



Headquarters,
Johnstown Castle Estate,
County Wexford, Ireland

GREENHOUSE GAS EMISSIONS PERMIT

Permit Register Number: IE-GHG042-10363-4

Operator: CRH Plc
42 Fitzwilliam Square,
Dublin 2

Installation Name: Irish Cement Limited (Limerick Works)

Site Name: Irish Cement Limited (Limerick Works)

Location: Irish Cement Limited
Limerick Works
Castlemungret
Limerick
Ireland

Introductory Note

This introductory note does not form a part of the Greenhouse Gas Emissions Permit.

This Greenhouse Gas Emissions Permit authorises the holder to undertake named activities resulting in emissions of Carbon Dioxide from the listed emission sources. It also contains requirements that must be met in respect of such emissions, including monitoring and reporting requirements. This Greenhouse Gas Emissions Permit places an obligation on the Operator to surrender allowances to the Agency equal to the annual reportable emissions of carbon dioxide equivalent from the installation in each calendar year, no later than four months after the end of each such year.

Contact with Agency:

If you contact the Agency about this Greenhouse Gas Emissions Permit please quote the following reference: Greenhouse Gas Emissions Permit N^o IE-GHG042-10363.

All correspondence in relation to this permit should be addressed to:

Email: help.ets@epa.ie

By Post: Climate Change Unit, Environmental Protection Agency
P.O. Box 3000, Johnstown Castle Estate,
Co. Wexford

Updating of the permit:

This Greenhouse Gas Emissions Permit may be updated by the Agency, subject to compliance with Condition 2. The current Greenhouse Gas Emissions Permit will normally be available on the Agency's website at www.epa.ie and [ETSWAP](#).

Surrender of the permit:

Before this Greenhouse Gas Emissions Permit can be wholly or partially surrendered, a written application must be made to the on-line ETS portal, and written permission received from, the Agency through [ETSWAP](#).

Transfer of the permit or part of the permit:

Before this Greenhouse Gas Emissions Permit can be wholly or partially transferred to another Operator a joint written application to transfer this Greenhouse Gas Emissions Permit must be made (by both the existing and proposed Operators) to, and written permission received from, the Agency through the on-line ETS portal [ETSWAP](#).

Licence held pursuant to the Environmental Protection Agency Act 1992, as amended. (as of the date of this permit):

IPC/IE Licence Register Number
P0029-03

Status Log

Current Permit

Permit number	Date application received	Date Permit issued	Comment
IE-GHG042-10363-4	19 August 2015	29 February 2016	Inclusion of two emission sources S5 and S6 (central heating boilers); Inclusion of three stock sensors (MD20, MD21 and MD22) in the measurement devices table and update of uncertainty for MD13; An accredited laboratory for analysis of pet coke was added; Update of estimated annual emissions

Previous Permits

Permit number	Change Type	Date application received	Date Permit issued	Comment
IE-GHG042-10363-1	GHG Permit Application	24 January 2013	20 March 2013	
IE-GHG042-10363-2	GHG Variation	24 November 2014	01 December 2014	Inclusion of acetylene gas as a source stream and of welding equipment as an emission source.
IE-GHG042-10363-3	GHG Variation	02 December 2014	06 March 2015	Update to Measurement Devices Table to include replacement of measurement devices MD7 and MD8 by one measurement device MD18. Inclusion of weigh scales MD19.

End of Introductory Note

Glossary of Terms

For the purposes of this permit the terms listed in the left hand column shall have the meaning given in the right hand column below:

The Agency	Environmental Protection Agency.
Agreement	Agreement in writing.
Allowance	Permission to emit to the atmosphere one tonne of carbon dioxide equivalent during a specified period issued for the purposes of Directive 2003/87/EC by the Agency or by a designated national competent authority of a Member State of the European Union.
Annual Reportable Emissions	Reportable Emissions of carbon dioxide made in any calendar year commencing from 1 January 2005 or the year of commencement of the activity, whichever is the later.
A & V Regulation	Commission Regulation (EU) No 600/2012 of 21 June 2012 on the verification of greenhouse gas emission reports and tonne-kilometre reports and the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council and any amendments or revisions thereto.
Category A Installation	As defined in Article 19.2 (a) of the M&R Regulation.
Category B Installation	As defined in Article 19.2 (b) of the M&R Regulation.
Category C Installation	As defined in Article 19.2 (c) of the M&R Regulation.
The Directive	Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
Emissions	The release of greenhouse gases into the atmosphere from sources in an installation.
EPA	Environmental Protection Agency.
Fall-Back Methodology	As defined in Article 22 of the M&R Regulation.
GHG	Greenhouse gas.
GHG Permit	Greenhouse gas emissions permit.
Greenhouse Gas	Any of the gases in Schedule 2 of the Regulations.
IPC/IE	Integrated Pollution Control/Industrial Emissions.
Installation	Any stationary technical unit where one or more activities listed in Schedule 1 to the Regulations are carried out. Also any other directly associated activities which have a technical connection with the activities carried out on that site and which could have an effect on emissions and pollution. References to an installation include references to part of an installation.

Installation with low emissions	As defined in Article 47 of the M&R Regulation.
Major Source Streams	As defined in Article 19.3 (c) of the M&R Regulation.
M&R Regulation	Commission Regulation (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and any amendments or revisions thereto.
Mis-statement	An omission, misrepresentation or error in the Operators reported data, not considering the uncertainty permissible pursuant to Article 12(1)(a) of Regulation (EU) no 601/2012.
N/A	Not applicable.
Monitoring Plan	The Plan submitted and approved in accordance with Condition 3.1 of this permit and attached at Appendix 1.
Non-conformity	Any act or omission by the Operator, either intentional or unintentional, that is contrary to the greenhouse gas emissions permit and the requirements of the Monitoring Plan.
The National Administrator	The person so designated in accordance with the requirements of any Regulations adopted as provided for under Article 19.3 of Directive 2003/87/EC.
The Operator (for the purposes of this permit)	CRH Plc
“operator”	Any person who operates or controls an installation or to whom decisive economic power over the functioning of the installation has been delegated.
Person	Any natural or legal person.
Reportable emissions	The total releases to the atmosphere of carbon dioxide (expressed in tonnes of carbon dioxide equivalent) from the emission sources specified in Table 2 and arising from the Schedule 1 activities which are specified in Table 1.
The Regulations	European Communities (Greenhouse Gas Emissions Trading) Regulations 2012 (S.I. No 490 of 2012) and any amendments or revisions thereto.
The Verifier	A legal person or another legal entity carrying out verification activities pursuant to Regulation (EU) No 600/2012 and accredited by a national accreditation body pursuant to Regulation (EC) No 765/2008 and Regulation (EU) No 600/2012 or a natural person otherwise authorised, without prejudice to Article 5(2) of Regulation (EC) No 765/2008, at the time a verification report is issued.
The Registry	The Registry as provided for under Article 19 of Directive 2003/87/EC.

Schedule 1

Schedule 1 to the Regulations.



Reasons for the Decision

The Agency is satisfied, on the basis of the information available, that subject to compliance with the conditions of this permit, the Operator is capable of monitoring and reporting emissions in accordance with the requirements of the Regulations.

Activities Permitted

Pursuant to the Regulations the Agency issues this Greenhouse Gas Emissions Permit, subject to any subsequent revisions, corrections or modifications it deems appropriate, to:

The Operator:

CRH Plc
42 Fitzwilliam Square,
Dublin 2

Company Registration Number: 12965

to carry out the following

Categories of activity:

Annex 1 Activity

Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day
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at the following installation(s):

Irish Cement Limited (Limerick Works) **Installation number: 33**

located at

Irish Cement Limited
Limerick Works
Castlemungret
Limerick
Ireland

subject to the five conditions contained herein, with the reasons therefor and associated tables attached thereto.

Conditions

Condition 1. The Permitted Installation

- 1.1 This permit is being granted in substitution for the previous GHG permit granted to the Operator as listed in the Status Log of this GHG permit.
- 1.2 The Operator is authorised to undertake the activities and/or the directly associated activities specified in Table 1 below resulting in the emission of carbon dioxide:

Table 1 - Activities which are listed in Schedule 1 of the Regulations and other directly associated activities carried out on the site:

Installation No.: 33

Activity Description
Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day
Directly Associated Activity Description
N/A

- 1.3 Carbon dioxide from Schedule 1 activities shall be emitted to atmosphere only from the emission sources as listed in Table 2 below:

Table 2 Emission Sources and Capacities:

Emission Source Reference	Emission Source Description	Capacity	Capacity Units
S1	Kiln 6 stack/Coal mill stack	3218	tonnes/day
S3	Kiln Emergency generator	0.5	MW
S4	Acetylene - Mobile Welding Equipment	0	MW
S5	CCR Central Heating Boiler 1	0.3	MW
S6	CCR Central Heating Boiler 2	0.3	MW

- 1.4 The activity shall be controlled, operated and maintained so that emissions of carbon dioxide shall take place only as set out in this GHG Emissions Permit. The permit does not control emissions of gases other than carbon dioxide. All agreed plans, programmes and methodologies required to be carried out under the terms of this permit, become part of this permit.
- 1.5 This GHG Permit is for the purposes of GHG emissions permitting under the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012 and any amendments to the same only and nothing in this permit shall be construed as negating the Operator’s statutory obligations or

requirements under any other enactments or regulations unless specifically amended by the Regulations.

- 1.6 Any reference in this permit to 'installation' shall mean the installation as described in the Greenhouse Gas Emissions Permit application and any amendments approved by the Agency.

Reason: To describe the installation and clarify the scope of this permit.

Condition 2. Notification

- 2.1 No alteration to, or reconstruction in respect of, the activity or any part thereof which would, or is likely to, result in a change in:
- 2.1.1 the nature or functioning of the installation;
 - 2.1.2 the capacity of the installation as detailed in this permit;
 - 2.1.3 the fuels used at the installation;
 - 2.1.4 the range of activities to be carried out at the installation
- that may require updating of the GHG permit shall be carried out or commenced without prior notice to and without the prior written agreement of the Agency.
- 2.2 The Operator shall notify the Agency in writing of the cessation of all or part of any activity listed in Table 1 of this permit no later than one month from the date of cessation or by 31 December of the year of cessation, whichever is sooner.
- 2.3 The Operator shall apply for an update of this GHG Permit where there is a change to the Operator name and/or registered address of the Operator, within seven days of the change.
- 2.4 For installations or parts of installations which have not come into operation when the application for this permit was made the Operator shall notify the Agency of the date of commencement of the activity within seven days of commencement.
- 2.5 The Operator shall notify the Agency in writing within three days of becoming aware of any factors which may prevent compliance with the conditions of this permit.
- 2.6 The Operator shall submit to the Agency by 21 January of each year a declaration of operability. The declaration submitted shall be in the format required by the Agency.
- 2.7 All notifications required under Condition 2 above shall be made to the address given in the Explanatory Note included with this permit.
- 2.8 The Operator shall submit to the Agency by 31 December of each year all relevant information about any planned or effective changes to the capacity, activity level and operation of an installation. The information submitted shall be in the format required by the Agency.

Reason: To provide for the notification of updated information on the activity.

Condition 3. Monitoring and Reporting

- 3.1 The Operator shall monitor and record greenhouse gas emissions on site in accordance with the M&R Regulation and the approved Monitoring Plan attached at Appendix 1 to this GHG permit and in compliance with any other guidance approved by the Agency for the purposes of implementing the Directive and/or the Regulations.
- 3.2 The Operator shall modify the monitoring plan in any of the following situations:

- 3.2.1 new emissions occur due to new activities carried out or due to the use of new fuels or materials not yet contained in the monitoring plan;
- 3.2.2 the change of availability of data, due to the use of new measurement instrument types, sampling methods or analysis methods, or for other reasons, leads to higher accuracy in the determination of emissions;
- 3.2.3 data resulting from the previously applied monitoring methodology has been found incorrect;
- 3.2.4 changing the monitoring plan improves the accuracy of the reported data, unless this is technically not feasible or incurs unreasonable costs;
- 3.2.5 the monitoring plan is not in conformity with the requirements of the M&R Regulation and the Agency requests a change;
- 3.2.6 it is necessary to respond to the suggestions for improvement of the monitoring plan contained in the verification report.

The Operator shall notify any proposals for modification of the monitoring plan to the Agency without undue delay. Any significant modifications of the monitoring plan, as defined in Article 15 of the M&R Regulation, shall be subject to approval by the Agency. Where approved these changes shall be implemented within a timeframe agreed by the Agency.

3.3 Temporary changes to the monitoring methodology:

3.3.1 Where it is for technical reasons temporarily not feasible to apply the tier in the monitoring plan for the activity data or each calculation factor of a fuel or material stream as approved by the Agency, the Operator shall apply the highest achievable tier until the conditions for application of the tier approved in the monitoring plan have been restored. The Operator shall take all necessary measures to allow the prompt restoration of the tier in the approved monitoring plan. The Operator shall notify the temporary change to the monitoring methodology without undue delay to the Agency specifying:

- (i) The reasons for the deviation from the tier;
- (ii) in detail, the interim monitoring methodology applied by the Operator to determine the emissions until the conditions for the application of the tier in the monitoring plan have been restored;
- (iii) the measures the Operator is taking to restore the conditions for the application of the tier in the approved monitoring plan;
- (iv) the anticipated point in time when application of the approved tier will be resumed.

3.3.2 A record of all non-compliances with the approved monitoring plan shall be maintained on-site and shall be available on-site for inspection by authorised persons of the Agency and/or by the Verifier at all reasonable times.

3.4 The Operator shall appoint a Verifier to ensure that, before their submission, the reports required by Condition 3.5 below are verified in accordance with the criteria set out in Schedule 5 of the Regulations, the A&V Regulation and any more detailed requirements of the Agency.

3.5 The written report of the verified annual reportable emissions and the verification report in respect of each calendar year shall be submitted to the Agency by the Operator no later than 31 March of the following year. The reports shall be in the format required by the Agency and meet the criteria set out in the M&R and A&V Regulations.

- 3.6 The Operator shall enter the verified annual reportable emissions figure for the preceding year into the Registry no later than 31 March of the following year. This figure shall be electronically approved by the Verifier in the registry no later than 31 March of each year.
- 3.7 Where an Operator is applying the Fall-Back methodology, the Operator shall assess and quantify each year the uncertainties of all parameters used for the determination of the annual emissions in accordance with the ISO Guide to the Expression of Uncertainty in Measurement or another equivalent internationally accepted standard and include the verified results in the written report of the verified annual reportable emissions to be submitted to the Agency by 31 March each year.
- 3.8 An Operator shall submit to the Agency for approval a report containing the information detailed in (i) or (ii) below, where appropriate, by the following deadlines:
- (a) for a category A installation, by 30 June every four years;
 - (b) for a category B installation, by 30 June every two years;
 - (c) for a category C installation, by 30 June every year.
- (i) Where the Operator does not apply at least the tiers required pursuant to the first subparagraph of Article 26(1) and to Article 41(1) of the M&R Regulation, the Operator shall provide a justification as to why it is technically not feasible or would incur unreasonable costs to apply the required tiers. Where evidence is found that measures needed for reaching those tiers have become technically feasible and do not incur unreasonable costs, the Operator shall notify the Agency of appropriate modifications to the monitoring plan and submit proposals for implementing appropriate measures and its timing.
- (ii) Where the Operator applies a fall-back monitoring methodology, the Operator shall provide a justification as to why it is technically not feasible or would incur unreasonable costs to apply at least tier 1 for one or more major or minor source streams. Where evidence is found that measures needed for reaching at least tier 1 for those source streams have become technically feasible and do not incur unreasonable costs, the Operator shall notify the Agency of appropriate modifications to the monitoring plan, submit proposals and a timeframe for implementing appropriate measures.
- 3.9 Where the verification report states outstanding non conformities, misstatements or recommendations for improvements the Operator shall submit a report to the Agency for approval by 30 June of the year in which the verification report is issued. This requirement does not apply to the Operator of an installation with low emissions where the verification report contains recommendations for improvements only. The report shall describe how and when the Operator has rectified or plans to rectify the non-conformities identified and to implement recommended improvements. Where recommended improvements would not lead to an improvement of the monitoring methodology this must be justified by the Operator. Where the recommended improvements would incur unreasonable costs the Operator shall provide evidence of the unreasonable nature of the costs. The Operator shall implement the improvements specified by the Agency in response to the report submitted in accordance with this Condition in accordance with a timeframe set by the Agency.
- 3.10 The Operator shall make available to the Verifier and to the Agency any information and data relating to emissions of carbon dioxide which are required in order to verify the reports referred to in Condition 3.5 above or as required by the Agency to facilitate it in establishing benchmarks and/or best practice guidance.
- 3.11 Provision shall also be made for the transfer of environmental information, in relation to this permit, to the Agency's computer system, as may be requested by the Agency.
- 3.12 The Operator shall retain all information as specified in the M&R Regulation for a period of at least 10 years after the submission of the relevant annual report.

- 3.13 A record of independent confirmation of capacities listed in this permit shall be available on-site for inspection by authorised persons of the Agency at all reasonable times.
- 3.14 The Operator shall keep records of all modifications of the monitoring plan. The records shall include the information specified in Article 16.3 of the M&R Regulation.
- 3.15 The Operator shall ensure that members of the public can view a copy of this permit and any reports submitted to the Agency in accordance with this permit at all reasonable times. This requirement shall be integrated with the requirements of any public information programme approved by the Agency in relation to any other permit or licence held by the Operator for the site.

Reason: To provide for monitoring and reporting in accordance with the Regulations.

Condition 4. Allowances

- 4.1 Surrender of Allowances
- 4.1.1 The Operator shall, by 30 April in each year, surrender to the Agency, or other appropriate body specified by the Agency, allowances equal to the annual reportable emissions in the preceding calendar year.
- 4.1.2 The number of allowances to be surrendered shall be the annual reportable emissions for the preceding calendar year plus such allowances as may be necessary to cover any earlier calendar year in respect of which allowances remain outstanding and due. This includes allowances to cover the amount of any annual reportable emissions in respect of which allowances were not surrendered in accordance with Condition 4.1.1 in the previous year, and the amount of any reportable emissions which were discovered during the previous year to have been unreported in reports submitted under Condition 3 in that or in earlier years.
- 4.1.3 In relation to activities or parts of activities which have ceased to take place and have been notified to the Agency in accordance with Condition 2.2 above, the Operator shall surrender to the Agency allowances equal to the annual reportable emissions from such activities in the preceding calendar year or part thereof, together with such allowances as may be necessary to cover any earlier calendar year in respect of which allowances remain outstanding and due as described in Condition 4.1.2 above.
- 4.1.4 The Operator may, from 2008 onwards, subject to the provisions of the Regulations and the relevant National Allocation Plan for that compliance year, surrender emission reduction units (ERUs) and certified emission reduction units (CERs) in place of allowances.
- 4.2 The holding, transfer, surrender and cancellation of allowances shall be in accordance with the requirements of any Regulations adopted as provided for under Article 19.3 of Directive 2003/87/EC, any amendment or revision to the same and any guidance issued by the Agency or the National Administrator.
- 4.3 The Operator shall provide the National Administrator with all the necessary information for the opening of an Operator holding account for the installation described in Condition 1 of this permit within twenty working days of the issue of this permit, unless such an account is already open.

Reason: To provide for the surrendering, holding, transfer and cancellation of allowances in respect of reported emissions.

Condition 5. Penalties

5.1 Any Operator who fails to comply with Condition 4.1 above shall be subject to the provisions of the Regulations, including, but not limited to the payment of penalties.

Reason: To provide for the payment of excess emissions penalties as required under the Regulations.

Sealed by the seal of the Agency on this the 29 February 2016:

PRESENT when the seal of the Agency was affixed hereto:

Ms. Annette Prendergast
Inspector/ Authorised Person

Appendix 1 to Greenhouse Gas Emissions Permit Number IE-GHG042-10363

Monitoring Plan

1. Guidelines & Conditions

1. Directive 2003/87/EC as amended by Directive 2009/29/EC (hereinafter "the (revised) EU ETS Directive") requires operators of installations which are included in the European Greenhouse Gas Emission Trading Scheme (the EU ETS) to hold a valid GHG emission permit issued by the relevant Competent Authority and to monitor and report their emissions and have the reports verified by an independent and accredited verifier.

The Directive can be downloaded from:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2003L0087:20090625:EN:PDF>

2. The Monitoring and Reporting Regulation (Commission Regulation (EU) No 601/2012) (hereinafter the "MRR") defines further requirements for monitoring and reporting.

The MRR can be downloaded from:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:181:0030:0104:EN:PDF>

Article 12 of the MRR sets out specific requirements for the content and submission of the monitoring plan and its updates. Article 12 outlines the importance of the Monitoring plan as follows:

The monitoring plan shall consist of a detailed complete and transparent documentation of the monitoring methodology of a specific installation [or aircraft operator] and shall contain at least the elements laid down in Annex I.

Furthermore Article 74(1) states:

Member States may require the operator and aircraft operator to use electronic templates or specific file formats for submission of monitoring plans and changes to the monitoring plan as well as for submission of annual emissions reports tonne-kilometre data reports verification reports and improvement reports. Those templates or file format specifications established by the Member States shall at least contain the information contained in electronic templates or file format specifications published by the Commission

3. All Commission guidance documents on the Monitoring and Reporting Regulation will be published at the link below as they become available:

http://ec.europa.eu/clima/policies/ets/monitoring/index_en.htm

(a) Information sources:

EU Websites:

EU-Legislation: <http://eur-lex.europa.eu/en/index.htm>

EU ETS general: http://ec.europa.eu/clima/policies/ets/index_en.htm

Monitoring and Reporting in the EU ETS: http://ec.europa.eu/clima/policies/ets/monitoring/index_en.htm

Environmental Protection Agency Website:

<http://www.epa.ie>

Environmental Protection Agency Contact:

GHGpermit@epa.ie

2. Application Details

The Installation Name, Site Name and the address of the site of the installation are detailed below. The Site Name and address can be updated from the Organisation Details Page on the ETSWAP website. The Installation Name can only be updated by your Competent Authority.

Installation name	Irish Cement Limited (Limerick Works)
Site name	Irish Cement Limited (Limerick Works)
Address	Irish Cement Limited Limerick Works Castlemungret Limerick Ireland

Grid reference of site main entrance	154167E 155011N
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Licence held pursuant to the Environmental Protection Agency Act 1992, as amended.	Yes
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IPC/IE Licence Register Number	Licence holder	Competent body
P0029-03	Irish Cement Limited	EPA

Has the regulated activity commenced at the Installation? Yes

Date of Regulated Activity commencement	01 January 2008
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This information is only required to identify the first relevant reporting year of an installation. If the installation was in operation from the beginning of 2008 and held a Greenhouse Gas Emissions Permit from this point, 1 January 2008 will be used where the actual date of commencement is not readily known.

3. About the Operator

The information about the "Operator" is listed below. The "Operator" is defined as the person who it is proposed will have control over the relevant Regulated Activities in the installation in respect of which this application is being made.

(b) Operator Details

The name of the operator and where applicable the company registration number are detailed below. These details can only be updated by the Environmental Protection Agency.

Operator name CRH Plc

Company Registration Number 12965

Operator Legal status

The legal status of the operator is: Company / Corporate Body

(c) Company / Corporate Body

Is the trading / business name different to the operator name? Yes

Trading / business name Irish Cement limited

Details of the individual authorised to submit this application on behalf of the company / corporate body.

Title	█
Forename	█
Surname	█
Position	Sustainability Manager

Registered office address

Address Line 1	42 Fitzwilliam Square,
Address Line 2	N/A
City/Town	Dublin 2
County	N/A
Postcode	N/A

Principal office address

Is the principal office address different to the registered office address? Yes

Address Line 1	42 Fitzwilliam Square
Address Line 2	N/A
City/Town	Dublin 2
County	N/A
Postcode	N/A
Company registration number	12965

Holding company

Does the company belong to a holding company? Yes

Holding company name CRH plc

Holding company address

Address Line 1	42 Fitzwilliam Square
Address Line 2	N/A
City/Town	Dublin 2
County	N/A
Postcode	N/A
Company registration number	N/A

Is the holding company principal address different to the holding company address? No

(d) Operator Authority

Does the operator named above have the authority and ability to:

- | | |
|---|-----|
| a. manage site operations through having day-to-day control of plant operation including the manner and rate of operation | Yes |
| b. ensure that permit conditions are effectively complied with | Yes |
| c. control monitor and report specified emissions | Yes |
| d. be responsible for trading in Allowances so that at the end of a reporting period allowances can be balanced against reported emissions. | Yes |

4. Service Contact**e. Service Contact**

Name	
Address / Email Address	Irish Cement Limited Limerick Works Castlemungret Limerick Ireland

5. Installation Activities

f. Installation Description

Below is a description of the installation and its activities, a brief outline description of the site and the installation and the location of the installation on the site. The description also includes a non-technical summary of the activities carried out at the installation briefly describing each activity performed and the technical units used within each activity.

Irish Cement Limited, Limerick Works, manufactures and supplies a range of cements to the Irish construction industry.

The Cement manufacture process begins at the raw material preparation stage, i.e. quarrying, crushing, grinding and blending of limestones, shales/clays and small amounts of bauxite and iron-ore. The prepared raw material is called raw meal and following an homogenizing process stage is renamed as kiln feed, i.e. the material that is fed to the Kilns.

The next stage of the process is called Kiln burning and is the stage that kiln feed is burnt at temperatures of up to 1500C, to produce an intermediate product called clinker. The Kiln process creates synthetic minerals / clinker that exhibit hydraulic properties on mixing with water. The fuel used in the Kilns are Petroleum coke, Coal and small quantities of gas/ diesel oil can also be used. The final product, Portland cement is made at the Cement Milling stage of the process and involves blending and grinding cement clinker, gypsum, additional materials (limestone/slag/raw meal) and more recently ferrous/tin sulphate (EU directive on Chromium Levels in Cement) to form the final Portland cement powder. The final product is stored in concrete storage silos, either fitted with a transfer mechanism to Road Dispatch / Rail Dispatch / Bag Cement Packing and Palletising. There are two central heating boilers at the central control office running on gas oil and acetylene is used for mobile welding operations at various locations around the site.

g. Annex 1 Activities

The table below lists the technical details for each Annex 1 activity carried out at the installation.

Note that 'capacity' in this context means:

- Rated thermal input (for combustion installations) which is defined as the rate at which fuel can be burned at the maximum continuous rating of the installation multiplied by the calorific value of the fuel and expressed as megawatts thermal.
- Production capacity for those specified Annex I activities for which production capacity determines ETS eligibility.

Annex 1 Activity	Total Capacity	Capacity units	Specified Emissions
Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day	3218	tonnes/day	Carbon Dioxide

h. Site Diagram

The table below lists attachments (if available) that provide a simple diagram showing emissions sources source streams sampling points and metering/measurement equipment.

Attachment	Description
L011-006-0730 Rev 3.pdf	Irish Cement Limerick Site Plan

i. Estimated Annual Emissions

Detail of the estimated annual emission of CO₂ equivalent. This information enables categorisation of the installation in accordance with Article 19 of the MRR and is based on the average verified annual emissions of the previous trading period data OR if this data is not available or is inappropriate a conservative estimate of annual average emissions including transferred CO₂ excluding CO₂ from biomass.

Estimated Annual Emissions (tonnes CO_{2(e)}) 500000

Justification for the use of a conservative estimate of CO₂ emissions. Emissions in 2015 exceeded 500,000 tonnes CO₂.

6. Emissions Details

j. About your emissions

Annex I of the Monitoring and Reporting Regulations (MRR) requires that monitoring plans include a description of "the installation" and activities to be carried out and monitored including a list of emission sources and source streams. The information provided in this template relates to the Annex I activity(ies) comprised in the installation in question and should relate to a single installation. It includes any activities carried out by the operator and does not include related activities carried out by other operators.

k. Emission Sources

The table below lists all the emission sources at the installation, which may include directly associated activities/excluded activities.

Emission Source Reference	Emission Source Description
S1	Kiln 6 stack/Coal mill stack
S3	Kiln Emergency generator
S4	Acetylene - Mobile Welding Equipment
S5	CCR Central Heating Boiler 1
S6	CCR Central Heating Boiler 2

The table below lists the emission sources which are linked to the Regulated Activities at the installation.

Emission Source Reference	Emission Source Description
S1	Kiln 6 stack/Coal mill stack
S3	Kiln Emergency generator
S4	Acetylene - Mobile Welding Equipment
S5	CCR Central Heating Boiler 1
S6	CCR Central Heating Boiler 2

l. Emission Points

The table below lists all the emission points at the installation, which may include directly associated activities/excluded activities.

Emission Point Reference	Emission Point Description
E1	Kiln 6 stack
E2	Coal Mill stack
E3 (64420)	Kiln 6 Emergency generator
E4	Acetylene - Mobile Welding Equipment
E5	CCR Central Heating Boiler 1
E6	CCR Central Heating Boiler 2

m. Source Streams (fuels and/or materials)

The table below lists the source streams which are used in Schedule 1 Activities at the installation.

Source Stream Reference	Source Stream Type	Source Stream Description
--------------------------------	---------------------------	----------------------------------

Source Stream Reference	Source Stream Type	Source Stream Description
F1 (Pet Coke)	Combustion: Solid fuels	Petroleum Coke
F2 (Coal)	Combustion: Solid fuels	Coal
F3 (Gas Oil)	Combustion: Commercial standard fuels	Gas/Diesel Oil
M1 (Clinker)	Cement clinker: Clinker output (Method B)	Raw meal/clinker
M4 (Non Carbonate carbon)	Cement clinker: Non-carbonate carbon	Pulverisation Fly Ash in Kiln Feed
F4 (Acetylene)	Combustion: Other gaseous & liquid fuels	Acetylene

n. Emissions Summary

The table below provides a summary of the emission source and source stream details in the installation.

Source streams (Fuel / Material)	Emission Source Refs.	Emission Point Refs.	Annex 1 Activity
F1 (Pet Coke)	S1	E1,E2	Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day
F2 (Coal)	S1	E1,E2	Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day
F3 (Gas Oil)	S1,S3,S5,S6	E1,E2,E3 (64420),E5,E6	Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day
M1 (Clinker)	S1	E1,E2	Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity

Source streams (Fuel / Material)	Emission Source Refs.	Emission Point Refs.	Annex 1 Activity
			exceeding 50 tonnes per day
M4 (Non Carbonate carbon)	S1	E1,E2	Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day
F4 (Acetylene)	S4	E4	Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day

o. Excluded Activities

Certain activities that result in greenhouse gas emissions may be excluded under the EU ETS Directive for example truly mobile sources such as vehicle emissions.

Do you have any excluded activities which need to be identified in your monitoring plan? No

7. Low Emissions Eligibility

p. Low Emissions Eligibility

The operator may submit a simplified monitoring plan for an installation where no nitrous oxide activities are carried out and it can be demonstrated that:

(a) the average verified annual emissions of the installation during the previous trading period was less than 25 000 tonnes CO_{2(e)} per year or;

(b) where this data is not available or inappropriate a conservative estimate shows that emissions for the next 5 years will be less than 25 000 tonnes CO_{2(e)} per year.

Note: the above data shall include transferred CO₂ but exclude CO₂ stemming from biomass.

Does the installation satisfy the criteria for installations with low emissions (as defined by Article 47 of the MRR)? No

8. Monitoring Approaches

q. Monitoring Approaches

Emissions may be determined using either a calculation based methodology ("calculation") or measurement based methodology ("measurement") except where the use of a specific methodology is mandatory according to the provisions of the MRR. [MRR Article 21].

Note: the operator may subject to competent authority approval combine measurement and calculation for different sources. The operator is required to ensure and demonstrate that neither gaps nor double counting of reportable emissions occurs.

Please specify whether or not you propose to apply the following monitoring approaches. Select all monitoring approaches that are applicable to you. The consecutive sections will become mandatory based on the selected approaches.

Calculation	Yes
Measurement	No
Fall-back approach	No
Monitoring of N ₂ O	No
Monitoring of PFC	No
Monitoring of transferred / inherent CO ₂	No

9. Calculation

r. Approach Description

The calculation approach including formulae used to determine annual CO₂ emissions:

The calculation approach is based on Annex II and Annex IV of the Commission Regulation no 601/2012 21 June 2012 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC. A more detailed description is included in an attachment.

Total CO₂ emissions = Fuel combustion CO₂ + Raw Material calcination CO₂

(a) (b)

(a) Fuel combustion CO₂=activity data*emission factor*oxidation factor

(a1) (a2) (a3)

(a1) Fuel activity data is the energy content (TJ) = fuel consumed(t)*net calorific value(TJ/t)

Fuel consumption is based on a mass balance approach based on quantity of fuel purchased and the difference in quantity held in stock over a period of time. The fuels are Pet Coke, coal and diesel oil and Acetylene. The net calorific value (NCV) for pet coke and coal is measured by an ISO 17025 laboratory, the relevant country specific NCV is used for diesel oil and Tier 1 NCV for Acetylene.

(a2) the fuel emission factor is calculated based on measurements at an ISO 17025 laboratory, the relevant country specific emission factor is used for diesel oil and Tier 1 Emission Factor for Acetylene.

(a3) Oxidation factor of 1 is used for all fuels.

(b) Raw material calcination $CO_2 = \text{activity data} * \text{emission factor} * \text{conversion factor}$ (Calculation Method B Output based)

(b1) (b2) (b3)

(b1) Activity data for clinker produced is calculated using a mass balance approach taking account dispatch/supply of clinker, clinker stocks and clinker in cement produced as per Annex IV section 9 of the Commission Regulation.

(b2) The clinker emission factor: The emission factor is calculated based on the determination of the amount of CaO and MgO in the product is carried out in accordance with Articles 32-35. The CaO and MgO present in the raw materials including PFA is also analysed in accordance with Articles 32-35 to ensure that the amount of CaO and MgO determined in the clinker product stems from the decomposition of carbonates.

The stoichiometric factors in Annex VI Section 2 Table 3 are used to convert this determined composition data in to emission factors.

(b3) The conversion factor : A conversion factor of 1 shall be used (Tier 1).

Discarded dust emissions : all dust reused in the process and therefore fully accounted.

Non carbonate carbon which is in PFA and added to rawmeal is accounted for in the analysis of PFA in the kiln feed in a ISO 17025 Lab.

s. Measurement Devices

Below is a description of the specification and location of the measurement systems used for each source stream where emissions are determined by calculation

Also a description of all measurement devices including sub-meters and meters used to deduct non-Annex I activities to be used for each source and source stream.

Source Stream Refs.	Emission Source Refs.	Measurement Device Ref.	Type of Measurement Device	Measurement Range	Metering Range Units	Specified Uncertainty (+/- %)	Location
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	S1	MD1 (04F672799)	Weighbridge	0 - 50	tonnes	0.14	Raw materials in weighbridge
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	S1	MD2 (08F680830)	Weighbridge	0 - 50	tonnes	0.14	Rawmaterials Out weighbridge
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	S1	MD3 (F647441)	Weighbridge	0 - 50	tonnes	0.14	Silo 7
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	S1	MD4 (08F674343)	Weighbridge	0 - 50	tonnes	0.14	Silo 9 WB 6
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	S1	MD5 (04F697017)	Weighbridge	0 - 50	tonnes	0.14	Silo 9 WB 5
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	S1	MD6 (06F742075)	Weighbridge	0 - 50	tonnes	0.14	Silo 10 WB (1+2)

Source Stream Refs.	Emission Source Refs.	Measurement Device Ref.	Type of Measurement Device	Measurement Range	Metering Range Units	Specified Uncertainty (+/- %)	Location
Carbonate carbon)							
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	S1	MD9 (09F729290)	Weighbridge	0 - 50	tonnes	0.14	Silo 11
M1 (Clinker)	S1	MD10 (55745 VO53154-limestone feeder weigh scale)	Weighscale	0 - 15000	kgs	1.0	CM5 Limestone feeder
M1 (Clinker)	S1	MD11 (65739 V061014)- limestone feeder weighscale	Weighscale	0 - 15000	kgs	1.0	CM6 Limestone feeder
M1 (Clinker)	S1	MD12 (75739 V061013)- limestone feeder weighscale	Weighscale	0 - 15000	kgs	1.0	CM7 Limestone feeder
F1 (Pet Coke),F2 (Coal),M1 (Clinker)	S1	MD13	Ordinance survey using GPS	0 - 100000	mm	2.5	Material stockpile
F3 (Gas Oil)	S1	MD14 (631*LO1 2CO11CO4062)	Level gauge	0 - 100	%	0.09	Main diesel tank
F3 (Gas Oil)	S1,S3,S5,S6	MD15 Diesel oil (despatch terminal)	Rotary meter	0 - 2000	litres	0.02	Diesel oil despatch terminal
M1 (Clinker)	S1	MD16 (0-50240492)	Weighscale	0 - 3	tonnes	0.1	Palletizing plant
F4 (Acetylene)	S4	MD 17 (Invoices)	Invoices	N/A	N/A	N/A	Accounts & Finance
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non	S1	MD18 (1F1312325)	Weighbridge	0-50	tonnes	0.14	Silo 10 WB (3+4)

Source Stream Refs.	Emission Source Refs.	Measurement Device Ref.	Type of Measurement Device	Measurement Range	Metering Range Units	Specified Uncertainty (+/- %)	Location
Carbonate carbon)							
M1 (Clinker)	S1	MD19 BO-GC0049AA0016-0001	Weighscale	0-60	kg	0.1	Palletizing Plant
M1 (Clinker)	S1	MD20 CM6/7 PFA silo (657XL/01X)	Level gauge	0-12	metre	0.09	CM6/7 PFA silo
M1 (Clinker),M4 (Non Carbonate carbon)	S1	MD21 Raw Mill PFA Hopper (623XW/02)	Load Cell	0-100	%	5	Raw Mill PFA Hopper
M1 (Clinker)	S1	MD22 FSM Hopper (657XW/05)	Load Cell	0-100	Tonne	5	FSM Hopper

Source Stream Refs.	Measurement Device Ref.	Determination Method	Instrument Control Of	Under	Conditions Of Article 29(1) Satisfied	Invoices Used To Determine Amount Of Fuel Or Material	Trade Partner And Operator Independent
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	MD1 (04F672799)	Batch	Operator		N/A	N/A	N/A
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	MD2 (08F680830)	Batch	Operator		N/A	N/A	N/A
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	MD3 (F647441)	Batch	Operator		N/A	N/A	N/A
F1 (Pet Coke),F2	MD4 (08F674343)	Batch	Operator		N/A	N/A	N/A

Source Stream Refs.	Measurement Device Ref.	Determination Method	Instrument Under Control Of	Conditions Of Article 29(1) Satisfied	Invoices Used To Determine Amount Of Fuel Or Material	Trade Partner And Operator Independent
(Coal),M1 (Clinker),M4 (Non Carbonate carbon)						
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	MD5 (04F697017)	Batch	Operator	N/A	N/A	N/A
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	MD6 (06F742075)	Batch	Operator	N/A	N/A	N/A
F1 (Pet Coke),F2 (Coal),M1 (Clinker),M4 (Non Carbonate carbon)	MD9 (09F729290)	Batch	Operator	N/A	N/A	N/A
M1 (Clinker)	MD10 (55745 VO53154-limestone feeder weigh scale)	Continual	Operator	N/A	N/A	N/A
M1 (Clinker)	MD11 (65739 V061014)-limestone feeder weighscale	Continual	Operator	N/A	N/A	N/A
M1 (Clinker)	MD12 (75739 V061013)-limestone feeder weighscale	Continual	Operator	N/A	N/A	N/A
F1 (Pet Coke),F2 (Coal),M1 (Clinker)	MD13	Batch	Trade partner	Yes	No	Yes
F3 (Gas Oil)	MD14 (631*LO1 2CO11CO4062)	Continual	Operator	N/A	N/A	N/A
F3 (Gas Oil)	MD15 Diesel oil (despatch terminal)	Continual	Trade partner	Yes	Yes	Yes
M1 (Clinker)	MD16 (0-50240492)	Continual	Operator	N/A	N/A	N/A
F4 (Acetylene)	MD 17 (Invoices)	Batch	Trade partner	Yes	Yes	Yes
F1 (Pet Coke),F2	MD18 (1F1312325)	Batch	Operator	N/A	N/A	N/A

Source Stream Refs.	Measurement Device Ref.	Determination Method	Instrument Under Control Of	Conditions Of Article 29(1) Satisfied	Invoices Used To Determine Amount Of Fuel Or Material	Trade Partner And Operator Independent
(Coal),M1 (Clinker),M4 (Non Carbonate carbon)						
M1 (Clinker)	MD19 BO-GC0049AA0016-0001	Continual	Operator	N/A	N/A	N/A
M1 (Clinker)	MD20 CM6/7 PFA silo (657XL/01X)	Continual	Operator	N/A	N/A	N/A
M1 (Clinker),M4 (Non Carbonate carbon)	MD21 Raw Mill PFA Hopper (623XW/02)	Continual	Operator	N/A	N/A	N/A
M1 (Clinker)	MD22 FSM Hopper (657XW/05)	Continual	Operator	N/A	N/A	N/A

t. Applied Tiers

The table below identifies the tiers applied against the relevant input data for each source stream and confirms whether a standard (MRR Article 24) or mass balance (MRR Article 25) approach is applied.

(i) The highest tiers as defined in Annex II of the MRR should be used by Category B and C installations to determine the activity data and each calculation factor (except the oxidation factor and conversion factor) for each major source stream. Category A installations should apply as a minimum the tiers listed in Annex V.

(ii) Operators may apply a tier one level lower than those referred to in sub paragraph (i) above for Category C installations and up to two levels lower for Category A and B installations with a minimum of tier 1 if the operator can demonstrate to the satisfaction of the competent authority that this is not technically feasible or would lead to unreasonable cost to apply the higher tier. The justification for not applying the higher tier should be recorded when completing the tier table.

(iii) The competent authority may allow an operator to apply even lower tiers than those referred to in the sub paragraph (ii) with a minimum of tier 1 for a transition period of up to three years if the operator can demonstrate to the satisfaction of the competent authority that this is not technically feasible or would lead to unreasonable cost to apply the higher tier and provides an improvement plan detailing how and by when at least the tier referred to in sub paragraph (ii) will be achieved. The improvement plan should be referenced in subsequent table and provided to the competent authority at the time of submission of this plan.

(iv) For minor source streams operators shall apply the highest tier which is technically feasible and will not lead to unreasonable costs with a minimum of tier 1 for activity data and each calculation factor. For de-minimis source streams operators may use conservative estimations rather than tiers unless a defined tier can be achieved without additional effort (MRR Article 26(2)).

(v) Installations with low emissions as identified in section 6(d) may apply as a minimum tier 1 for determining activity data and calculation factors for all source streams unless higher accuracy is achievable without additional effort.

* Note 1: For commercial standard fuels the minimum tiers listed in Annex V of the MRR may be applied for all activities in all installations.

* Note 2: If you are intending to apply a fall-back approach please complete the table below and select "n/a" for the tiers to be applied for each source stream where a fall-back approach is used. Section 10 "Fall-back" must also be completed for these source streams.

* Note 3: For biomass or mixed fuels the emission factor is the preliminary emission factor as defined in Definition 35 Article 3 of the MRR.

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
F1 (Pet Coke)	S1	MD1 (04F672799), MD2 (08F680830), MD3 (F647441), MD4 (08F674343), MD5	<1.5%	Standard	4	3	3	N/A	1	N/A	N/A	88500	17.7	Major	Yes	n/a	n/a

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
		(04F697017), MD6 (06F742075), MD9 (09F729290), MD13, MD18 (1F1312325)															
F2 (Coal)	S1	MD1 (04F672799), MD2 (08F680830), MD3 (F647441), MD4 (08F674343), MD5 (04F697017),	<1.5%	Standard	4	3	3	N/A	1	N/A	N/A	77000	15.4	Major	Yes	n/a	n/a

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
		MD6 (06F74 2075), MD9 (09F72 9290), MD13, MD18 (1F131 2325)															
M4 (Non Carbonate carbon)	S1	MD1 (04F67 2799), MD2 (08F68 0830), MD3 (F6474 41), MD4 (08F67 4343), MD5 (04F69 7017), MD6 (06F74	<2.5%	Standard	2	N/A	2	N/A	N/A	1	N/A	10500	2.1	Minor	Yes	n/a	n/a

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
		2075), MD9 (09F72 9290), MD18 (1F131 2325), MD21 Raw Mill PFA Hoppe r (623X W/02)															
F3 (Gas Oil)	S1,S3,S5,S6	MD14 (631*LO1 2CO11 CO406 2),MD15 Diesel oil (despatch termin	<1.5%	Standard	4	2a	2a	N/A	1	N/A	N/A	1000	0.2	De-minimis	N/A	n/a	n/a

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
		al)															
M1 (Clinker)	S1	MD1 (04F672799), MD2 (08F680830), MD3 (F647441), MD4 (08F674343), MD5 (04F697017), MD6 (06F742075), MD9 (09F729290), MD10 (55745VO53154-limest	<2.5%	Standard	2	N/A	3	N/A	N/A	1	N/A	323000	64.6	Major	Yes	n/a	n/a

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
		one feeder weigh scale), MD11 (65739 V0610 14)-limestone feeder weighs cale,MD12 (75739 V0610 13)-limestone feeder weighs cale,MD13,MD16 (0-50240 492),MD18 (1F131															

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
		CM6/7 PFA silo (657XL/01X), MD21 Raw Mill PFA Hopper (623XW/02), MD22 FSM Hopper (657XW/05)															
F4 (Acetylene)	S4	MD 17 (Invoices)	N/A	Standard	No tier	1	1	N/A	1	N/A	N/A	4	0	De-minimis	N/A	n/a	n/a

Total Estimated Emissions for Calculation (tonnes CO_{2(e)})

500004

u. Uncertainty Calculations

The table below lists evidence attached to the application that demonstrates compliance with the applied tiers in accordance with Article 12 of the MRR.

Attachment	Description
Accuracy Statement Control Surveys.jpg.jpg	Accuracy Statement Control Surveys (Stocktake)
Updated Uncertainty Calculation Approach 2011 - NAP III Surveyor 5% error.docx	Updated Uncertainty Calculation Approach 2013
04032013 Confirmation of Limestone feeder accuracy.pdf	04032013 Confirmation of Limestone feeder accuracy
Uncertainty Calculation Approach 2015 (2).docx	Uncertainty Calculation Approach 2015

v. Applied tiers

Applied tiers for each source stream

Source Stream Ref.	Emission Source Refs.	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied
F1 (Pet Coke)	S1	4	3	3	N/A	1	N/A	N/A
F2 (Coal)	S1	4	3	3	N/A	1	N/A	N/A
M4 (Non Carbonate carbon)	S1	2	N/A	2	N/A	N/A	1	N/A
F3 (Gas Oil)	S1,S3,S5,S6	4	2a	2a	N/A	1	N/A	N/A
M1 (Clinker)	S1	2	N/A	3	N/A	N/A	1	N/A
F4 (Acetylene)	S4	No tier	1	1	N/A	1	N/A	N/A

w. Justification for Applied tiers

Justifications for the applied tiers for each major source stream where highest tiers are not currently achieved.

Source Stream Ref.	Emission Source Refs.	Justification for the applied tier	Improvement Plan Reference (where applicable)
N/A	N/A	N/A	N/A

10. Calculation Factors

x. Default Values

The table below lists, for each parameter, where default values are to be used for calculation factors.

Source Stream Refs.	Emission Source Refs.	Parameter	Reference Source	Default Value applied (where appropriate)
F1 (Pet Coke),F2 (Coal)	S1	OxF	MRR Annex II	1
F3 (Gas Oil)	S1,S3,S5,S6	NCV	Ireland's National Greenhouse Gas Inventory	n/a
F3 (Gas Oil)	S1,S3,S5,S6	EF	Ireland's National Greenhouse Gas Inventory	n/a
F3 (Gas Oil)	S1,S3,S5,S6	OxF	MRR Annex II	1
M4 (Non Carbonate carbon)	S1	Conversion Factor	MRR Annex IV Section 9.D	1
M1 (Clinker)	S1	EF	MRR Annex VI Section 2 Table 3	n/a
F4 (Acetylene)	S4	NCV and EF	Tier 1 Factors on EPA website	n/a

Sampling and Analysis

Do you undertake sampling and analysis of any of the parameters used in the calculation of your CO₂ emissions? Yes

y. Analysis

The table below lists, for each source stream, where calculation factors are to be determined by analysis.

Source Stream Refs.	Emission Source Refs.	Parameter	Method of Analysis	Frequency	Laboratory Name	Laboratory ISO17025 Accredited	Evidence Reference
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Source Stream Refs.	Emission Source Refs.	Parameter	Method of Analysis	Frequency	Laboratory Name	Laboratory ISO17025 Accredited	Evidence Reference
F1 (Pet Coke)	S1	NCV	ASTM D5865; ISO 1928	Every 20000 ts and at least 6 samples per year	McCreath; Knight Energy Services	Yes	n/a
F1 (Pet Coke)	S1	EF	ASTM D5373	Every 20000ts and at least 6 times per year	McCreath; Knight Energy Services	Yes	n/a
n/a	S1	NCV	ISO 1928	Every 20000ts and at least 6 times per year	Knight Energy Services	Yes	n/a
F2	S1	EF	ASTM D5373	Every 20000ts or at least 6 times per year	Knight Energy services	Yes	n/a
M1	S1	EF	X-ray flouresence of CaO and MgO HM-No. 0007 FIZ 2001-08 Rev.1 based on prEN ISO 29581-2	Monthly analysis of both PFA/kiln input material sample and clinker sample	VDZ	Yes	n/a
M4	S1	EF	DIN EN 13639	Determination of TOC in PFA (monthly) and kiln feed sample (annually)	VDZ	Yes	n/a

Detail about the written procedures for the above analysis.

Where a number of procedures are used details of an overarching procedure which covers the quality assurance of analyses methods and links together individual analytical methods is listed.

Title of procedure Reference for procedure	Source Stream Analytical Approaches Limerick/General and Production/environmental/ghg/ghgprocedures/source stream analytical approaches
Diagram reference Brief description of procedure. The description should cover the essential parameters and operations performed	N/A This procedure outlines the quality assurance of the various analytical techniques to be applied to each source stream. NCV and EF for pet coke are performed to ASTM D5865 and D5373 MgO and CaO in clinker is measured by X-ray fluorescence. Carbon analysis for non carbonate carbon (kiln feed and PFA) is carried out using DIN EN 13639.
Post or department responsible for the procedure and for any data generated Location where records are kept Name of IT system used List of EN or other standards applied	Environmental dept On File at reference above in computer archive Microsoft Office listed above in methods of analysis

z. Sampling Plan

Details about the procedure covering the sampling plan for the analysis table above.

The procedure below covers the elements of a sampling plan as required by Article 33 of the MRR. Where a number of procedures are used, details of an overarching procedure which covers the sampling methods and links together individual sampling methods are listed.

Attachment	Description
Sampling Plan of Fuels and materials wrt to GHG.docx	Sampling plan fuels and materials
Sampling Plan Limerick.xlsx	Sampling Plan

Title of procedure Reference for procedure	Sampling plan of fuels and materials wrt GHG Limerick/General and Production/environmental/ghg/ghgprocedures/sampling plan and materials
Diagram reference Brief description of procedure. The description should cover the essential parameters and operations performed	N/A The sampling plan includes sampling standards and methods as per article 33 and article 35 of the Regulation. Petcoke:

A sample of each pet coke cargo is taken by independent auditor at point of loading. The sampling method used for Pet Coke is the "standard practice for collection of a gross sample of coal / pet coke" ASTM D2234.

Coal:

The sampling method used for coal is ISO 18283: "Hard coal & Coke - manual sampling". ISO 18283:2006 applies to manual sampling from fuels in movement. Samples will be taken from truck deliveries on a defined frequency and composited for analysis. The frequency of analysis will comply with Annex VII, which indicates "Every 20,000 tonnes and at least six times per year"

Clinker:

Clinker spot samples are taken every 2hrs as per the plant sampling procedures manual (18). Each of these spots are composited into a daily sample and each of the dailys are composited into a monthly sample. This sample is then sent for analysis using X-ray fluorescence as per standard ISO 29581.

PFA/Kiln Feed:

Daily spot samples are taken as per the plant sampling procedures manual (20). Each of these spots are composited into a daily sample and each of the dailys are composited in to a monthly sample for PFA and an annual sample for kiln feed. This sample is then sent for carbon analysis as per standard DIN EN 13639.

Post or department responsible for the procedure and for any data generated	Environmental dept
Location where records are kept	On File at reference above in computer archive
Name of IT system used	Microsoft Office
List of EN or other standards applied	listed above in methods of sampling

aa. Sampling Plan Appropriateness

The procedure to be used to revise the appropriateness of the sampling plan.

Title of procedure	Sampling plan appropriateness
Reference for procedure	Limerick/General and Production/environmental/ghg/ghgprocedures/sampling plan appropriateness
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This is a procedure to review all ghg sampling plans. Should any part of the sampling plan change or additional materials be added the appropriateness of the plan will be

reviewed.

The sampling plan will be reviewed and updated as necessary. Where new fuels are added the sampling plan will reflect this.

The procedure to do so will form part of the ISO 9000 and ISO 14000 systems where controls to amend, compose and review sampling plans will be undertaken.

Post or department responsible for the procedure and for any data generated	Environmental dept
Location where records are kept	On File at reference above in computer archive
Name of IT system used	Microsoft Office
List of EN or other standards applied	listed above in methods of sampling

Are stock estimates carried out as part of the emission calculations?	Yes
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bb. Year-end reconciliations

The procedure to be used to estimate stocks at the beginning/end of a reporting period where applicable. This should include any source streams monitored using batch metering e.g. where invoices are used.

Title of procedure	Physical v Book stock reconciliation
Reference for procedure	Production Dept Records
Diagram reference	N/A
Brief description of procedure.	Every quarter and year end a stock reconciliation is carried out to assess the stock variations in Clinker, pet coke , coal, cement,PFA

Every year a survey of petcoke and coal and clinker and cement is carried out by an independent surveyor. This is audited by the company auditors and forms part of the company accounts at year end.

Post or department responsible for the procedure and for any data generated	Finance dept
Location where records are kept	Production Dept
Name of IT system used	Microsoft Office
List of EN or other standards applied	N/A

cc. Tracking Instruments

The procedure used to keep track of instruments installed in the installation used for determining activity data.

Title of procedure	Metering Matrix
Reference for procedure	Limerick/General and Production/environmental/ghg/2012/weighbridge

Diagram reference	calibration
Brief description of procedure.	N/A The metering matrix describes the location, calibration, maintenance frequency and any repairs carried out so as to have weighbridges in good working order. The metering matrix and weighbridge certs are attached at the end for reference.
Post or department responsible for the procedure and for any data generated	Maintenance Dept
Location where records are kept	Maintenance Dept
Name of IT system used	Microsoft office
List of EN or other standards applied	N/A

11. Management

dd. Monitoring and Reporting Responsibilities

Responsibilities for monitoring and reporting emissions from the installation are listed below:

Relevant job titles/posts and provide a succinct summary of their role relevant to monitoring and reporting are listed below.

Job Title / Post	Responsibilities
Environmental Manager	Company Environmental Obligations
Environmental Engineer/Chemical Engineer	process environmental data for report submission
Sustainability manager	Responsible for Company strategy and policy in Environmental matters

Attachment	Description
Limerick Works Org. Chart Draft. Nov.12.ppt	Organisation Chart Nov 2012

ee. Assignment of Responsibilities

Details of the procedure used for managing the assignment of responsibilities for monitoring and reporting within the installation and for managing the competencies of responsible personnel in accordance with Article 58(3)(c) of the MRR:

This procedure identifies how the monitoring and reporting responsibilities for the roles identified above are assigned and how training and reviews are undertaken.

<p>Title of procedure</p> <p>Reference for procedure</p> <p>Diagram reference</p> <p>Brief description of procedure. The description should cover the essential parameters and operations performed</p>	<p>GHG M&R Responsibilities and Review</p> <p>I:/environmental/GHG/GHG procedures/GHG M&R responsibilities and review</p> <p>N/A</p> <p>The procedures outlines the responsibilities for the GHG operator and the duties they perform.</p> <p>GHG Permit and Monitoring and Reporting System</p> <p>The responsibility of the Permit and the Monitoring and Reporting requirements to the EPA rests with the Environmental Manager at Irish Cement Limerick.</p> <p>The following shows all responsible persons at Irish Cement Limerick and their associated responsibilities for Greenhouse Gas Monitoring and Reporting.</p> <p>Responsible person</p> <p>Greenhouse gas responsibilities</p> <p>Environmental Manager / Engineer</p> <p>Collection of monitoring data</p> <p>GHG calculations for verification and reporting</p> <p>Coordinating the Verification Audit</p> <p>Compiling Annual Installation Emissions Report</p> <p>Notification to agency re non conformance</p> <p>Filing of relevant documents</p> <p>Laboratory Co-ordinator</p>
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Arranging ISO17025 analysis of fuel and clinker

Works Engineer

Arranging calibration & assessment of weighbridges

Production Manager or Assistant Production Manager

Arranging Physical stock checks of all materials

Compiling Annual Production Report

Limerick Despatch Clerk (input to Production Report)

Compiling Cement Despatch Report

It also outlines that their training needs are reviewed and addressed on a regular basis.

Post or department responsible for the procedure and for any data generated

Environmental

Location where records are kept

On computer network

Name of IT system used

Microsoft office

List of EN or other standards applied

N/A

ff. Monitoring Plan Appropriateness

Details of the procedure used for regular evaluation of the monitoring plan's appropriateness covering in particular any potential measures for the improvement of the monitoring methodology:

Title of procedure

GHG M&R Responsibilities and Review

Reference for procedure

I:/environmental/GHG/GHG procedures/GHG M&R responsibilities and review

Diagram reference

N/A

Brief description of procedure. The description should cover the essential parameters and operations performed

The procedures outlines the responsibilities for the GHG operator and the duties they perform. It also outlines the review process for updating changes and the overall strategy to lower CO2 emissions.

Post or department responsible for the procedure and for any data generated

Environmental

Location where records are kept

On site computer system

Name of IT system used

Microsoft Office

List of EN or other standards applied

N/A

gg. Data Flow Activities

Details of the procedures used to manage data flow activities in accordance with Article 57 of the MRR:

Title of procedure	data flow management procedure		
Reference for procedure	I:/environmental/GHG/GHG procedures/data flow management review		
Diagram reference	N/A		
Brief description of procedure. The description should cover the essential parameters and operations performed	CO2 emissions at Irish Cement are monitored using a calculation-based methodology as detailed in Annex II and IV of the Commission Regulation No 601/2012 for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC. The reporting format as set out in Annex IV of the above Commission Regulation is used as the basis for reporting quantitative data. The report will be submitted to the competent authority annually for emissions during the preceding year. Each report will contain the appropriate information as set out in Annex 1 of the Commission Regulation No 601/2012. This includes the selection of tiers for the determination of activity data, emission factors and oxidation or conversion factors. The Data Flow Management Procedure outlines the process and combustion data flow.		
Post or department responsible for the procedure and for any data generated	Environmental		
Location where records are kept	On site in the Limerick Computer network		
Name of IT system used	Microsoft Office		
List of EN or other standards applied	N/A		
List of primary data sources	As per the attachment below		
Description of the relevant processing steps for each specific data flow activity.	Total CO2 emissions = Fuel combustion CO2 + Raw Material calcination CO2		
Identify each step in the data flow and include the formulas and data used to determine emissions from the primary data. Include details of any relevant electronic data processing and storage systems and other inputs (including manual inputs) and confirm how outputs of data flow activities are recorded	(a)	(b)	
	(a) Fuel combustion CO2=activity data*emission factor*oxidation factor		
	(a1)	(a2)	(a3)
	(a1) Fuel activity data is the energy content (TJ) = fuel consumed(t)*net calorific value(TJ/t)		
	Fuel consumption is based on a mass balance approach based on quantity of fuel purchased and the difference in quantity held in stock over a period of time. The fuels are Pet Coke, coal and diesel oil and Acetylene. The net calorific value (NCV) for pet coke and coal is measured by an ISO 17025 laboratory, the relevant country specific NCV is used for diesel oil and Tier 1 NCV for Acetylene.		
	(a2) the fuel emission factor is calculated based on measurements at an ISO 17025 laboratory, the relevant country specific emission factor is used for diesel oil and Tier 1 Emission Factor for Acetylene.		

(a3) Oxidation factor of 1 is used for all fuels.

(b) Raw material calcination CO₂=activity data*emission factor*conversion factor(Calculation Method B Output based)

(b1) (b2)

(b3)

(b1) Activity data for clinker produced is calculated using a mass balance approach taking account dispatch/supply of clinker, clinker stocks and clinker in cement produced as per Annex IV section 9 of the comission regulation.

(b2) The clinker emission factor: The emission factor is calculated based on the determination of the amount of CaO and MgO in the product is carried out in accordance with Articles 32-35. The CaO and MgO present in the raw materials including PFA is also analysed in accordance with Articles 32-35 to ensure that the amount of CaO and MgO determined in the clinker product stems from the decomposition of carbonates.

The stoichiometric factors in Annex VI Section 2 Table 3 are used to convert this determined composition data in to emission factors.

(b3) The conversion factor : A conversion factor of 1 shall be used (Tier 1).

Discarded dust emissions : all dust reused in the process and therefore fully accounted.

Non carbonate carbon which is in PFA and added to rawmeal is accounted for in the analysis of PFA in the kiln feed in a ISO 17025 Lab.

Submit relevant documents to record data flow activities

Attachment	Description
12032013 Data flow management flow procedure.docx	Data flow management flow procedure

hh. Assessing and Controlling Risks

Details of the procedures used to assess inherent risks and control risks in accordance with Article 58 of the MRR:

Title of procedure	Risk Assessment Procedure
Reference for procedure	I:/Environment/GHG/GHG procedures/Risk assessment.
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	A risk assessment is carried out and reviewed at least annually. The RA above outlines what is to be assessed. A risk assessment is carried out in accordance with MRR article 12 and 13 of the commission regulation No 601/2012 of the risks associated with inherent and control risks to errors, misrepresentations or omissions in the annual emissions report and non-conformities against the approved monitoring plan permit and guidelines is filed in file GHG or kept on computer file
Post or department responsible for the procedure and for any data generated	I:/Environment/GHG/GHG procedures/Risk assessment. Environment
Location where records are kept	On computer using Limerick network
Name of IT system used	Microsoft Office
List of EN or other standards applied	N/A

ii. Quality Assurance of Metering / Measuring Equipment

Details of the procedures used to ensure quality assurance of measuring equipment in accordance with Article 58 and 59 of the MRR.

Title of procedure	Contol of Monitoring and Measuring devices
Reference for procedure	Site Quality manual section 7.6 Monitoring and reporting
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	The quality manual outlines what meters are calibrated their frequency and by whom.
Post or department responsible for the procedure and for any data generated	Production Dept
Location where records are kept	Production dept
Name of IT system used	N/A
List of EN or other standards applied	ISO:9001:2008

jj. Quality Assurance of Information Technology used for Data Flow Activities

Details of the procedures used to ensure quality assurance of information technology used for data flow activities in accordance with Article 58 and 60 of the MRR:

Title of procedure	Quality assurance and IT
Reference for procedure	I:/Environment/GHG/GHG procedures/Quality assurance of

Diagram reference	IT N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure outlines how the IT system backs up all electronic data.
Post or department responsible for the procedure and for any data generated	IT and Environmental
Location where records are kept	On the Limerick network
Name of IT system used	Overland Reo 1500
List of EN or other standards applied	N/A

kk. Review and Validation of Data

Details of the procedures used to ensure regular internal reviews and validation of data in accordance with Articles 58 and 62 of the MRR.

Title of procedure	GHG M&R Responsibilities and Review
Reference for procedure	I:/environmental/GHG/GHG procedures/GHG M&R responsibilities and review
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure entails data verification by a registered GHG verifier. Before any reports are submitted to the verifier they are subject to a peer review system - Environmental Engineer, Environmental Manager, Sustainability and Technical Manager.
Post or department responsible for the procedure and for any data generated	Environmental dept
Location where records are kept	On the limerick network
Name of IT system used	microsoft office
List of EN or other standards applied	ISO:14001:2004

ll. Corrections and Corrective Actions

Details of the procedures used to handle corrections and corrective actions in accordance with Articles 58 and 63 of the MRR:

Title of procedure	Corrective and Preventative Action procedure
Reference for procedure	I:/environmental/GHG/GHG procedures/Corrective Action and prevention procedure
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	4.5.3 Non-conformity, corrective action and preventative action.

A non-conformity is a non-fulfilment of a requirement. A requirement may be stated in terms of the Environmental Management System or in terms of the environmental performance of the operations concerned.

Non-conformities are identified through the monitoring and measurement process and or through evaluation of compliance as described in section 4.5.2.

Should a non-conformity be identified, then it is investigated to determine the cause so that corrective actions are focused on the appropriate part of the system. Actions are taken to eliminate the cause and to prevent the problem from recurring where relevant.

Where a potential problem is identified but no actual non-conformity exists then preventive actions are taken to eliminate potential causes of future problems.

The corrective action process and the preventative action process are described in the Corrective and Preventative Action Procedure, (See Appendix A: Masterlist of Controlled EMS Documents – No. 12).

The responsibility for initiating corrective actions in the event of an incident at a particular location leading to a non-conformity rests with the Environmental Manager and the relevant Production Manager at that location. It is also the responsibility of management to ensure corrective actions are implemented and that there is follow-up to ensure their effectiveness.

Note: Any corrective or preventive action taken to eliminate the causes of actual and potential non-conformance shall be appropriate to the magnitude of problems and commensurate with the environmental impact encountered.

Details of non-conformances should be notified to the EPA in accordance with the licence requirements.

Post or department responsible for the procedure and for any data generated	Environmental
Location where records are kept	On limerick Computer network
Name of IT system used	Microsoft office
List of EN or other standards applied	ISO:14001:2004

mm. Control of Outsourced Activities

Details of the procedures used to control outsourced processes in accordance with Articles 59 and 64 of the MRR.

Title of procedure	data flow procedure
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Reference for procedure	I:/environmental/GHG/GHG procedures/data flow procedure
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	The procedures outlines the responsibilities for the GHG operator and the duties they perform. It outlines the calculations required to finalise the total CO2 emissions for the site. NCV and EF are calculated from ISO 17025 Laboratories. Stock surveys are carried out by approved surveyors. The quality of the data is reviewed and crosschecked with previous reports. Corrective action is initiated as required.
Post or department responsible for the procedure and for any data generated	Environmental and Production
Location where records are kept	Production Dept
Name of IT system used	Microsoft office
List of EN or other standards applied	ISO 17025

nn. Record Keeping and Documentation

Details of the procedures used to manage record keeping and documentation:

Title of procedure	Control of records procedure
Reference for procedure	I:/environmental/GHG/GHG procedures/control of records procedure
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure outlines how long and where documents are held in relation to data stipulated in Annex IX of the MRR.
Post or department responsible for the procedure and for any data generated	Environmental and Quality
Location where records are kept	Production dept
Name of IT system used	microsoft office
List of EN or other standards applied	ISO:14001:2004 ISO:9001:2008

oo. Risk Assessment

The results of a risk assessment that demonstrates that the control activities and procedures are commensurate with the risks identified:

Attachment	Description
12032013 Risk Assessment.xlsx	Risk Assessment

pp. Environmental Management System

Does your organisation have a documented Environmental Management System? Yes

Is the Environmental Management System certified by an accredited organisation? Yes

The standard to which the Environmental Management System is certified: ISO:14001:2004

12. Changes in Operation

qq. Changes in Operation

Article 24(1) of Commission Decision 2011/278/EC requires that Member States must ensure that all relevant information about any planned or effective changes to the capacity activity level and operation of an installation is submitted by the operator to the competent authority by 31 December each year. Article 12(3) of the MRR further provides that Member States may require information to be included in the monitoring plan of an installation for the purposes of meeting these requirements.

Details of the procedure used to ensure regular reviews are carried out to identify any planned or effective changes to the capacity activity level and operation of the installation that have an impact on the installation's allocation:

The procedure specified below cover the following:

- planning and carrying out regular checks to determine whether any planned or effective changes to the capacity activity level and operation of an installation are relevant under Commission Decision 2011/278/EC; and
- Procedures to ensure such information is submitted to the competent authority by 31 December of each year.

<p>Title of procedure</p> <p>Reference for procedure</p> <p>Diagram reference</p> <p>Brief description of procedure. The description should cover the essential parameters and operations performed</p>	<p>GHG M&R Responsibilities and Review</p> <p>I:/environmental/GHG/GHG procedures/GHG M&R responsibilities and review</p> <p>N/A</p> <p>This procedure entails the auditing of information, a review of the M&R plan and checks required to submit final data for approval. Production budgets and forecasts are prepared annually and are reviewed quarterly.</p> <p>The monitoring of data is performed on a regular basis and</p>
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is reviewed quarterly.

Data stored online in process and quality control system and monthly data extracted and transferred into Excel workbook. External data is also collated from ISO 17025 laboratories.

Quality assurance is performed by cross-checking measured amounts of clinker versus stock check from surveyors

The person in charge (Environmental Manager or assigned deputy) uses the template provided by the Commission and enters data until 31 October of each year.

If there is any change in activity level an application form for amending amounts allocated free of charge is submitted to GHGpermit@epa.ie before 31st December
 Enviromental

Post or department responsible for the procedure and for any data generated
 Location where records are kept
 Name of IT system used

On the Limerick computer network
 microsoft office

13. Abbreviations

rr. Abbreviations Acronyms or definitions

Abbreviations acronyms or definitions that have been used in this monitoring plan:

Abbreviation	Definition
N/A	N/A

14. Additional Information

Any other information:

Attachment	Description
Metering Matrix 2012.pdf	Metering matrix
SO8885-C1.pdf	Weighbridge Cert silo 7
SO8885-C3.pdf	Weighbridge cert silo 10

Attachment	Description
SO8885-C4.pdf	Weighbridge cert silo 10
SO8885-C6.pdf	Weighbridge cert silo 9
SO8885-C7.pdf	Weighbridge cert silo 9
SO8885-C8.pdf	Weighbridge cert silo 11
SO8885-C9.pdf	Raw Materials weighbridge
SO8885-C10.pdf	Raw materials weighbridge
Surveyor statement for NAP III application.docx	Surveyor accuracy
SO8885-C2 Platform.pdf	Weigh scales packing plant
lime_cement mill5.doc	Limestone feeder CM5 calibration cert
lime_cement mill6.doc	limestone feeder CM6 calibration cert
lime_cement mill7.doc	limestone feeder CM7 calibration cert
Weighbridge Clarification NAP III.docx	Weighbridge clarification
SO8885-C5 LMS.pdf	Weighbridge Cert Silo 10 WB4
Attachment5296_000.pdf	Knight Energy Services
McCreath ASM 17025 Cert.pdf	McCreath ASM 17025 Cert
VDZ accreditation cert 2012.pdf	VDZ accreditation certificate.
08032013 XRF Standards used at VDZ for CaO and MgO.pdf	08032013 XRF Standards used at VDZ for CaO and MgO
Irish Cement Limerick C5 Silo 10 WB 3,4.pdf	Calibration Cert Silo 10 WB (3+4)
Sartorius Check Weigher Packing Plant.pdf	Calibration Cert Checkweigher in Packing Plant
2015 Accuracy Statement Survey.jpg	2015 Accuracy Statement Survey

15. Confidentiality

ss. Confidentiality Statement

It is the Environmental Protection Agency's policy to make information received by it in the course of its work open to inspection by any person on request. This is in accordance with the provisions of the European Communities (Access to Information on the Environment) Regulations 2007 to 2011.

In the event that you considered that some of the information being submitted of a confidential nature, then the nature of this information and the reasons why it should be considered confidential, with reference to the European Communities (Access to Information on the Environment) Regulations 2007 to 2011 and any amendments must be explicitly requested using the facility below. The Board of the Environmental Protection Agency will consider the requests and if the information can be deemed as confidential and necessary.

Notwithstanding any request for confidentiality, the Environmental Protection Agency explicitly reserves the right to release data to the Commission, including emissions and allocations to the public, on the basis that the data will be used for the purposes foreseen in Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

Please tick this box if you consider that any part of your form should be treated as commercially confidential/sensitive: false

END of Appendix I.