Industrie Service

Choose certainty.
Add value.

Validation Report

BIRLA PLUS CEMENT

Validation of the "Optimum utilisation of clinker for Pozzolana Portland Cement (PPC) production at Birla Plus Cement in Bathinda, Punjab, India" project

Report No. 869837, Revision 02

11 April 2007

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
869837	20 December 2006	02	11 April 2007	-

Subject:	Validation of a CDM Project
Executing Operational Unit:	TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 - 80686 Munich, Germany
Client:	Birla Plus Cement Behind G.H.T.P P.O. Lehra Mohabat, 151 111, District: Bathinda, Punjab, India
Contract approved by:	Werner Betzenbichler
Report Title:	Validation of the “Optimum utilisation of clinker for Pozzolana Portland Cement (PPC) production at Birla Plus Cement in Bathinda, Punjab, India” project
Number of pages	24 (excluding annexes and cover page)

Summary:

The Certification Body ”Climate and Energy” has been ordered by Birla Plus Cement, India, to perform a validation of the above mentioned project.

In summary, it is TÜV SÜD´s opinion that the project “Optimum utilisation of clinker for Pozzolana Portland Cement (PPC) production at Birla Plus Cement in Bathinda, Punjab, India” as described in the revised project design document of January 2007, meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board and that the project furthermore meets all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0005 version 03 entitled “Consolidated Baseline Methodology for Increasing the Blend in Cement Production”

Hence, TÜV SÜD will recommend the project for registration as CDM project activity by the CDM Executive Board.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reductions of 542,800 tonnes CO_{2e} over a crediting period of ten years, resulting in a calculated annual average of 54,280 tonnes CO_{2e} still represents a reasonable estimation using the assumptions given by the project documents.

Work carried out by:	Dr. Ayse Frey Sunil Kathuria Javier Castro	Internal Quality Control by:	Werner Betzenbichler

Abbreviations

BPC	Birla Plus Cement
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CR	Clarification Request
DOE	Designated Operational Entity
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
PDD	Project Design Document
PPC	Portland Pozzolana Cement
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

Table of Contents Page

1 INTRODUCTION

1.1 Objective

Birla Plus Cement has commissioned TÜV SÜD Industrie Service GmbH (TÜV SÜD) to validate the “Optimum utilisation of clinker for Pozzolana Portland Cement (PPC) production at Birla Plus Cement in Bathinda, Punjab, India” project. The validation serves as design verification and is a requirement of all CDM projects. The purpose of a validation is to have an independent third party assess of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project’s compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords.

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. TÜV SÜD has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The audit team has been provided with the first PDD version in August 2006. Based on this documentation a document review and a fact finding mission in form of an on site audit has taken place. The demanded additional information is addressed in annex 1. Requested information was given and the PDD was updated accordingly. The final PDD was submitted in January 2007 and serves as the basis for the final assessment presented herewith.

Studying the existing project documentation, it was obvious that the competence and capability of the validation team has to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing (ISO 14000, EMAS)
- Quality assurance
- Technical aspects of cement production especially regarding blending
- Monitoring concepts
- Political, economical and technical conditions in host country

According to these requirements TÜV SÜD has assembled a project team in accordance with the appointment rules of the TÜV certification body “climate and energy”:

Dr. Ayse Frey is an auditor and project manager for CDM/JI projects as well as an energy/waste expert at TÜV SÜD Industrie Service GmbH. In her position she is responsible for the implementation of validation, verification and certifications processes for greenhouse gas mitigation projects in the context of the Kyoto Protocol. After her studies in civil and environmental engineering, she completed a PhD in the field of water and waste policy. She has extensive experience with the CDM and JI flexible mechanisms as well as with management systems.

Sunil Kathuria is an electrical engineer and a lead auditor for CDM projects and a lead auditor for quality and environmental management systems (according to ISO 9001 and ISO 14001) at TÜV South Asia, TÜV SÜD Group. He is based in New Delhi. In his position he is implementing validation, verification and certifications audits for CDM projects. He has received extensive training in the CDM validation process and has already participated in several CDM project assessments.

Javier Castro is an energy expert for CDM and JI projects at TÜV SÜD Industrie Service GmbH. He has an academic background in chemical engineering and energy systems and specific expertise in several industrial sectors like chemical industry and cement industry. In his position he participates as an expert in energy related projects during the validation, verification and certifications processes for GHG mitigation projects. He has received extensive training in the CDM and JI validation processes.

The audit team covers following requirements:

- Knowledge of Kyoto Protocol and the Marrakech Accords (All)
- Environmental and Social Impact Assessment (All)
- Skills in environmental auditing (ISO 14000, EMAS) (All)
- Quality assurance (All)
- Technical aspects of cement production especially regarding blending (Kathuria/Castro)
- Monitoring concepts (All)
- Political, economical and technical conditions in host country (Kathuria)

In order to have an internal quality control of the project, a team of the following persons has been composed by the certification body “climate and energy”:

- Werner Betzenbichler - Head of certification body “climate and energy”

1.3 GHG Project Description

The project activity involves reduction of the clinker content in the production of Pozzolana Portland Cement (PPC) by increasing the percentage of fly ash and thus replacing an equivalent amount of clinker at Birla Plus Cement (BPC) manufacturing unit of Grasim Industries at Bathinda in the state of Punjab, India. This will reduce clinker production and associated GHG emissions. As outlined in the methodology, these emissions arise from the calcination of limestone, fossil kiln fuel combustion and consumption of electrical energy.

The project is a unilateral project and project participant is Birla Plus Cement. Host Party of the project activity is India.

The category of the project activity is in Scope 4 – Manufacturing industries. The approved and applied baseline and monitoring methodology is ACM0005 “Consolidated Baseline Methodology for Increasing the Blend in Cement Production” version 03.

According to the PDD the starting date of the project activity is 01 July 2005. The crediting period is committed as a 10 years non renewable crediting period and it starts on 01 April 2007 (or date of registration, whichever is later).

2 METHODOLOGY

The validation of the project consists of the following three phases:

- Desk review
- Follow-up interviews
- Resolution of clarification and corrective action requests

In order to ensure transparency, a validation protocol was customized for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.

The completed validation protocol is enclosed in Annex 1 to this report.

Validation Protocol Table 1: Mandatory Requirements			
Requirement	**Reference**	**Conclusion**	**Cross reference**
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.	Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.

Validation Protocol Table 2: Requirement checklist				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further subdivided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	**Ref. to checklist question in table 2**	**Summary of project owner response**	**Validation conclusion**
If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Table 2 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the validation team should be summarized in this section.	This section should summarize the validation team’s responses and final conclusions. The conclusions should also be included in Table 2, under “Final Conclusion”.

Figure 1 Validation Protocol Tables

2.1 Review of Documents

The project design document submitted by the client and additional background documents related to the project design and baseline were reviewed. The audit team has been provided with the first PDD version in August 2006. The project design document was revised based on the clarification and corrective action requests issued by TÜV SÜD. The final updated PDD submitted in January 2007 serves as the basis for the assessment presented herewith.

2.2 Follow-up Interviews

On September 2-3, 2006 TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Birla Plus Cement were interviewed. The main topics of the interviews are summarized in

Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Representatives of Birla Plus Cement	• Project design • Technical equipment • Sustainable development issues • Baseline determination • Additionality • Crediting period • Monitoring plan • Environmental impacts • Management system • Environmental impacts • Stakeholder process • Approval by the host country

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needed to be clarified for TÜV SÜD’s positive conclusion on the project design. The Corrective Action Requests (CAR) and Clarification Requests (CR) raised by TÜV SÜD were resolved during communications between the Client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are summarized in chapter 3 below and documented in more detail in the validation protocol in Annex 1.

The validation is not meant to provide any consulting towards the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

3 VALIDATION FINDINGS

In the following sections the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

1) The findings from the desk review of the project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in Annex 1.

2) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to fulfil project objectives, a Clarification Request or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Annex 1.

3) Where Clarification or Corrective Action Requests have been issued, the exchanges between the Client and TÜV SÜD to resolve these Clarification or Corrective Action Requests is summarized.

4) The final conclusions for validation subject are presented.

The validation findings relate to the project design as documented and described in the final project design documentation.

3.1 General Description of Project Activity

3.1.1 Discussion

The project activity involves reduction of the clinker content in the production of Pozzolana Portland Cement (PPC) by increasing the percentage of fly ash and thus replacing an equivalent amount of clinker at Birla Plus Cement (BPC) manufacturing unit of Grasim Industries at Bathinda in the state of Punjab, India. This will reduce clinker production and associated GHG emissions. As outlined in the methodology, these emissions arise from the calcination of limestone, fossil kiln fuel combustion and consumption of electrical energy.

The project is a unilateral project and project participant is Birla Plus Cement. Host Party of the project activity is India. A Letter of Approval has been submitted from the Indian DNA.

The category of the project activity is in Scope 4 – Manufacturing industries. The approved and applied baseline and monitoring methodology is ACM0005 “Consolidated Baseline Methodology for Increasing the Blend in Cement Production” version 03.

According to the PDD the starting date of the project activity is 01 July 2005. The crediting period is committed as a 10 years non renewable crediting period and it starts on 01 April 2007 (or date of registration, whichever is later).

The project design does reflect current good practice. The design has been professionally developed.

The project boundaries are clearly defined in the revised PDD.

The project is currently in line with the relevant legislation and plans in the host country. The required environmental licenses are valid and have been submitted to the validation team.

The project is considered to be in line with the sustainable development policies of India as the letter of approval has been issued including this issue.

It can be expected that the project will create additional environmental benefits due to the use of fly ash, which is a by-product of thermal power plants and a source of air pollution. Furthermore, fly ash is a product for which disposal can be difficult.

The funding for the project does not lead to a diversion of official development assistance, as according to the information obtained by the audit team, ODA does not contribute to the financing of the project.

3.1.2 Findings

Outstanding Issue:

Letter of approval issued by the Indian DNA shall be submitted to the validator. The approval shall contain all elements specified in EB 16, annex 6.

Response:

The project proponent has received approval from the host country. The approval contains all the elements specified in EB 16, annex 6. The same is submitted to DOE.

Corrective Action Request No.1

Please define the Pre-project and Post-project scenario in the section A2, with special emphasis on how the additive additions are planned during the crediting period, and what are the enhancements to the manufacturing setups to achieve the same.

Response:

The correction is made in the section A.2 of the corrected PDD and the activities are presented in table A.1.

Corrective Action Request No.2

The Project Boundary does not clearly show the inclusion of those plants from where clinker is imported.

Response:

The project boundary is revised in the corrected PDD and the relevant plants are included in the boundary.

Clarification request No.1

The use of Roller press & vibrating press in the blended cement Industry is not a common phenomenon. Kindly provide evidence of it’s usage in the similar industry.

Response:

The evidences for the proof for uniqueness of the technology is submitted from the technology supplier of both the equipments. Please see reference no 41 and 42.

3.1.3 Conclusion

Evidence has been provided that the technology is first-of-its-kind in a grinding unit in the Indian cement industry. The project has been developed professionally. The project participants and location of the project activities are clearly identified. The technical description shows how the

project will reduce emissions by increasing the amount of fly ash in the production of PPC cement. The boundaries are completely described and include all the emissions (direct and indirect) caused by these activities.

3.2 Baseline Methodology

3.2.1 Discussion

Baseline:

The project is based on the approved methodology: ACM0005 “Consolidated Baseline Methodology for increasing the Blend in Cement Production” Version 03. The methodology has been approved by the CDM Executive Board. The selected methodology is deemed to be the most applicable one for this project and the PDD responds convincingly to each of the applicability criteria which are outlined in the baseline methodology.

The application of the methodology and the discussion and determination of the baseline are transparent. The PDD follows all the steps included in the methodology in order to define the most appropriate baseline, arriving at three possible baseline scenarios. The additionality tool is used to identify the most plausible baseline for this project amongst the three alternatives.

The baseline has been determined using reliable assumptions. Hence plausible data has been provided from traceable sources ensuring the reliability of the parameters, providing enough documentation to confirm the statements provide in the PDD.

The baseline has been based on project specific data and does sufficiently take into account policies and developments regarding legal, economic and social issues. There is no legal requirement to increase the concentration of fly ash to the amount proposed by this project.

The benchmark for baseline emissions has been determined as per ACM0005 Version 03 and the lowest value for mass percentage of clinker amongst the three given options has been used. The project uses option two for the benchmark, and an annual 2% increase in additives has been chosen as the trend increase as per the applied methodology. As a result of a clarification request, the project proponent has demonstrated that the trend in the last four years in the selected region does not show an overall increasing trend in the blending percentage and that the average percentage varies from year to year, therefore the identification of a trend is not deemed feasible. In conclusion, the 2% annual increase is considered to be conservative. Calculations and parameters are supported with documentary evidence and retraceable sources. References have been made to all data sources used.

Additionality:

The additionality is based on barrier analysis, showing properly the technological barriers and the market resistance to blended cement with high percentage of fly ash. Documents have been submitted from a reputed equipment supplier stating that this is the first roller press with VSK Separator to be installed in semi finish mode along with other separator for ball mill in any grinding unit in India. The relevant document is attached to this report. The market resistance has been confirmed with several documents including clients’ (cement buyers) concerns.

In addition, it has been demonstrated that significant research & development efforts were carried out prior to the implementation of the project in order to ensure that relevant norms are met with the increased percentage of fly ash in the blended cement.

Thus, the project proponent has clearly demonstrated that the project activity was facing significant technological and market barriers. At the baseline blending percentage of 25.6%, a considerable amount of consumer complaints about the quality of the cement was being received. One consumer has complained about the “black carbon particles floating on top”, which is a clear sign that improvements in the blending technology were necessary which could only be met with investments in new technological equipments. With the existing technology, a further increase in the additive percentage was therefore not an option, otherwise the company would have continued increasing the blending percentage without investing INR 400 million (approx. EUR 7 million). However, in order to ensure that the increased blending was producing cement of a good quality, significant investments were made in technological equipment, including grinding aids, twin tube vibrating mill, and a roller press. The twin tube vibrating mill, for example, enables the grinding of fly ash to a very high degree of fineness, which results in enhancement of percentage absorption of fly ash in cement (see Annex 2). The roller press system enables the increase in blending percentage up to 35% (see Annex 3 and Annex 9). Only with the investment in this technology was the company able to increase the blending percentage beyond baseline levels while ensuring that the quality of the cement remains high. Furthermore, this technology is unique for the cement industry in India, thus presenting yet another barrier.

Therefore, the audit team believes that the project activity faced considerable barriers that prevented an increase of additives beyond the baseline levels of 25.6%.

In addition, the IRR analysis demonstrates that the cost savings due to reduced use of clinker were not enough to bring the project IRR (which is the same as equity IRR in this case since the project was 100% equity funded) above the company’s internal benchmark (WACC = 12.5%) because of the high investment cost, amongst others. The CDM revenues help bring the project IRR above this internal benchmark and the company is aware of CDM since they already have three registered CDM projects. The project proponent has also demonstrated that significant investments were made in this first-of-its-kind technology (INR 400 million = approx. EUR 7 million) to ensure that the quality of the blended cement remains high with a further increase in blending percentage. Also it has been shown that the consumer complaints keep increasing with higher blending percentages, which indicates that additional marketing efforts are necessary to make the cement with increased blending percentage acceptable for the consumers. These costs have not been included in the IRR analysis.

In conclusion, although there are some cost savings associated with reduced cost of clinker, the investment costs in the new technology and the marketing efforts are costs that cause the project to be financially unattractive without CDM revenues.

3.2.2 Findings

Corrective Action Request No.3

Baseline emission factor for grid must include most recent data available at time of PDD submission – so calculations must include data from 2005/06.

Response:

The same is corrected in the calculation and latest grid emission factor is used in the emission reduction calculations.

Further response by audit team:

OM has been calculated based on the most recent 3 years’ data. However, please remove 2002/03 data from Enclosure 5 since this could mislead the reader into believing that OM is based on 4 years’ data.

The list of specific power plants seems to have disappeared. Both OM and BM must be supported with data on specific power plants in the chosen grid. Detailed OM and BM calculations seems to have been removed from the excel spreadsheet submitted to the audit team. Please explain and provide to audit team.

Furthermore, the emission factors for imports are based on an old source with projections – they must be based on actual figures. Please use a different source (and provide the detailed reference to this source) or 0 tCO2/GWh.

In addition, the PDD should include a table with all the sources for all figures used in the baseline emission factor calculation. Also references for coal consumption, total generation, and 20% thereof seem to be missing.

Project proponent’s response:

All the corrections have been made in the calculation. The tables have been included in the corrected PDD. The calculations have been changed and included in PDD.

Response by audit team:

The revised PDD now includes detailed OM and BM calculations that are based on the most recent data available at time of PDD submission. It also includes the references for the parameters used in the calculations.

However, the emission factor for imports still needs clarification: for the first two years, a projection from the MNES study has been used (as mentioned before, only actual historic emission rates should be used or 0 tCO2/GWh), and for the third year, a value of 0 tCO2/GWh has been used. Please clarify and revise accordingly.

In addition, the higher NATCOM value for calorific coal is not acceptable. Please use the more conservative CEA value. The final grid emission factor should not be larger than the CEA published values.

Project proponent’s response:

The corrections have been made in the calculation for the previous two years also. The tables have been included in the corrected PDD. The calculations have been changed and included in PDD.

The calorific value and emission factors from CEA data is used in the calculation. (http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm). Calculations and the emission reductions have been changed accordingly.

Response by audit team:

Imports have been corrected and the baseline emission factor calculation has been revised using the CEA calorific value of coal. The combined margin is calculated as 723,47 tCO2/GWh, which is below the value of 754,60 tCO2/GWh for the Northern region given in the CEA publication. Thus, this is deemed correct and conservative.

Clarification Request No. 2

It is not clear why the eastern region of India has not been considered in demonstrating the applicability of methodology where it must be demonstrated that the levels of additive are beyond country levels. Additionally it is not evident that the how the figure of 2% additive demonstrate the regional/nation as trend.

Response:

The reason for not considering the Eastern region in the region is explained in the section B.2 of the corrected PDD.

There is insufficient data to estimate ex ante a realistic regional trend. Given the barriers to an increase in the blend, the likely scenario is in fact a continuation of the current level. Therefore selecting the highest blend levels in the applicable regions and increasing these by 2% is conservative. The 2% increase is specified as the default minimum in applied methodology.

Response by audit team:

The region defined by the project proponents has been justified and it meets all criteria stipulated by ACM0005 version 03 (at least 75% of project’s cement production is sold, includes at least 5 other plants with required published data, production in region is at least 4 times the project plant’s output, and only domestically sold output is considered).

Furthermore, a trend increase of 2% in the additives (as per the applied methodology) has been incorporated in the benchmark for baseline emissions.

However, the calculation of this trend increase seems to be incorrect. In “Encl-7, endogenous trend”, each year should be the previous year multiplied by 1.02, and not a rounded factor multiplied by the first year.

Project proponent’s response:

The same have been corrected in calculation and changed in the PDD.

Response by audit team:

The calculation of the trend has been corrected. However, based on a request for review of a similar project which is applying for CDM registration, the following clarification is requested: an analysis of the cement market in India by the HVFAC project, funded by CIDA and MRCan, indicates that the use of fly-ash based cement in India has grown from 20 million tons to 60 million tons over the past 5 years, reaching over 50% of the cement market.

Considering these national trends, please provide supporting documentary evidence that 2% annual additive increase is conservative and represents the likely trend, since the barriers to an increase in the blend were not observed in the above-mentioned study.

Project proponent’s response:

The report referred in above section is for HVFAC (high volume fly ash in concrete) project. This report mentions the volume of the blended cement (quantity of the blended cement) produced. The quantity and share of blended cement in the market depends on many factors, for example cost, availability, etc.

The Indian cement industry witnessed different trends in the past. In India, the share of blended cement in the total production had increased from 47% in 1978-79 to 76% in 1982-83. After this, the Indian cement industry witnessed a higher production of the higher grade OPC, and the production of blended cement gradually declined to 27% in

1992-93. However, this was followed by an upward trend, and the share of blended cement reached approximately 56% in 2004-05. (Data taken from ICRA – The Indian Cement Industry 2006)

The figures in these report represents only the volume. On the other hand, the project activity is increase in the blending percentage (reduction in clinker per ton of cement). The project proponent before the project activity was producing the blended cement with less additive percentage (The volume of the cement produced is almost constant). In the project activity; project proponent has increased the additive percentage and likely to increase in the future as well.

In the baseline there was no need for any investment for the same blending percentage as in the baseline. But project proponent invested money for the state of the art technologies for increasing the additive percentage in blended cement produced (supporting for the same is submitted to validators).

Increasing the blending percentage is not a business as usual scenario, as appears to be understood by the increase in the volume of blended cement. Approved methodology is applicable for the increase in additive percentage only.

The above also illustrates the point that even 2% increase in the additive % and not in volume is conservative, since it would require to overcome the additionality point discussed in the PDD and approved methodology ACM005 version 03.

Response by audit team:

The response above only discusses the trend in volume of blended cement. The methodology requires that the endogenous trend is demonstrated with substantial documentary evidence. That is why one of the applicability criteria of the methodology is “adequate data are available on cement types in the market”. Hence, please provide a statistical analysis of the trends of blending in the region to demonstrate that 2% is conservative. You may use, for example, the same data sources that were used to determine the benchmark.

Furthermore, please provide references for all figures and parameters used in the calculations. Especially the sources for determining the baseline/benchmark have not been provided in the excel sheets. Also a more detailed reference (not just IPCC, but also year, page, etc.) is necessary.

Project proponent’s response:

According to the trend analysis presented in the calculation for the region selected; the following trend is reflected:

Year	% additives
2002-03	27.72
2003-04	24.32
2004-05	25.55
2005-06	27.44

It is clear that the % additives in 2002-03 was more than the next three years. It presents a negative trend in the blending percentage.

According to above analysis the 2% increase in the additive percentage is the conservative trend and recommended in the methodology ACM005 version 3.

The data source is attached with the response sent.

Response by audit team:

The trend has been calculated for the years from 2002-03 to 2005-06 based on the annual Cement Statistics published by the Cement Manufacturers’ Association – the soft copy of the annual report was submitted to audit team. All plants in the region were taken into account, and the figures illustrate that a trend cannot be identified and that the percentage of additives (weighted by production) in 2002-03 was higher than in 2005-06. Hence, the 2% annual trend seems appropriate and conservative. (See attached calculation sheet for the trend in the region for further information.)

Clarification Request No. 3

Please submit evidence to show that there will be no shortage of the additive, in other words submit documents to show that the fly-ash produce in the Power plant less the fly-ash sell or send to other plants will no produce a shortage

Response:

The contract between the power plant and the thermal power plant is submitted to DOE. The power plant is 1 km from the BPC and transportation of fly ash is via pipeline.

Apart from this analysis of all the power plants with the fly ash utilization percentage is submitted. Please refer to RN 43.

Clarification Request No. 4

Clinker percentage in the future years is not matching with the corresponding increase in additives in enclosure -7 of the emission reduction calculations.

Response:

The same is corrected in the calculations.

Response by audit team:

There still seems to be an inconsistency between the %fly ash in the action plan (annexure 06) and the share of clinker percentage in line 6 of “Encl 4 – emission reduction” in excel sheet. Please clarify if the percentage of fly ash is different from the percentage of additives. If so, submit us the action plan with the percentage of fly ash and percentage of additives. Otherwise, please revise line 6 to correlate with action plan.

In addition, please explain why line 6 of “Enclo-4,Emission reduction” is not the same as line 10 of “Enclo-5, leakage emission”.

Project proponent’s response:

The action plan submitted was only demonstrating the fly ash percentage. The action plan has been corrected with the additive percentage, the action plan is submitted.

The relevant corrections made in the leakage emissions in the excel sheet and same is incorporated in corrected PDD.

Clarification Request No. 9

Please provide evidence that the implementation of the project activity is in the year 2005 to demonstrate that 30.3% additives from 2005-06 is not actually the baseline year rather than 2004-05.

Response:

The project activity is increasing the blending percentage in the PPC manufactured in the plant. The activity started with the use of grinding aids in the cement grinding and that has started in June 2004 in the lab and then in the plant trails in July 2005. The actual activity started in 2005-06 (Please refer to ref no 24, 25, 26). According to the methodology the baseline year is the highest blending percentage year (of last 3 years) before the project activity year. The 2004-05 was the highest blending percentage year before the project activity year and same is considered as the baseline year.

Year	% additives
2002-03	25.02
2003-04	25.39
2004-05	25.6

From the above analysis it is clear that the 2004-05 is the adequate baseline for the project.

Response by audit team:

The project proponent has submitted the relevant documents (purchase orders, project initiation records) to demonstrate that the project implementation started in 2005. Thus, using 2004-05 as the baseline year is deemed correct.

Clarification Request No. 10

Please provide documentary evidence that CaO content of raw mix is actually 0%. Also provide evidence that there is no grinding of additive.

Response:

The project proponent is having the limestone as a raw mix and the using dry process for clinker manufacturing. In the raw mix, $CaCO_3$ and $MgCO_3$ is present in major quantities and the free CaO and MgO is present below detectable limits and referred here as 0% in the calculations.

The project activity plant is getting the flyash from the nearby power plant via pipeline and directly using the same with clinker and Gypsum at the inlet of the ball mill. There is no additional grinding is done for the additives in the plant. The power required for grinding the flyash in the ball mill is already included in the baseline and project emissions. The detailed process is shown during the validation visit and same can be seen from the drawing submitted.

3.2.3 Conclusion

The baseline emission factor has been corrected as per the corrections requested and is deemed to be correct now. The PDD follows all the steps provided by the methodology in order

to determine the baseline in a proper manner and gives arguments that are possible to confirm based on reliable documentation. The trend in the region has been calculated and it has been demonstrated that the 2% annual increase is appropriate and conservative. Through a barrier analysis it has been made clear that the continuation of the current practice would be the most attractive course of action and hence the baseline scenario.

3.3 Duration of the Project / Crediting Period

3.3.1 Discussion

The starting date of the project has been correctly given in the revised PDD and the same was confirmed during the on-site mission. The expected operational time is given as 25 years and this is deemed reasonable based on the audit team’s findings. The starting date of the ten year non renewable crediting period is 01 April 2007 or date of registration, whichever is later.

3.3.2 Findings

Corrective Action Request No.4

The starting date of the project activity is not matching with the action plan because 2004-05 has been taken as baseline year.

Response:

The starting date of project activity is changed and written as 01-07-2005 as per the action plan. This is the date of starting industrial trial of the increased fly ash blending percentage.

Corrective Action Request: 5

The starting date of crediting period has been chosen as 01.10.2006 which should be revised to the date after registration.

Response:

The starting date of crediting period will be from the date of registration. For the estimation 01 April 2007 is taken as the date of crediting period. The same is corrected in the corrected PDD. This results in a minor change in the estimation of Emission Reductions.

3.3.3 Conclusion

The project complies with the requirements.

3.4 Monitoring Plan

3.4.1 Discussion

The project is based on the approved monitoring methodology ACM0005 version 03. The methodology has been approved by the CDM Executive Board. It is deemed to be the most applica-

ble one for this project. The PDD responds convincingly to each of the applicability criteria which are outlined in the monitoring methodology.

The methodology and its application are described in detail and in a transparent manner. All the parameters necessary to monitor for the calculation of the emission reductions are clearly and correctly listed in chapter D of the PDD.

The monitoring plan clearly shows clearly the responsibilities of the project participants. Furthermore, a detailed CDM Manual which clearly defines the roles and responsibilities for monitoring and reporting has been prepared for this project.

The monitoring plan does include all relevant parameters to determine baseline and project emissions and it is possible to monitor and/or measure the currently specified GHG indicators. The indicators which are not measured can be calculated using the formulas given in the methodology or obtained from IPCC documents. The parameters defined allow calculating the baseline, projecting emissions and leakage in a proper manner.

The monitoring plan does include all relevant parameters to determine leakage emissions. Leakage is restricted to emissions that will arise from the electricity consumption for the conveyor system for transporting the fly ash through the pipeline coming from the adjacent thermal power plant.

The quality assurance, quality control and accuracy of the parameters to be monitored are described in the monitoring plan, in compliance with the EB decision issued in the 23rd EB session.

The project is considered to have only minimal environmental, social and economic effects and a monitoring of such data is also not required by the applied monitoring methodology. This approach is deemed sufficient.

In the monitoring is clearly stated that the grid emission factor, the additive blend and the trend increase are calculated and fixed ex-ante, therefore this parameter will not be monitored in the future during the defined crediting period.

3.4.2 Findings

Corrective Action Request No. 6

The ID numbers and data variable of table D.2.1.3 are not matching with the most recent version of the methodology.

Response:

The correction is made at the relevant places in the corrected PDD.

The variable written in the monitoring table of PDD is B_{blend} while in the approved methodology it is mentioned as A_{blend}. The actual B_{blend} is used in the PDD the same is used in calculations of PDD.

The parameters ID is different because of in this case more parameters needs to be monitored. In the PDD all the parameters of the approved methodology is taken and the additional parameters is added for additional monitoring.

Response by audit team:

As per the formulae in Section D.2.3.2., the parameter $A_{blend,y}$ is used to calculate leakage, but it does not appear in the monitoring plan. Please clarify.

Also it seems that the parameter 29 in table D.2.1.1. should be $P_{blend,y}$ instead of $PE_{blend,y.}$ Please clarify.

Project proponent’s response:

The parameter is included in the monitoring plan and corrections have been done in corrected PDD.

Response by audit team:

The parameter $A_{blend,y}$ has been included in the monitoring plan and the parameter 29 in table D.2.1.1. has been corrected from $PE_{blend,y.}$ to $P_{blend,y.}$

Corrective Action Request No.7

The new decision from the EB in relation to the monitoring (http://cdm.unfccc.int/Reference/Guidclarif/EB23_%20para%2024_guidance_monitoring.pdf) should be taken into account and all the necessary changes should be included in the PDD.

Response:

The correction is made in the monitoring table as per the EB decision. Please refer to section D of corrected PDD.

Corrective Action Request No.8

The monitoring plan is not complete. It should include information on how each parameter will be measured & the required metering equipment.

Response:

The monitoring plan is corrected and the details of equipments is included in the corrected PDD.

Corrective Action Request No.9

Roles and responsibilities are not clearly defined in PDD. Operational and management structure is too general. Please provide more detailed procedures for ensuring accurate data monitoring, collection, transfer and reporting.

Response:

The correction is made in the corrected PDD. The project proponent is developing the CDM manual for the CDM project activity; which will define individual responsibility for individual parameter required in the project activity.

Clarification Request No.5

A monitoring procedure detailing the responsibility and frequency of Monitoring has been submitted to the DOE. The procedure should includes the process flow of collection, compilation, and storage of data .The procedure should also include metering equipment details, their calibration procedures & quality assurance, quality control, internal audit of GHG data and data uncertainties.

Response:

The procedure is prepared for the CDM project activity. Please refer RN 51.

Clarification Request No. 6

Please explain why the distance is 0 km in “Enclo-5 leakage emission” in the excel spreadsheet.

Response:

The clinker transportation from the same distance was before and after the project activity. (Before the activity also the clinker was transported from the Vikram and Aditya cement). After the project activity clinker transportation will be reduced due to increase in additive percentage in PPC. The leakage emissions will be reduced from clinker transportation and this is a conservative estimate to exclude the same.

The leakage emissions from the clinker transported is not included in the methodology and corrected the same in the calculation and in the PDD.

The flyash is transported from pipe line and same is included in the leakage emission.

Response by audit team:

There still seems to be inconsistencies in the calculation of leakage. Why is line 9 of “Enclo-5, leakage emission” not the same as line 6 of “Encl-7,Endogenous trend”. And why is line 10 of “Enclo-5, leakage emission” not the same as line 6 of “Enclo-4,Emission reduction”. Please review all calculations to ensure that the same data is used across all excel sheets for P_{blend}, B_{blend}, etc. Please list all corrections made separately in your response to facilitate the verification.

Project proponent’s response:

All the values have been reviewed and the relevant corrections have been made. The values in the leakage emission excel sheet is directly linked with the emission reduction excel sheet to make the consistency in the values. The corrections made are shown in yellow shading in the excel sheet for verification.

Response by audit team:

Yes, the linking of values in the excel sheets have removed inconsistencies.

Clarification Request No.7

Please describe how any data adjustment would be done.

Response:

There is no data adjustment required in any of the parameters used in the monitoring and calculations. Uncertainty levels and calibration procedures have been described in the PDD. The detailed CDM Manual defines roles and responsibilities for the monitoring and reporting of parameters.

3.4.3 Conclusion

The monitoring plan in the revised PDD includes all parameters necessary for the monitoring of project, baseline and leakage emissions. Thus, all parameters needed to estimate the emission reductions are included in the monitoring plan. Uncertaintly levels and calibration procedures have also been defined and they are described in the PDD. A detailed CDM Manual which clearly defines the roles and responsibilities for monitoring and reporting has been prepared. The grid emission factor is calculated ex-ante and therefore will not be monitored.

The validation team cannot identify any major risks due to inadequate management structure or quality assurance.

Hence, the project complies with the requirements.

3.5 Calculation of GHG Emissions by Source

3.5.1 Discussion

The project boundaries are clearly described and included in chapter B.4 of the PDD. The PDD hereby also reflects correctly the direct and indirect emissions produced by the project activities.

The projects components are clearly defined in the PDD. During the visit on site the given information has been confirmed.

Details of direct and indirect emissions are discussed in the PDD in an appropriate manner. All project, baseline and leakage emissions are covered by the current approach. The calculations resulting in the final numbers have been submitted. The formulae used are correctly applied.

Leakage emissions due to the electricity consumption by the conveyor belt transporting the fly ash through the pipeline from the adjacent thermal power plant have been included.

The emission reductions are based on the calculation of emission factors expressed in tonnes of CO_2 per tonne of blended cement. These emission factors are calculated for the project activity, the leakage and the baseline. The formulae used to obtain the factors is given by the methodology and applied in a proper manner using project specific data.

The grid emission factor is calculated ex-ante as per the approved methodology ACM0002 version 06. The combined margin is lower than the value for the Northern grid published by the Indian Central Electricity Authority (CEA), thus it is deemed to be conservative.

3.5.2 Findings

None (please refer to Chapter 3.2 and 3.4 of the Validation Report for corrective action and clarification requests regarding the emission reduction calculations).

3.5.3 Conclusion

The calculation of GHG emissions and used data are according to the applied methodology and its requirements. Additionally, all the issues raised during the validation regarding the calculation of emission reductions (in Chapters 3.2 and 3.4 of the Validation Report) have been correctly solved. The reasons for changes in the Emission Reductions between the first version of the PDD that was made publicly available and the final version are the following:

1. Values for certain parameters have been changed from 1996 to 2006 IPCC Guidelines
2. An incorrect inclusion of leakage emissions for the transport of fly ash was removed (fly ash is only transported via a pipeline, and the leakage emissions due to electricity consumption of this pipeline have been considered instead)
3. The baseline trend was corrected – initially the base year was multiplied by 1.02, 1.04, etc. rather than multiplying the previous year by 1.02 – this is now correct in the final version
4. The planned percentages of additive share in the project activity were slightly changed, however, this will be monitored and confirmed during the verification.

3.6 Environmental Impacts

3.6.1 Discussion

The environmental impacts can be seen as being minimal, because the project activity represents an increase in current activities rather than new activities. Furthermore, air pollution associated with fly ash produced in the thermal power plant will be reduced as a result of the project. The fly ash is transported through the concealed pipeline from the thermal power plant situated at a distance of 1km from the project activity.

The legislation does not require an EIA for this type of project. The project has obtained the necessary consents and permissions from the State Pollution Control Board.

All environmental aspects have been correctly described in the PDD, and this seems to be reasonable. The project is not likely to create any adverse environmental aspects.

3.6.2 Findings

Corrective Action Request No. 10

Section F.1of PDD does not analyse & detail environmental impacts e.g. fly-ash dust emissions, noise, water pollution.

Response:

The main emissions are fugitive emissions. The same is being taken care of and the environmental section is corrected and same is included here. Further environmental aspects of the project activity have been analysed and described in the revised PDD.

Clarification Request No.8

According to the environmental clearance Annex 12. The plant has to comply with the environmental conditions. Please submit the evidence for compliance of the following:-

- Installation of Bag filters of high efficiency at all sources of dust & fumes
- Ensuring that the concentration of dust in the work area does not exceed the limit fixed under the second schedule in the Factory’s act.
- Submission of detailed feasibility report including design & drawings of various pollution control devices to be installed.
- Recycling of all dust which are collected from pollution control devices.
- Measures taken by the plant to control environmental pollution.

Response:

BPC is complying with all the regulations specified please refer to RN 46, RN 47, RN 48, RN 49.

Response by audit team:

Several documents illustrating the environmental aspects of the project activity have been submitted to the audit team, including ambient air quality monitoring reports, feasibility report including mitigation measures, environmental mitigation plan and status of its implementation, and the environmental clearance from the state authority.

3.6.3 Conclusion

The project complies with the environmental requirements.

3.7 Comments by Local Stakeholders

3.7.1 Discussion

The project participant has considered the local stakeholders in a correct manner and comments were requested. The stakeholders consulted include the State Pollution Control Board, sales chain personnel, people from the local community along with the village Panchayat, and the consumers. No objection has been given from any of the local stakeholders.

No stakeholder process is required according to national legislation.

No negative comment has been received and therefore no action was necessary.

3.7.2 Findings

None.

3.7.3 Conclusion

The project complies with the requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on its website from August 25 to September 23, 2006 and invited comments within 30 days, by Parties, stakeholders and non-governmental organizations.

The following site has been installed:

http://www.netinform.de/KE/Wegweiser/Guide2.aspx?ID=2012&Ebene1_ID=26&Ebene2_ID=579&mode=1

During the commenting period no comments were received.

5 VALIDATION OPINION

The Certification Body ”Climate and Energy” has been ordered by Birla Plus Cement to validate the “Optimum utilisation of clinker for Pozzolana Portland Cement (PPC) production at Birla Plus Cement in Bathinda, Punjab, India” project.

The project activity consists of an increase in the blending of fly ash in the PPC cement produced by Birla Plus Cement. By avoiding GHG emissions associated with the clinker production, the project results in reductions of GHG emissions that are real, measurable and give long-term benefits to the mitigation of climate change. A benchmark analysis following the steps given in the methodology and technological barriers together with the market resistance to high fly ash blended cement demonstrate that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve emission reductions.

It is TÜV SÜD’s opinion that the project as described in the final project design document issued in January 2007 meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board; furthermore that the project meets all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0005 version 03 “Consolidated Baseline Methodology for increasing the Blend in Cement Production”.

Hence, TÜV SÜD will recommend the project for registration as CDM project activity by the CDM Executive Board.

Additionally the assessment team reviewed the estimation of the projected emission reductions. Based on the estimated values we can confirm that the indicated amount of emission reductions of 542,800 tonnes CO2e over a crediting period of ten years, resulting in a calculated annual average of 54,280 tonnes CO2e represents a reasonable estimation using the assumptions given by the project documents.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 11.04.2007

Werner Betzenbichler

Head of the certification body
“climate and energy“

Munich, 11.04.2007

Dr. Ayse Frey

Project Manager

Annex 1: Validation Protocol

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	See below	Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Marrakesh Accords, CDM Modalities §40a	Outstanding Issue	Outstanding Issue Letter of approval issued by the DNA shall be submitted to the validator. The approval shall contain all elements specified in EB 16, annex 6.
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	See below	Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved.	Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a	Outstanding Issue	Grasim Industries is the project Proponents and the DNA approval is awaited. See Point 2
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	See below	Section E
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, Marrakesh Accords, CDM Modalities §43	See below	Section B.3
7. Potential public funding for the project from Parties in Annex I	Marrakech	☑	The project did not receive public

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
shall not be a diversion of official development assistance	Accords		funding from Annex I countries. Section A 4.5
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Accords, CDM Modalities §29	☑	India has established a designated national authority.
9. The host country shall be a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §30	☑	India is a party of the Kyoto Protocol and has ratified the same on August 26, 2002
10. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	Marrakech Accords, CDM Modalities §37b	See below	Section G
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	Marrakech Accords, CDM Modalities §37c	See below	Section F
12. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel	Marrakech Accords, CDM Modalities §37e	See below	Section B.1 and D.1
13. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	Marrakech Accords, CDM Modalities §37f	See below	Section D
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	☑	Local stakeholder process completed. A global public stakeholder process on the UNFCCC website has taken place from August 25, 2006 to

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
			September 24, 2006 & no comments have been received.
15. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, CDM Modalities, §45c,d	See below	Section B.2
16. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force major	Marrakech Accords, CDM Modalities, §47	See below	Section B.2
17. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	☑	The project design document does conforms with the CDM Project Design Document format (version 02, from 1 July 2004) valid by the time of PDD submission

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of Project Activity *The project design is assessed.*					
A.1. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	1,2,3,5 ,40	DR	The project spatial boundaries are clearly described in chapter A.2 and B.4 of the PDD. The description is in line with the applied methodology. In addition, the location of the site is exactly defined. The project activity consists of an increase in the blending of fly ash in the PPC cement named "Birla Plus" produced by Grasim Industries Ltd at their Bhatinda plant. **Corrective Action Request No.1** Please Define the Pre-project and Post project scenario in the section A2 , with special emphasis on how the additive additions are planned during the crediting period, and what are the enhancements to the manufacturing setups to achieve the same	**CAR 1**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1,2,3,5 ,17,18, 19	DR	The project boundaries are described in chapter A.2 and B.4 of the PDD. The project activity consists of an increase in the blending of fly ash in the PPC cement " Birla Plus" produced by Grasim Industries Ltd at their Bhatinda Plant **Corrective Action Request No.2** The Project Boundary does not clearly show the inclusion of those plants from where clinker is imported.	**CAR 2**	☑
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A.2.1. Does the project design engineering reflect current good practices?	1,2,3,5 ,10,17, 18,29	DR	The technology involved in blending fly ash has been developed indigenously by Grasim Industries Ltd. However, Grasim Industries Ltd has carried out a number of experiments for increasing the blending of fly ash and on the properties of PPC.	☑	☑
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used	1,2,3,5 ,10,17, 18,29	DR	The technology involved in blending fly ash has been improved indigenously by Grasim Industries Ltd., however following	**CR 1**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
technologies in the host country?			clarifications needs to be submitted regarding use of roller press & Vibrating press. **Clarification request No.1** The use of Roller press & vibrating press in the blended cement Industry is not a common phenomenon. Kindly provide evidence of it's usage in the similar industry.		
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,2,3,5 ,10,17, 18,29	DR	The project activities involve the development of specific technologies to increase the fly ash content of PPC and it is unlikely that any new technology will replace this one	☑	☑
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1,2,3,5 ,10,17, 18,20, 22, 29,30,	DR	The project shall require persons with the knowledge of rolling press & for the initial training the equipment supplier shall be responsible. For bringing awareness to the customers for effective use of blended cement the training broacher are made for the customers. Considerable marketing and educational effort are being undertaken to ensure make customers aware of the use of Blended Cement.	☑	☑
A.2.5. Does the project make provisions for meeting training and maintenance needs?	1,2,3,5 ,10,17, 18,20, 22,	DR	See above A.2.4.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	29,30				
A.3. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	1,11,12	DR	Yes, according to the information collected. The project is in line with relevant legislation in India. This project will not require any separate permission. During the visit on site it could be evidenced that the relevant licences and permits for the existing plant are in place.	☑	☑
A.3.2. Is the project in line with host-country specific CDM requirements?	1,2,5,6,7	DR	Grasim Industries is the project Proponent and the DNA approval is awaited. See Table 1 point 2.	Open	☑
A.3.3. Is the project in line with sustainable development policies of the host country?	1,2,5,6,7,9,11,12	DR	The project is in line with the sustainable development policy of the country. Moreover the Government of India assesses this question before issuing the Letter of Approval. As a Letter of Approval has already been applied for this specific project, the project must be seen as being in line with sustainable development policies of the country.	☑	☑
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	1,2,5,6,7,9,11,12	DR	Yes, the project will create additional employment, as the manufacturing capacities shall increase, on the increased availability of resources	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	1,2,3,4 ,5, 27	DR	Yes, the baseline methodology applied has been approved by the CDM Executive Board and is published as under the name ACM0005, version 03: "Consolidated Baseline Methodology for increasing the Blend in Cement Production".	☑	☑
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	1,2,3,4 ,5, 27	DR	The baseline methodology is deemed to be one, out of the existing approved baseline methodologies, most applicable for this project. The PDD responds convincingly to each of the applicability criteria which are outlined in the baseline methodology, however it is not clear why eastern region of India has not been included in demonstrating the applicability **Clarification Request No. 2**	**CR 2 & CR 3**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			It is not clear why the eastern region of India has not been considered in demonstrating the applicability of methodology where it must be demonstrated that the levels of additive are beyond country levels. Additionally it is not evident that the how the figure of 2% additive demonstrate the regional/nation as trend. **Clarification Request No. 3** Please submit evidence to show that there will be no shortage of the additive, in other words submit documents to show that the fly-ash produce in the Power plant less the fly-ash sell or send to other plants will no produce a shortage		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2. Baseline Determination *The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.*					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	1,2,3,4 ,5, 27	DR	The application of the methodology and the discussion and determination of the chosen baseline is mainly clear. The top Five Clinker grinding plants have been selected for the region where the project is located.	☑	☑
B.2.2. Has the baseline been determined using conservative assumptions where possible?	1,2,3,4 ,5, 22,23, 24,25, 26,27, 28,	DR	Average Fly ash addition data is furnished The top Five plants have been selected for the region and the project participant state that only regional data is being used as per the methodology. The proponent has submitted detailed Calculations of the baseline are based on the Cement Manufacturers Association (CMA) data relating to the region. **Clarification Request No. 4** Clinker percentage in the future years is not matching with the corresponding increase in additives in enclosure -7 of the emission reduction calculations. **Clarification Request No. 9**	**CR 4, CR 9, CR 10**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Please provide evidence that the implementation of the project activity is in the year 2005 to demonstrate that 30.3% additives from 2005-06 is not actually the baseline year rather than 2004-05. **Clarification Request No. 10** Please provide documentary evidence that CaO content of raw mix is actually 0%. Also provide evidence that there is no grinding of additive.		
B.2.3. Has the baseline been established on a project-specific basis?	1,2,3,4 ,5,6,7, 8 ,22, 23,24, 25,26, 27,28	DR	Yes, the baseline has been based on project specific data. The baseline has been established on the CMA	☑	☑
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	1,2,3,4 ,5,6,7, 8 ,22, 23,24, 25,26, 27,28	DR	Yes the baseline data sufficiently takes the national Policy and also takes in to account for BIS standards limits of Maximum addition of 35% **Corrective Action Request No**.3 Baseline emission factor for grid must include most recent data available at time of PDD submission – so calculations must include data from 2005/06.	**CR 3**	☑
B.2.5. Is the baseline determination compatible with the available data?	1,2,3,4 ,5,6,7,	DR	See B.2.2.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	8 ,22, 23,24, 25,26, 27,28				
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	1,2,3,4 ,5,6,7, 8 ,22, 23,24, 25,26, 27,28	DR	Yes, the demonstration of the steps of the methodology to determine the baseline is mainly clear developed in the PDD. The data on the state vies despatches have been submitted to validation team.	☑	☑
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario (e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project activity or (d) an indication that the project type is not common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?	1,2,3,4 ,5,6,7, 8 ,22, 23,24, 25,26, 27,28	DR	Production of fly ash based PPC in India is subject to the Bureau of Indian Standards specification IS: 1489 (Part 1). This specifies that the percentage of Pozzolana material (i.e. fly ash) in PPC must fall between the ranges of 15% to 35%. Both of the above alternatives will meet this requirement. The Ministry of Environment and Forests requires coal and lignite power plants subject to environmental clearance conditions to submit action plan showing how they will achieve full utilisation of fly ash. However there are no regulatory requirements on cement plants to assist in accomplishing this.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2.8. Have the major risks to the baseline been identified?	1,2,3,4 ,5,6,7, 8 ,22, 23,24, 25,26, 27,28	DR	The major risk to the baseline has been identified in the form of marketing risk in the acceptability of PPC cement. In addition the Government of India is restricting use of PPC in the government owned projects, and wherever state government are using, the same is being used for non structural jobs.	☑	☑
B.2.9. Is all literature and sources clearly referenced?	1,2,3,4 ,5,6,7, 8 ,22, 23,24, 25,26, 27,28	DR	Yes the literature & sources have been primarily for the Cement Manufacturing Association Annual reports.	☑	☑
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1,2,3,4 ,5,6,7, 26,27, 28,29	DR	The starting date of the project activity has been chosen as 01 July 2005 operational lifetime is chosen as 25 years. **Corrective Action Request No.4** The starting date of the project activity is not matching with the action plan because 2004-05 has been taken as baseline year.	**CAR 4**	☑
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of	1,2,3,4 ,5,6,7.	DR	Yes, the fixed crediting period for 10 years is chosen for the project	**CAR 5**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
max. two x 7 years or fixed crediting period of max. 10 years)?	27,28, 29		**Corrective Action Request: 5** This start date of the crediting period has been chosen as 01.10.2006 which should be revised to the date after registration		
C.1.3. Is it assured that in case the start of the crediting period is before the registration of the project that the project activities starting date falls in the period between 1 January 2000 and the registration of the first clean development mechanism project?	1,2,3,4 ,5,6,7, 27,28, 29	DR, I	According to the information in the PDD the start of project activities has been after the registration date of the first clean development mechanism project. .	☑	☑
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed (Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).*					
D.1. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
D.1.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	1,2,3,4 ,5,6	DR	Yes, it refers to ACM0005, version 03 that has been approved by the CDM Executive Board on 19.05.2006. **Corrective Action Request No. 6** The ID numbers and data variable of table D.2.1.3 are not matching with the most	**CAR 6**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			recent version of the methodology.		
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	1,2,3,4 ,5,6	DR	The monitoring methodology is deemed to be one out of the existing approved monitoring methodologies most applicable for this project. The PDD responds convincingly to each of the applicability criteria which are outlined in the monitoring methodology.	☑	☑
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	1,2,3,4 ,5,6,	DR	Yes, see D.1.1.	☑	☑
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	1,2,3,4 ,5,6,	DR	Yes, the selection of the monitoring methodology is transparent.	☑	☑
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	1,2,3,4 ,5,6, 32,33, 34,35, 36,37, 38,39	DR	The monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period **Clarification Request No. 5** A monitoring procedure detailing the responsibility and frequency of Monitoring has been submitted to the DOE. The procedure should includes the process flow	**CR 5** **CAR 7** **CAR 8**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			of collection, compilation, and storage of data. The procedure should also include metering equipment details, their calibration procedures & quality assurance, quality control, internal audit of GHG data and data uncertainties. **Corrective Action Request No.7** The new decision from the EB in relation to the monitoring (http://cdm.unfccc.int/Reference/Guidclarif/EB23_%20para%2024_guidance_monitoring.pdf) should be taken into account and all the necessary changes should be included in the PDD. **Corrective Action Request No.8** The monitoring plan is not complete. It should include information on how each parameter will be measured & the required metering equipment		
D.2.2. Are the choices of project GHG indicators reasonable?	1,2,3,4,5,6, 32,33, 34,35, 36,37, 38,39	DR	Choices of the indicators have been taken from the Methodology ACM0005 version 03 and are found to be reasonable. The detailing of the indicators has been also done in the Monitoring and measurement procedures for effective implementations.	☑	☑
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	1,2,3,4,5,6,	DR	See above in D.2.2	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	32,33, 34,35, 36,37, 38,39				
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	1,2,3,4 ,5,6, 32,33, 34,35, 36,37, 38,39	DR	See above in D.2.2	☑	☑
D.2.5. Will the indicators enable comparison of project data and performance over time?	1,2,3,4 ,5,6, 32,33, 34,35, 36,37, 38,39	DR	See above in D.2.2.	☑	☑
D.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1,2,3,4 ,5,6, 32,33, 34,35, 36,37, 38,39	DR	Leakage is restricted to any transport emissions that arise from the increased use of additive. The methodology does require consideration of whether additives used are surplus. **Clarification Request No. 6** Please explain why the distance is 0 km in	**CR 6**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			"Enclo-5 leakage emission" in the excel spreadsheet.		
D.3.2. Have relevant indicators for GHG leakage been included?	1,2,3,4 ,5,6, 32,33, 34,35, 36,37, 38,39	DR	The respective procedures includes the indicators due to leakages and are measurable	☑	☑
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1,2,3,4 ,5,6, 32,33, 34,35, 36,37, 38,39	DR	See above in D 3.2	☑	☑
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	1,2,3,4 ,5,6, 32,33, 34,35, 36,37, 38,39	DR	See above in D 3.2	☑	☑
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions	1,2,3,4 ,5,6, 11,15,	DR	See D.2.1	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
during the crediting period?	16,17, 20,21, 22,23				
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1,2,3,4 ,5,6, 11,15, 16,17, 20,21, 22,23	DR	The base line indicators are in line with methodology ACM 0005 version 03 and are reasonable.	☑	☑
D.4.3. Will it be possible to monitor the specified baseline indicators?	1,2,3,4 ,5,6, 11,15, 16,17, 20,21, 22,23	DR	Yes for all key parameters for daily operations. It will be possible to monitor this indicator as mentioned in the PDD and the Monitoring Plan which has been submitted to the DOE	☑	☑
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	1,2,3,4 ,5,6,7,	DR	The methodology ACM0005 version 03 does not ask for data concerning environmental, social and economic impacts, and hence the same are not included in the Plan	☑	☑
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic)	1,2,3,4 ,5,6,7,	DR	See above D 5.1	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
reasonable?					
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	1,2,3,4 ,5,6,7,	DR	See above D.5.1.	☑	☑
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	1,2,3,4 ,5,6,7,	DR	See above D.5.1.	☑	☑
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?	1,2,3,4 ,5,6, 29	DR	Each activity is under a Plant Head and has a team of qualified Project persons The Plant Manager will be overall responsible for the monitoring, measurement and reporting of the data; however there is a need to define the rolls and responsibility in details from CDM monitoring perspective. **Corrective Action Request No. 9** Roles and responsibilities are not clearly defined in PDD. Operational and management structure is too general. Please provide more detailed procedures for ensuring accurate data monitoring, collection, transfer and reporting	**CAR 9**	☑
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and	1,2,3,4 ,5,6,	DR	Yes the process has been defined as part of PDD and also a separate procedure has	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
reporting clearly described?			been submitted to DOE detailing the monitoring and measurement process.		
D.6.3. Are procedures identified for training of monitoring personnel?	1,2,3,4 ,5,6,	DR	The company is ISO9001 & ISO14001 Certified and have established system for training of Monitoring personal & the same shall be extended to the New infrastructure.	☑	☑
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1,2,3,4 ,5,6,	DR	No emergency situation with unintended emission is expected.	☑	☑
D.6.5. Are procedures identified for calibration of monitoring equipment?	1,2,3,4 ,5,6,	DR	The company is an ISO9001 & ISO14001 certified and responsibilities have been defined in. Head of Electrical & instrumentation is responsible for instruments, and Head of Quality is responsible for quality related test equipments	☑	☑
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	1,2,3,4 ,5,6, 29	DR	Maintenance of the Electrical & instrument is done by the Head electrical and in case of severe faults it is despatched to the original manufacturers	☑	☑
D.6.7. Are procedures identified for monitoring, measurements and reporting?	1,2,3,4 ,5,6,	DR	See also D.2.1.	☑	☑
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	1,2,3,4 ,5,6,	DR	Day to day records are maintained effectively for each section of the unit. viz. receipts, cement grinding mills	☑	☑
D.6.9. Are procedures identified for dealing with	1,2,3,4	DR	The eventuality of the data adjustments is	**CR 7**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
possible monitoring data adjustments and uncertainties?	,5,6		low nevertheless it should be described. **Clarification Request No. 7** Please describe how any data adjustment. would be done.		
D.6.10. Are procedures identified for review of reported results/data?	1,2,3,4 ,5,6,	DR	See above D.6.7.	☑	☑
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	1,2,3,4 ,5,6,	DR	See above D.6.7	☑	☑
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	1,2,3,4 ,5,6	DR	See above D.6.7	☑	☑
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	1,2,3,4 ,5,6,29	DR	See above D.6.7	☑	☑
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Predicted Project GHG Emissions *The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	1,2,3,4 ,5,6,7	DR	The project GHG emissions are clearly described in the PDD and their	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			measurement and monitoring plans frequency & responsibilities are defined in the procedure.		
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	1,2,3,4 ,5,6,7	DR	The calculation sheets with transparent and traceable calculations have been submitted to the validator to confirm the values stated in the PDD.	☑	☑
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1,2,3,4 ,5,6,7	DR	Conservative assumptions have been used based on the data of Cement Manufacturers association	☑	☑
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	1,2,3,4 ,5,6,7	DR	The uncertainty levels have been chosen as Low- medium and have been addressed.	☑	☑
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	1,2,3,4 ,5,6,7	DR	The methodology only requires the evaluation of CO_2.	☑	☑
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	1,2,3,4 ,5,6,7	DR	Potential leakages due to transportation of clinker have been identified.	☑	☑
E.2.2. Have these leakage effects been properly	1,2,3,4	DR	Yes the leakage effects have been properly	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
accounted for in calculations?	,5,6,7		accounted for in calculations and is fairly transparent and conservative		
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	1,2,3,4 ,5,6,7	DR	See above E.2.1.	☑	☑
E.2.4. Are the calculations documented in a complete and transparent manner?	1,2,3,4 ,5,6,7	DR	See above E.2.1.	☑	☑
E.2.5. Have conservative assumptions been used when calculating leakage?	1,2,3,4 ,5,6,7	DR	See above E.2.1.	☑	☑
E.2.6. Are uncertainties in the leakage estimates properly addressed?	1,2,3,4 ,5,6,7	DR	See above E.2.1.	☑	☑
E.3. Baseline Emissions *The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.*					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	1,2,3,4 ,5,6,7	DR	Yes the Projects emissions have been represented through projected production of the Blended Cements in all the three plants	☑	☑
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	1,2,3,4 ,5,6,7	DR	Baseline boundaries are restricted to this plant and clearly defined.	☑	☑
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	1,2,3,4 ,5,6,7	DR	Yes the calculation is according to the approved methodology.	☑	☑
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	1,2,3,4 ,5,6,7	DR	Yes the assumptions are transparent and conservative and are in line with the methodology.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	1,2,3,4 ,5,6,7	DR	The uncertainty levels have been chosen as Low- medium and have been addressed.	☑	☑
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	1,2,3,4 ,5,6,7	DR	Yes the Project Baseline and emissions are in line with the methodology ACM0005 version 03.	☑	☑
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	1,2,3,4 ,5,6,7, 27	DR	Yes, with the increase in additives the project will result in fewer GHG emissions than the baseline scenario.	☑	☑
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	1,2,3,4 ,5,6,7	DR	The EIA as such for this plant is not required as the investment is less than 500 million Rupees, and the plant shall not be putting any new equipment as such except Rolling press, vibrating presses & silos etc for the ash handling units at the ash supplier's site. In addition the company has	**CAR 10** **CR 8**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			been certified for ISO14001:2004 system. It has a well established EMS system in place. However the PDD does not discuss the environmental Impacts during pre & post project scenario. **Corrective Action Request No. 10** Section F.1of PDD does not analyse & detail environmental impacts e.g. fly-ash dust emissions, noise, water pollution? **Clarification Request no.8** According to the environmental clearance Annex 12. The plant has to comply with the environmental conditions. Please submit the evidence for compliance of the following:- • Installation of Bag filters of high efficiency at all sources of dust & fumes • Ensuring that the concentration of dust in the work area does not exceed the limit fixed under the second schedule in the Factory's act. • Submission of detailed feasibility report including design & drawings of various pollution control devices to be installed.		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			• Recycling of all dust which are collected from pollution control devices. • Measures taken by the plant to control environmental pollution. .		
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1,2,3,4 ,5,6,7, 12	DR	An EIA for the project activity is not required as per host country legislation.	☑	☑
F.1.3. Will the project create any adverse environmental effects?	1,2,3,4 ,5,6,7, 12	DR	No, the project is not expected to create adverse environmental effects. Fly ash is transported through the concealed pipeline from the Power plant situated at the distance of 1 KM .The project is not likely to create any adverse environmental aspects.	☑	☑
F.1.4. Are transboundary environmental impacts considered in the analysis?	1,2,3,4 ,5,6,7, 12	DR	Trans boundary impacts of air pollution due to transportation of fly ash has been considered and found to be negligible as the fly ash is transported through closed pipelines	☑	☑
F.1.5. Have identified environmental impacts been addressed in the project design?	1,2,3,4 ,5,6,7, 12	DR	Environmental impacts have been adequately addressed in the Project Design	☑	☑
F.1.6. Does the project comply with environmental legislation in the host country?	1,2,3,4 ,5,6,7,	DR	Yes the plant has necessary consents and permissions from the State Pollution Control	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	12		Board.		
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					
G.1.1. Have relevant stakeholders been consulted?	1,2,3,4 ,5,6,7, 13,14, 15,16, 39	DR	Yes all the necessary stakeholders have been consulted: Sales chain personals, State Pollution Control Board, and the concerned Industrial Body under which this notified area falls.	☑	☑
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1,2,3,4 ,5,6,7, 13,14, 15, 39	DR	Yes, Local meeting at district levels have been approached. Prospective customers have been approached through leaflets on products.	☑	☑
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1,2,3,4 ,5,6,7, 13,14, 15, 39	DR	Since this is going to be an extension of Cement manufacturing process A stakeholder consultation process is not required according to Indian legislation.	☑	☑
G.1.4. Is a summary of the stakeholder comments received provided?	1,2,3,4 ,5,6,7, 13,15, 16,39	DR	No comments have been received so far	☑	☑
G.1.5. Has due account been taken of any stakeholder comments received?	1,2,6,7 13,15, 16,39	DR	See above G.1.4.	☑	☑

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
Outstanding Issue Letters of approval issued by the Indian DNA shall be submitted to the validator. The approvals shall contain all elements specified in EB 16, annex 6.	Table 1, points 2 – 4 A.3.2.	The project proponent has received approval from the host country. The approval contains all the elements specified in EB 16, annex 6. The same is submitted to DOE. RN45	☑
Corrective Action Request No.1 Please Define the Pre-project and Post project scenario in the section A2 , with special emphasis on how the additive additions are planned during the crediting period, and what are the enhancements to the manufacturing setups to achieve the same.	A.1.1	The correction is made in the section A.2 of the corrected PDD and the activities are presented in table A.1.	☑
Corrective Action Request No.2 The Project Boundary does not clearly show the inclusion of those plants from where clinker is imported.	A.1.2	The project boundary is revised in the corrected PDD and the relevant plants are included in the boundary.	☑
Corrective Action Request No.3 Baseline emission factor for grid must include most recent data available at time of PDD submission – so calculations must include data from 2005/06.	B.2.4	The same is corrected in the calculation and latest grid emission factor is used in the emission reduction calculations.	**Response by audit team:** OM has been calculated based on the most recent 3 years' data. However, please remove 2002/03 data from Enclosure 5 since this could mislead the reader into believing that OM is

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			based on 4 years' data. The list of specific power plants seems to have disappeared. Both OM and BM must be supported with data on specific power plants in the chosen grid. Detailed OM and BM calculations seems to have been removed from the excel spreadsheet submitted to the audit team. Please explain and provide to audit team. Furthermore, the emission factors for imports are based on an old source with projections – they must be based on actual figures. Please use a different source (and provide the detailed reference to this source) or 0 tCO2/GWh. In addition, the PDD should include a table with all the sources for all figures used in the baseline emission factor calculation. Also references for coal consumption, total generation, and 20% thereof seem to be missing.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			Project proponent's response: All the corrections have been made in the calculation. The tables have been included in the corrected PDD. The calculations have been changed and included in PDD. **Response by audit team:** The revised PDD now includes detailed OM and BM calculations that are based on the most recent data available at time of PDD submission. It also includes the references for the parameters used in the calculations. However, the emission factor for imports still needs clarification: for the first two years, a projection from the MNES study has been used (as mentioned before, only actual historic emission rates should be used or 0 tCO2/GWh), and for the third year, a value of 0 tCO2/GWh has been used. Please clarify and revise accordingly. In addition, the higher NATCOM value

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			for calorific coal is not acceptable. Please use the more conservative CEA value. The final grid emission factor should not be larger than the CEA published values. **Project proponent's response:** The corrections have been made in the calculation for the previous two years also. The tables have been included in the corrected PDD. The calculations have been changed and included in PDD. The calorific value and emission factors from CEA data is used in the calculation. (http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm). Calculations and the emission reductions have been changed accordingly. **Response by audit team:** ☑ Imports have been corrected and the baseline emission factor calculation has

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			been revised using the CEA calorific value of coal. The combined margin is calculated as 723,47 tCO2/GWh, which is below the value of 754,60 tCO2/GWh for the Northern region given in the CEA publication. Thus, this is deemed correct and conservative.
Corrective Action Request No.4 The starting date of the project activity is not matching with the action plan because 2004-05 has been taken as baseline year.	C.1.1	The starting date of project activity is changed and written as 01-07-2005 as per the action plan. This is the date of starting industrial trial of the increased fly ash blending percentage.	☑
Corrective Action Request: 5 The starting date of crediting period has been chosen as 01.10.2006 which should be revised to the date after registration.	C.1.3	The starting date of crediting period will be from the date of registration. For the estimation 01 April 2007 is taken as the date of crediting period. The same is corrected in the corrected PDD.	☑
Corrective Action Request No. 6 The ID numbers and data variable of table D.2.1.3 are not matching with the most recent version of the methodology.	D.1.1	The correction is made at the relevant places in the corrected PDD. The variable written in the monitoring table of PDD is B_{blend} while in the approved methodology it is mentioned as A_{blend}. The actual B_{blend} is used in the PDD the same is used in calculations of PDD.	**Response by audit team:** As per the formulae in Section D.2.3.2., the parameter $A_{blend,y}$ is used to calculate leakage, but it does not appear in the monitoring plan. Please clarify. Also it seems that the parameter 29 in table D.2.1.1. should be $P_{blend,y}$ instead

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		The parameters ID is different because of in this case more parameters needs to be monitored. In the PDD all the parameters of the approved methodology is taken and the additional parameters is added for additional monitoring.	of $PE_{blend,y.}$ Please clarify. **Project proponent's response:** The parameter is included in the monitoring plan and corrections have been done in corrected PDD. **Response by audit team:** ☑ The parameter $A_{blend,y}$ has been included in the monitoring plan and the parameter 29 in table D.2.1.1. has been corrected from $PE_{blend,y.}$ to $P_{blend,y.}$
Corrective Action Request No.7 The new decision from the EB in relation to the monitoring (http://cdm.unfccc.int/Reference/Guidclarif/EB23_%20para%2024_guidance_monitoring.pdf) should be taken into account and all the necessary changes should be included in the PDD.	D.2.1	The correction is made in the monitoring table as per the EB decision. Please refer to section D of corrected PDD.	☑ The revised PDD includes accuracy levels and information on calibration procedures for the relevant monitoring equipments.
Corrective Action Request No.8 The monitoring plan is not complete. It should include information on how each parameter will be measured & the required metering	D.2.1	The monitoring plan is corrected and the details of equipments is included in the corrected PDD.	☑ The revised PDD includes information on how each parameter will be measured.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
equipment.			
Corrective Action Request No. 9 Roles and responsibilities are not clearly defined in PDD. Operational and management structure is too general. Please provide more detailed procedures for ensuring accurate data monitoring, collection, transfer and reporting.	D.6.1	The correction is made in the corrected PDD. The project proponent is developing the CDM manual for the CDM project activity; which will define individual responsibility for individual parameter required in the project activity.	☑ A detailed CDM Manual which clearly defines the roles and responsibilities for monitoring and reporting has been provided to the audit team.
Corrective Action Request No. 10 Section F.1of PDD does not analyse & detail environmental impacts e.g. fly-ash dust emissions, noise, water pollution.	F.1.1	The main emissions are fugitive emissions. The same is being taken care of and the environmental section is corrected and same is included here. Further environmental aspects of the project activity have been analysed and described in the revised PDD.	☑
Clarification request No.1 The use of Roller press & vibrating press in the blended cement Industry is not a common phenomenon. Kindly provide evidence of it's usage in the similar industry.	A.2.2.	The evidences for the proof for uniqueness of the technology is submitted from the technology supplier of both the equipments. Please see reference no 41 and 42.	☑ Evidence has been provided that the technology is first-of-its-kind in a grinding unit in the Indian cement industry.
Clarification Request no. 2 It is not clear why the eastern region of India has not been considered in demonstrating the applicability of methodology where it must be demonstrated that the levels of	B.1.2	The reason for not considering the Eastern region in the region is explained in the section B.2 of the corrected PDD.	**Response by audit team:** The region defined by the project proponents has been justified and it meets all criteria stipulated by ACM0005 version 03 (at least 75% of

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
additive are beyond country levels. Additionally it is not evident that the how the figure of 2% additive demonstrate the regional/nation as trend.		There is insufficient data to estimate ex ante a realistic regional trend. Given the barriers to an increase in the blend, the likely scenario is in fact a continuation of the current level. Therefore selecting the highest blend levels in the applicable regions and increasing these by 2% is conservative. The 2% increase is specified as the default minimum in applied methodology.	project's cement production is sold, includes at least 5 other plants with required published data, production in region is at least 4 times the project plant's output, and only domestically sold output is considered). Furthermore, a trend increase of 2% in the additives (as per the applied methodology) has been incorporated in the benchmark for baseline emissions. However, the calculation of this trend increase seems to be incorrect. In "Encl-7, endogenous trend", each year should be the previous year multiplied by 1.02, and not a rounded factor multiplied by the first year. **Project proponent's response:** The same have been corrected in calculation and changed in the PDD. **Response by audit team:** The calculation of the trend has been corrected. However, based on a request for review of a similar project which is applying for CDM registration, the following clarification is requested:

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			an analysis of the cement market in India by the HVFAC project, funded by CIDA and MRCan, indicates that the use of fly-ash based cement in India has grown from 20 million tons to 60 million tons over the past 5 years, reaching over 50% of the cement market. Considering these national trends, please provide supporting documentary evidence that 2% annual additive increase is conservative and represents the likely trend, since the barriers to an increase in the blend were not observed in the above-mentioned study. **Project proponent's response:** The report referred in above section is for HVFAC (high volume fly ash in concrete) project. This report mentions the volume of the blended cement (quantity of the blended cement) produced. The quantity and share of blended cement in the market depends on many factors, for example cost,

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			availability, etc. The Indian cement industry witnessed different trends in the past. In India, the share of blended cement in the total production had increased from 47% in 1978-79 to 76% in 1982-83. After this, the Indian cement industry witnessed a higher production of the higher grade OPC, and the production of blended cement gradually declined to 27% in 1992-93. However, this was followed by an upward trend, and the share of blended cement reached approximately 56% in 2004-05. (Data taken from ICRA – The Indian Cement Industry 2006) The figures in these report represents only the volume. On the other hand, the project activity is increase in the blending percentage (reduction in clinker per ton of cement). The project proponent before the project activity was producing the blended cement with less additive percentage (The volume of the cement produced is almost constant). In the project activity; project proponent has increased the additive percentage and likely to increase in the

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			future as well. In the baseline there was no need for any investment for the same blending percentage as in the baseline. But project proponent invested money for the state of the art technologies for increasing the additive percentage in blended cement produced (supporting for the same is submitted to validators). Increasing the blending percentage is not a business as usual scenario, as appears to be understood by the increase in the volume of blended cement. Approved methodology is applicable for the increase in additive percentage only. The above also illustrates the point that even 2% increase in the additive % and not in volume is conservative, since it would require to overcome the additionality point discussed in the PDD and approved methodology ACM005 version 03. **Response by audit team:** The response above only discusses the trend in volume of blended cement. The

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			methodology requires that the endogenous trend is demonstrated with substantial documentary evidence. That is why one of the applicability criteria of the methodology is “adequate data are available on cement types in the market”. Hence, please provide a statistical analysis of the trends of blending in the region to demonstrate that 2% is conservative. You may use, for example, the same data sources that were used to determine the benchmark. Furthermore, please provide references for all figures and parameters used in the calculations. Especially the sources for determining the baseline/benchmark have not been provided in the excel sheets. Also a more detailed reference (not just IPCC, but also year, page, etc.) is necessary. **Project proponent’s response:** According to the trend analysis presented in the calculation for the region selected; the following trend is reflected:

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			<table><tr><td>Year</td><td>% additives</td></tr><tr><td>2002-03</td><td>27.72</td></tr><tr><td>2003-04</td><td>24.32</td></tr><tr><td>2004-05</td><td>25.55</td></tr><tr><td>2005-06</td><td>27.44</td></tr></table> It is clear that the % additives in 2002-03 was more than the next three years. It presents a negative trend in the blending percentage. According to above analysis the 2% increase in the additive percentage is the conservative trend and recommended in the methodology ACM005 version 3. The data source is attached with the response sent. **Response by audit team:** ☑ The trend has been calculated for the

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			years from 2002-03 to 2005-06 based on the annual Cement Statistics published by the Cement Manufacturers' Association – the soft copy of the annual report was submitted to audit team. All plants in the region were taken into account, and the figures illustrate that a trend cannot be identified and that the percentage of additives (weighted by production) in 2002-03 was higher than in 2005-06. Hence, the 2% annual trend seems appropriate and conservative.
Clarification Request no. 3 Please submit evidence to show that there will be no shortage of the additive, in other words submit documents to show that the fly-ash produce in the Power plant less the fly-ash sell or send to other plants will no produce a shortage	B.1.2	The contract between the power plant and the thermal power plant is submitted to DOE. The power plant is 1 km from the BPC and transportation of fly ash is via pipeline. Apart from this analysis of all the power plants with the fly ash utilization percentage is submitted. Please refer to RN 43.	☑
Clarification Request No. 4 Clinker percentage in the future years is not matching with the corresponding increase in additives in enclosure -7 of the emission	B.2.2	The same is corrected in the calculations.	**Response by audit team:** There still seems to be an inconsistency between the %fly ash in the action plan (annexure 06) and the

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
reduction calculations.			share of clinker percentage in line 6 of "Encl 4 – emission reduction" in excel sheet. Please clarify if the percentage of fly ash is different from the percentage of additives. If so, submit us the action plan with the percentage of fly ash and percentage of additives. Otherwise, please revise line 6 to correlate with action plan. In addition, please explain why line 6 of "Enclo-4,Emission reduction" is not the same as line 10 of "Enclo-5, leakage emission". **Project proponent's response:** The action plan submitted was only demonstrating the fly ash percentage. The action plan has been corrected with the additive percentage, the action plan is submitted. The relevant corrections made in the leakage emissions in the excel sheet and same is incorporated in corrected PDD. **Response by audit team:** ☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			Relevant corrections have been made and the action plan is now in consistency with the figures in the calculations.
Clarification Request No. 5 A monitoring procedure detailing the responsibility and frequency of Monitoring has been submitted to the DOE. The procedure should includes the process flow of collection, compilation, and storage of data .The procedure should also include metering equipment details, their calibration procedures & quality assurance, quality control, internal audit of GHG data and data uncertainties.	D.2.1	The procedure is prepared for the CDM project activity. Please refer RN 51.	☑ A detailed CDM Manual which clearly defines the roles and responsibilities for monitoring and reporting has been provided to the audit team.
Clarification Request No. 6 Please explain why the distance is 0 km in "Enclo-5 leakage emission" in the excel spreadsheet.	D.3.1	The clinker transportation from the same distance was before and after the project activity. (Before the activity also the clinker was transported from the Vikram and Aditya cement). After the project activity clinker transportation will be reduced due to increase in additive percentage in PPC. The leakage emissions will be reduced from clinker transportation and this is a conservative estimate to exclude the same.	**Response by audit team:** There still seems to be inconsistencies in the calculation of leakage. Why is line 9 of "Enclo-5, leakage emission" not the same as line 6 of "Encl-7,Endogenous trend". And why is line 10 of "Enclo-5, leakage emission" not the same as line 6 of "Enclo-4,Emission reduction". Please review all calculations to ensure that the same data is used across all excel sheets for

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		The leakage emissions from the clinker transported is not included in the methodology and corrected the same in the calculation and in the PDD. The flyash is transported from pipe line and same is included in the leakage emission.	P_{blend}, B_{blend}, etc. Please list all corrections made separately in your response to facilitate the verification. **Project proponent's response:** All the values have been reviewed and the relevant corrections have been made. The values in the leakage emission excel sheet is directly linked with the emission reduction excel sheet to make the consistency in the values. The corrections made are shown in yellow shading in the excel sheet for verification. **Response by audit team:** ☑ Yes, the linking of values in the excel sheets has removed inconsistencies.
Clarification Request No. 7 Please describe how any data adjustment. would be done.	D.6.9	There is no data adjustment is required in any of the parameters used in the monitoring and calculations. Uncertainty levels and calibration procedures have been described in the PDD. The detailed CDM Manual defines roles and responsibilities for the monitoring and reporting of parameters.	☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
Clarification Request no.8 According to the environmental clearance Annex 12. The plant has to comply with the environmental conditions. Please submit the evidence for compliance of the following:- • Installation of Bag filters of high efficiency at all sources of dust & fumes • Ensuring that the concentration of dust in the work area does not exceed the limit fixed under the second schedule in the Factory's act. • Submission of detailed feasibility report including design & drawings of various pollution control devices to be installed. • Recycling of all dust which are collected from pollution control devices. • Measures taken by the plant to control environmental pollution.	F.1.1	BPC is complying with all the regulations specified please refer to RN 46, RN 47, RN 48, RN 49.	☑ Several documents illustrating the environmental aspects of the project activity have been submitted to the audit team, including ambient air quality monitoring reports, feasibility report including mitigation measures, environmental mitigation plan and status of its implementation, and the environmental clearance from the state authority.
Clarification Request No. 9 Please provide evidence that the	B.2.2.	The project activity is increasing the blending percentage in the PPC	☑ The project proponent has submitted

<table>
<tr><th>Draft report clarifications and corrective action requests by validation team</th><th>Ref. to checklist question in table 2</th><th>Summary of project owner response</th><th>Validation team conclusion</th></tr>
<tr><td>implementation of the project activity is in the year 2005 to demonstrate that 30.3% additives from 2005-06 is not actually the baseline year rather than 2004-05.</td><td></td><td>manufactured in the plant. The activity started with the use of grinding aids in the cement grinding and that has started in June 2004 in the lab and then in the plant trails in July 2005. The actual activity started in 2005-06 (Please refer to ref no 24, 25, 26). According to the methodology the baseline year is the highest blending percentage year (of last 3 years) before the project activity year. The 2004-05 was the highest blending percentage year before the project activity year and same is considered as the baseline year.
<table><tr><td>Year</td><td>% additives</td></tr><tr><td>2002-03</td><td>25.02</td></tr><tr><td>2003-04</td><td>25.39</td></tr><tr><td>2004-05</td><td>25.6</td></tr></table>
From the above analysis it is clear that the 2004-05 is the adequate baseline for the project.</td><td>the relevant documents (purchase orders, project initiation records) to demonstrate that the project implementation started in 2005. Thus, using 2004-05 as the baseline year is deemed correct.</td></tr>
</table>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
Clarification Request No. 10 Please provide documentary evidence that CaO content of raw mix is actually 0%. Also provide evidence that there is no grinding of additive.	B.2.2.	The project proponent is having the limestone as a raw mix and the using dry process for clinker manufacturing. In the raw mix, CaCO3 and MgCO3 is present in major quantities and the free CaO and MgO is present below detectable limits and referred here as 0% in the calculations. The project activity plant is getting the flyash from the nearby power plant via pipeline and directly using the same with clinker and Gypsum at the inlet of the ball mill. There is no additional grinding is done for the additives in the plant. The power required for grinding the flyash in the ball mill is already included in the baseline and project emissions. The detailed process is shown during the validation visit and same can be seen from the drawing submitted.	☑

- o0o -

Annex 2: Information Reference List

Reference No.	Document or Type of Information
1.	On-site interviews at the project site of the "Birla Plus Cement", India by auditing team of TÜV SÜD, performed on September 02 & 03, 2006: **Validation team on site**: Sunil Kathuria TUV South Asia TÜV SÜD Group. **Interviewed Person** **Birla Plus – A Unit of Grasim Cements** Mr. P.A. Nair Senior Vice President, Birla Plus Cement. Mr. Rajesh Somani Deputy General Manager –Technical, Birla Plus Cement. Mr. A.K.Menaria Deputy Manager Production & Quality Control, Birla Plus Cement. Mr. Ravi Thakur Technical Officer – Cement Marketing, Birla Plus Cement. **Stakeholders** Mr. Tarun Kumar- Transporter Mr. Janak Singh Transporter Mr. Rajvinder singh Transporter Mr. Baneshwar Dass Mechanical fitter, Birla Plus Cement Mr. Nagender Kumar Mechanical Fitter, Birla Plus Cement Mr Satnam Ji Phoola Village.-Sarpanch
2.	Project Design Document, Version 01 dated 24.06.2006, submitted on 18.08.2006.
3.	Approved Consolidated Baseline Methodology ACM0005, version 03, UNFCCC dated 19.05.2006
4.	Tool for demonstration and assessment of additionality, UNFCCC 2005
5.	UNFCCC homepage http://www.unfccc.int
6.	Production of Pozzolana Portland Cement for the year 2003-2006, Birla Plus Cement, submitted 02.09.2006.

Reference No.	Document or Type of Information
7.	Action plan for improving percentage utilisation of fly ash for the period 2003-2020 ,Birla Plus Cement ,dated nil, submitted 02.09.06
8.	Sample of indenting Cemex grinding aid ,Birla Plus Cement, dated 30.01.06 , submitted 02.09.06
9.	Memorandum of understanding between Punjab State Electricity Board and Grasim Industries Limited for utilization of additional quantity of fly ash ,dated 11.02.2002, submitted 02.09.06
10.	Purchase order for Twin Tube vibrating mill, Birla Plus Cement, dated 14.10.05, submitted 02.09.06.
11.	Board resolution for name change, Grasim Industries Limited, dated 25.02.03, submitted 02.09.06.
12.	Environmental clearance, State Competent Authority-Government of Punjab, dated 14.08.06, submitted 02.09.06.
13.	Sales efforts records for the period 2003-2005, Birla Plus Cement, dated nil, submitted 02.09.06
14.	Customer complaint records for the year 2003-06, Birla Plus Cement, dated nil, submitted 02.09.06
15.	Customer complaint no.63,Jugraj Singh, dated 15.05.06,submitted 02.09.06
16.	Cement despatch records for the period 2003-2006, Birla Plus Cement, dated nil, submitted 02.09.06
17.	Project Technical specification, Birla Plus Cement dated nil, submitted 02.09.06
18.	Project implementation Schedule of commissioning of Grinding up gradation project dated nil, submitted 02.09.06
19.	Internal communication between Technical section & Quality control, Birla Plus Cement, dated 30.0805, submitted 02.09.06.
20.	Customer awareness literature, Birla Plus Cement, dated nil submitted 02.09.06
21.	Record of customer complains for July 06, Birla Plus Cement, submitted 02.09.06
22.	Photographs of the sales meet , Birla Plus Cement, submitted 02.09.06
23.	Guidelines for specification and acceptance of cement supplied by the contractors, Military Engineering Services dated 21.03.06, submitted 02.09.06
24.	Results of industrial performance trials of grinding aids for the period June & July 05, Birla Plus Cement, submitted 02.09.06
25.	Comparative study on different grinding aids, Birla Plus Cement, dated nil, submitted 02.09.06
26.	Grinding aid trials study, Birla Plus Cement, dated nil submitted 02.09.06
27.	Emission reduction calculations Birla Plus Cement, dated 18.08.06,submitted 02.09.06
28.	Record of generation of PPC, consumptions of clinker, fly-ash, gypsum for the period 2003-2006 , Birla Plus Cement, submitted 02.09.06
29.	Purchase order for supply of Roller Press, Birla Plus Cement, dated 23,12.05,submitted 02.09.06dated
30.	Training condition of the contract for the Roller Press , Birla Plus Cement, dated 23,12.05,submitted 02.09.06dated

Reference No.	Document or Type of Information
31.	Sample of the Daily log sheet of the cement mill , Birla Plus Cement, dated 04.09.06,submitted 02.09.06dated
32.	Sample of the monthly progress review for the month of March 2006, Birla Plus Cement, dated 04.09.06, submitted 02.09.06.
33.	Sample of the summary of daily production record of Birla Plus Cement, dated 04.09.06, submitted 02.09.06.
34.	Sample of the monthly production & breakdown report for, Dec.05 & April 06, Birla Plus Cement, submitted 02.09.06.
35.	Sample of the monthly production & breakdown report for cement mill section for Aug.06, Birla Plus Cement, submitted 02.09.06.
36.	Calibration history and record for Clinker weigh-feeder for the period 2003-06, Birla Plus Cement, submitted 02.09.06.
37.	Calibration history and record for fly ash solid flow meter for the period 2003-06, Birla Plus Cement, submitted 02.09.06
38.	Calibration history and record for Gypsum weigh-feeder for the period 2003-06, Birla Plus Cement, submitted 02.09.06
39.	Record of stake holder process, Birla Plus Cement, dated 18.10.05 & 21.10.05, submitted 02.09.06
40.	Photographs of the site visit, validation team dated 02-03.09.06
41.	Letter from Roller press supplier Humbolt Weldag, Germany, dated 30.09.2006, submitted October 2006
42.	Letter from Vibrating mill supplier Sayaji Industries, submitted October 2006
43.	Comprehensive fly ash utilisation status in India as of October 2005, submitted October 2006
44.	Proof for the distance between Vikram and BPC, submitted October 2006
45.	Ambient air monitoring report for the year April 2005 – September 2006, submitted October 2006
46.	Technical description of the activity with the bag filter location, Chapter 7, Feasibility Report, submitted October 2006
47.	Environmental Mitigation Plan status in the plant, dated 31.03.2006, submitted October 2006
48.	Flow diagram of bag filter, submitted October 2006
49.	CDM consideration minutes of meeting, dated 20.12.2002, submitted October 2006
50.	CDM manual Birla Plus Cement, submitted October 2006
51.	Revised Final Project Design Document, Version 06 dated 15.01.2007