ETS sampling includes some of the sampling and analysis requirements required by the permit but there is no specific procedure that covers the testing requirements as per table S2.1.

ACTION - Review your procedure for all sample analysis scheduling and data handling to ensure all determinants as required by the table S2.1 are analysed and reviewed regularly. Provide NRW with a copy of the procedure by 13/11/15.

3.1.2 Cemfuel

The Cemfuel supply contract includes the waste specification detailed in the permit and the material exclusions. A copy of the contract was viewed – it was last revised 14/08/15.

Cemfuel is manufactured in a batch process to the specification set out in the permit (and other process related parameters). Each batch (~ 800t) is sampled by the producer and the results sent to Castle Cement pre-consignment. Castle Cement (Shift Analyst or Shift Manager) review the analysis results against the permit requirements and only accept the waste if it is compliant. Each batch is transported to site via multiple road tanker loads which refer to the original batch number.

Cemfuel consignment and acceptance is covered by procedure PL03

A small sample of each Cemfuel batch is provided to Castle Cement to allow for further compliance testing. Castle Cement produce a composite sample on a weekly basis and a further monthly composite of the weekly composites.

3.1.3 MBM

A sample is provided by the supplier of each MBM load delivered to site. Castle Cement divide the weekly samples to produce a composite that is analysed for CV, sulphur and chlorine in house. Weekly composite samples are then in turn used to produce a monthly composite that is subject to the same analysis.

The permit specification and exclusions required by the permit are not included in the supplier contract.

Recommendation - Although the risk of excluded substances occurring within MBM is low it is recommended that the permit requirements are added to the contract as per SRF and Cemfuel.

Given the homogenous nature of MBM the sampling regime appears appropriate.

3.1.4 Sample and Record Retention

Composite samples are retained on site for 2 years. Sample analysis data is retained for >2years.

3.1.5 Alternative Fuel Supplier Audits

During the audit it was reported that no supplier audits are currently undertaken to verify up stream conformance with the supply contract and also the waste sampling and analysis arrangements. Whilst Castle Cement complete their own independent analysis of waste streams to confirm compliance with the permit specification, this analysis is based upon samples provided by the waste producer.

It is therefore recommended that Castle Cement periodically audits the waste producers procedures and in particular those for the sampling and analysis of wastes.

During the final meeting of the day it was reported that audits of the waste suppliers may have completed by Hanson as fuels are supplied to more than one cement kiln. If this is the case I recommend that Hanson shares the findings of such audits across the relevant sites.

3.1.6 Hazardous Waste– Thermal Substitution Rate

ACTION – Please confirm how you ensure the thermal input of hazardous fuel (Cemfuel) does not exceed 40%. Please do so by 13/11/15.

3.2 Combustion Requirements (2.3.12)

A meeting was held with the kiln controller to enable an assessment of his permit understanding in relation to his role, and the controls in place to ensure the combustion requirements of the permit are met.

It was confirmed that the kiln controls and operating procedure ensure the minimum combustion temperatures are achieved in the kiln and calciner before alternative waste streams are brought on line. Due to the nature of cement clinker manufacturing the minimum temperatures required by the permit are easily achieved during clinker production. The kiln controller understood the minimum temperature requirements as set out in the permit.

During kiln start up the kiln and calciner are brought up to temperature using non waste fuels (coal / kerosene). Alternative fuels are not brought on line until the required temperatures are achieved and the raw meal throughput exceeds 120tph. When the kiln combustion conditions are stable alternative fuels are introduced.

The calciner temperature is measured using 3 thermocouples located on the duct between the calciner and cyclone 5. It was stated that this offers a further margin of safety as this duct temperature is immediately downstream of the combustion zone itself.

The kiln temperature is measured at the kiln inlet using 3 thermocouples. The gas temperature required to produce clinker within the kiln is approximately 2000 C and therefore normal production conditions generally ensure that conditions are suitable for the combustion of Cemfuel or non-hazardous waste.

The kiln controller reported that if the calciner or kiln temperature drop below 850 or 1100 C respectively, the kiln operating system raises an alarm on the SCADA system and the kiln controller has a short period of time (10 minutes) to restore the temperature or the control system will automatically ramp down alternative fuels.

Kiln start up, operation and shut down are covered by procedure.

3.3 Abnormal Operation (2.3.13-2.3.15)

The kiln controller reported that in the event of a CEMS or abatement failure waste fuels would be ramped down and the kiln stopped. The permit does not require this action to be taken and allows for a maximum period of 4 hours 'abnormal operation' to allow the CEMS or abatement to be brought back on line, this may reduce the potential environmental impact associated with kiln shut down and start up (e.g. energy use).

In some circumstances where it is clear that the CEM or abatement is beyond recovery within 4 hours or there is potential for a significant environmental impact, the kiln should be stopped. A maximum of 60 hours abnormal operation is allowed per calendar year.

Following discussion of this issue with the kiln controller and Site Chemist, it was not clear how long the alternative fuels 'ramping down' period lasts under the current protocol for kiln shut down in these circumstances. If the kiln is shut down quickly in a controlled manner at the point of CEM or abatement failure then this time is unlikely constitute 'abnormal operation'. If however, waste continues to be burnt for a longer period of time, for example 2 hours, then that time must be recorded as 'abnormal operation' and be monitored throughout the year to ensure this period does not exceed a total of 60hrs.

ACTION – Clarify what action is taken in the event of CEM or abatement failure and review whether or not you are entering 'abnormal operation'. Please do so by 13/11/15.

3.4 Monitoring – Data Handling and Invalid Measurement (3.5.5)

Monitoring data from the kiln CEMs is displayed in real time in the control room and downloaded onto a spreadsheet at midnight each night. The spreadsheet is reviewed by the shift manager to assess any potential non-compliance due to emission limit exceedances and reported to NRW as necessary.

Raw data from the CEMs is corrected using the QAL2 calibration function and the 95% confidence intervals applied for each parameter. The spreadsheet was briefly inspected and contains the correct confidence intervals and includes recent calibration functions. The daily averages are correctly determined using valid half hourly averages.

The recording of invalid half hourly and daily measurements was discussed during the audit. The site instrument technician/electrician who maintains the CEMs reported that weekly CEM maintenance may result in the instruments being out of use for 35 – 45 consecutive minutes which would result in 1 or 2 invalid half hourly measurements.


Maintaining the CEMS in this manner is acceptable and indeed the reason why the site permit allows for up to 2.5 hrs of invalid measurements. However, whilst the instrument technician is keeping notes on CEM maintenance / downtime, it was established that invalid half hourly measurements are not being recorded or monitored centrally by site staff or reported to NRW as part of the routine emissions monitoring returns. This may result in invalid half hourly data being included in the daily average and site failing to identify invalid days or when it has exceeded the 10 day rule.

Failure to record and report invalid half hourly values is a breach of permit condition 3.5.5 and 4.2.3 and attracts a CCS score of 4.

Action is required to secure compliance with the permit;

ACTION – Ensure invalid half hours and days are clearly identified, recorded and tracked. Implement within 7 days of receipt of this report. Update procedures and staff training accordingly.

ACTION – As required by permit condition 4.2.3(c), report to NRW the number of invalid half hourly measurements as required by the emissions reporting template. This shall commence with the report for the period October – December 2015 due for submission Jan 2016.

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Operator/ Permit	Castle Cement Limited	Date	07/10/2015

Section 3- Enforcement Response		Only one of the boxes below should be ticked	
You must take immediate action to rectify any non-compliance and prevent repetition. Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.			
Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.			<input type="checkbox"/>
In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.			<input checked="" type="checkbox"/>
We will now consider what enforcement action is appropriate and notify you, referencing this form.			<input type="checkbox"/>

Section 4- Action(s)			
Where non-compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.			
Criteria Ref.	CCS Category	Action Required/Advised	Due Date
See Section 1 above			
G4	C4	Refer details section	Refer dreatils

Section 5 - Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- advise on corrective actions verbally or in writing
- require you to take specific actions in writing
- issue a notice
- require you to review your procedures or management system
- change some of the conditions of your permit
- decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you.

● We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.

● Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- ensure you comply with other legislative provisions which may apply.

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance which could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General Information

Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfill its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- offering/providing you with its literature/services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law and taking any resulting action
- preventing breaches of environmental law
- assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Information Regulations request.

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within twenty working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with the officer's line managers. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00–18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.