



VALIDATION REPORT

BLENDED CEMENT WITH INCREASED BLEND AT ORIENT CEMENT'S DEVAPUR AND JALGAON PLANTS IN INDIA.

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DET NORSKE VERITAS



VALIDATION REPORT

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Approved by: Einar Telnes Director	Organisational unit: DNV Certification, International Climate Change Services
Client: Orient Cement (Props: Orient Paper & Industries Limited)	Client ref.: Mr.Bhagwat Pandey

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Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “Blended cement with increased blend at Orient cement’s Devapur and Jalgaon plants in India project on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board. This validation report summarizes the findings of the validation.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan, ii) follow-up interviews with project stakeholders and iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

In summary, it is DNV’s opinion that the project as described in the project design document version-03 of 10th February 2006 meets all relevant UNFCCC requirements for the CDM and correctly applies the approved baseline and monitoring methodology ACM0005 version-02. DNV requests the registration of the “Blended cement with increased blend at Orient cement’s Devapur and Jalgaon plants in India project as CDM project activity.

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Report title: Blended cement with increased blend at Orient cement’s Devapur and Jalgaon plants in India			
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<i>Table of Content</i>	<i>Page</i>
1 INTRODUCTION	1
1.1 Validation Objective	1
1.2 Scope	1
1.3 Description of Proposed CDM Project	1
2 METHODOLOGY	2
2.1 Review of Documents	4
2.2 Follow-up Interviews	4
2.3 Resolution of Clarification and Corrective Action Requests	4
3 VALIDATION FINDINGS	5
3.1 Participation Requirements	5
3.2 Project Design	5
3.3 Project Baseline	5
3.4 Additionality	6
3.5 Monitoring Plan	8
3.6 Calculation of GHG Emissions	9
3.7 Environmental Impacts	9
3.8 Comments by Local Stakeholders	9
4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS	9
5 VALIDATION OPINION	10
REFERENCES	11

[Appendix A Validation Protocol](#)

***Abbreviations***

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification request
CMA	Cement manufacturers association
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
EIA	Environment Impact Assessment
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N ₂ O	Nitrous oxide
NGO	Non-governmental Organisation
NTPC	National Thermal Power Corporation.
OC	Orient Cement
ODA	Official Development Assistance
OM	Operating Margin.
PDD	Project Design Document
PPC	Portland Pozzolana Cement
UNFCCC	United Nations Framework Convention on Climate Change



1 INTRODUCTION

M/s Orient Cement (Props: Orient Paper & Industries Limited), has commissioned Det Norske Veritas Certification Ltd. (DNV) to validate the “Blended cement with increased blend at Orient cement’s Devapur and Jalgaon plants in India project in India. This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consists of the following personnel:

Chandrasekhara Kumaraswamy	DNV India	Team Leader, GHG auditor
Vidyacharan Astakala	DNV India	GHG auditor
Santhosh Jayaram	DNV India	GHG auditor, sector expert
Subhendu Biswas	DNV India	Internal Reviewer.
Einar Telnes	DNV Oslo	Technical reviewer

1.1 Validation Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project’s compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the 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).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0005 version-02. The validation team has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach, focusing on the identification of significant risk for project implementation and the generation of CERs.

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

1.3 Description of Proposed CDM Project

The project activity proposed by M/s Orient Cement (Props: Orient Paper & Industries Limited) at their two cement manufacturing units, the Devapur unit in Andhra Pradesh state and the Jalgaon unit in Maharashtra state, India. The project involves optimisation of clinker through the additional use of fly ash as an additive in the manufacture of Portland Pozzolana Cement. This is beyond current practices in the region selected, which is Andhra Pradesh and Maharashtra state.



This increase in blending of fly ash will reduce the clinker requirement resulting in reduction of fossil fuel consumption for clinker manufacturing. The project also contributes in reducing environmental effects due to mining of limestone used for clinker manufacturing.

The total estimated emission reduction due to the project activity is approximately 83 208t of CO₂ e per year.

2 METHODOLOGY

The validation consists of the following three phases:

- I a desk review of the project design and the baseline and monitoring methodology
- II follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual / 4/. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, 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 for the “Blended cement with increased blend at Orient cement’s Devapur and Jalgaon plants in India” is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of validation protocol criteria or where a risk to the fulfilment of project objectives is identified. Corrective Action Requests (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) validation protocol requirements have not been met; or
- iii) There is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term Clarification may be used where additional information is needed to fully clarify an issue.



Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
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), a Corrective Action Request (CAR) of risk or non-compliance with stated requirements or a request for Clarification (CL) where further clarifications are needed.	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 sub-divided. 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). A request for Clarification (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Resolution of Corrective Action Requests and Requests for Clarification			
Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final 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 project participants during the communications with the validation team should be summarised in this section.	This section should summarise 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 (PDD) / 1/version 02, dated 5th November 2005 submitted initially and final version 03 dated 10th February 2006, along with additional background documents related to the project design and baseline calculations / 3/ were assessed as a part of the validation.

2.2 Follow-up Interviews

In the period of 04th - 05th December 2005, DNV performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Orient Cement were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
M/s. Orient Cement (Props: Orient Paper & Industries Limited)	➤ Determination of project additionality and ascertaining that CDM was considered during the project conceptualisation.
	➤ Clarifications on establishment of baseline, monitoring plan and emission reduction calculations.
	➤ Resources, training needs and procedures for operation and maintenance.
	➤ Monitoring methodology.
	➤ Environmental consents

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve any outstanding issues which needed to be clarified for DNV's positive conclusion on the project design. The Corrective Action Requests and requests for Clarification raised by DNV, presented to the project participants in DNV's draft validation report of 2nd January 2006 (rev.01) were resolved during communications between Orient Cement and DNV.

To guarantee the transparency of the validation process, the concerns raised and responses given are documented in the validation protocol in Appendix A.

Since modifications to the Project design were necessary to resolve DNV's concerns, Orient Cement decided to revise the PDD and resubmitted the PDD version-03 on 10 February 2006. After assessing the revised PDD, DNV issued this final validation report and opinion.



3 VALIDATION FINDINGS

3.1 Participation Requirements

This project is being proposed as a unilateral activity by Orient cement. The DNA of India approved the project on 12th April 2006 / 2/. The host Party India meets all participation requirements.

The findings of the validation are stated in the following sections. The validation criteria, the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The project is expected to contribute to sustainable development through increased generation of employment and improvement of infrastructure facilities in the surrounding communities. The DNA of India has provided confirmation that the project assists in achieving sustainable development / 2/.

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation version 03 dated 10th February 2006.

3.2 Project Design

The project activity involves optimisation of clinker through additional use of fly ash as an additive in the manufacture of PPC, thereby reducing clinker percentage in PPC cement manufacturing at both the Orient cement Devapur works in Andhra Pradesh state and the Jalgaon works in Maharashtra state, India.

The project intends to increase the proportion of additives from 29% at the time of project initiation, to 34% maximum during the 10 years crediting period.

During the project period fly ash is sourced from NTPC, Ramagundam thermal power plant for the Devapur unit and from Bhusawal Thermal Power plant for the Jalgaon Unit.

The technology reflects current good practice. The necessary training of the end user of the cement containing higher amount of fly ash has been assured by Orient cement.

The project proponent has chosen a fixed crediting period of 10 years with the starting date of the crediting period as 1st April 2002.

DNV has not come across any information indicating that ODA is being used for the project.

3.3 Project Baseline

The project applies the approved baseline methodology ACM 0005 version-02, "Consolidated Baseline Methodology for increasing the Blend in Cement Production"

The applied baseline methodology is justified as it has been demonstrated that the project activity ensures:

- that there is no shortage of additives i.e. fly ash for blending in cement, and there is no alternative allocation or use of additional amount of additives used,



- that it excludes export of blended cement, and includes only domestically sold output, and
- that data on other cement manufacturers in the region is available from the CMA of India which is published annually.

The project participants have chosen the market covering Andhra Pradesh and Maharashtra states as “geographic region” for the baseline clinker % estimation. This is justified as per the region selection criteria of methodology ACM0005 and meets all the conditions required, as

- i) 90% of total production is sold within the region selected,
- ii) The region selected includes ten plants with published data, and
- iii) Production in the region is more than the minimum four times of project plant’s output as required by the methodology.

The baseline has been selected by evaluating the prevailing clinker percentage in PPC manufacturing in the selected region, which use similar inputs as the project and face similar economic, market and technical circumstances. The published data of CMA of India has been used for the same. On evaluation the option of “the average (weighted by production) mass percentage of clinker for the 5 highest blend cement brands for the related cement type in the region” is found to be lowest at 77.88% and this is taken as the baseline clinker% for the project. The project has chosen the option of establishing the baseline clinker% *ex-ante* with an annual increase of 2% in additive% during the 10 year crediting period. In the project activity additive % is defined as 100-clinker%.

It has been verified that the project proponent has the relevant records of operating history for the period 2001 to 2005 and it has been demonstrated that in the absence of the project activity, the existing practice of cement production with lower amount of fly ash % would have continued.

The baseline emission factors have been deduced from the equations stated in the approved methodology ACM0005 version-02. The data used for arriving at the baseline emission factor are validated and found to be in order.

3.4 Additionality

The additionality of the project has been established using the “tools for the demonstration and assessment of additionality” approved by the CDM-EB. The project activity primarily demonstrates the additionality through the technology and prevailing practice barriers.

Step 0: Preliminary screening based on the starting date of the project activity

As the project proponent wishes to have a crediting starting prior to the registration of project activity which started before registration, it must be established that the CDM was seriously considered during project inception. The following primary documentation to this effect has been verified:

- a) The purchase order No.Orcem\2053\6.78 dt.15.01.01 on EEL India Limited Dundahera, Haryana state for a fly ash handling system.



- b) Project proposal for fly ash handling system by Executive Vice president dated 7 February 2000, mentioning the cost benefit analysis and also possibility of CDM credits for environment friendly projects in cement plants.
- c) Plant records and evidence on R&D activities and trend showing increase in percentage of fly ash addition.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations:

The alternative scenarios identified for the project activity are:

Alternative 1: Continuation of the existing practice of cement (PPC) production.

Alternative 2: Implementation of the project activity not undertaken as CDM project activity.

Alternative 3: Implementation of cement (PPC) production practice, as in other manufacturing plants in the region, using similar input/raw materials, and facing similar economic, market and technical circumstances.

All scenarios meet the requirements of the Bureau of Indian standards specification IS:1489 (part 1) for the production of fly ash blended Pozzolona Portland Cement, according to which the fly ash percentage must fall between 15 -35% for the production of PPC.

Step 2: Investment analysis

Not applied.

Step 3: barrier analysis

The main barrier perceived for the successful implementation of the project is the market acceptability for high percentage of fly ash in PPC. This discourages the manufacturers to produce and promote PPC with higher fly ash blend. Efforts on R & D and also on marketing and promotional activities demonstrate the barrier. Marketing efforts to demonstrate that PPC was in no way inferior in quality to other types of cements required an extensive technical database on properties of PPC with respect to the prevalent OPC brand of cement. This required extensive research work with different raw materials and different proportion of raw material. Organisation had to organise customer meets with the masons, engineers and different end users to demonstrate that PPC was not inferior to OPC.. This argumentation was demonstrated during site visits and providing supporting documents like photographs and articles in their internal magazine "Birlanet".

Step 4: common practice analysis

Data available from CMA of India demonstrates that the manufacturing of PPC with fly ash percentage of 15 to 25% in the region was a common practice at the time of project implementation. The project plans to increase the fly ash proportion from 29% to 34% over the crediting period which is beyond the common practise in the region.

Step 5: Impact of CDM registration

CDM revenues may enhance the viability of the project and is expected to impact the project proponent's research and marketing efforts towards overcoming the market barriers. It was demonstrated by OCL that the revenues will be invested in R&D and marketing activities to sustain the project activity.



In conclusion, it is deemed likely that the project activity would not have been implemented in the absence of the CDM.

3.5 Monitoring Plan

The project applies the approved monitoring methodology ACM0005 version 02, titled “Consolidated Monitoring Methodology for Increasing the Blend in Cement Production”.

The monitoring methodology adopted is applicable and justified as the proposed project activity aims to increase the share of fly ash as additive in the PPC production beyond current practices in the selected region.

The monitoring plan adequately addresses all necessary information for monitoring and reporting of emission reductions due to the project activity.

As per the monitoring plan all critical data are either measured or calculated and parameters such as cement production, coal consumption, fly ash consumption etc., are recorded and archived up to 2 years after crediting period.

The project involves clinker manufacturing and PPC production at Devapur, Andhra Pradesh, India and grinding activity for production of PPC at Jalgaon, Maharashtra, India. The regional grids that supply power for both locations are different and thus emission factors for the western region (supplying grid power to Jalgaon plant) and southern grid (supplying grid power to Devapur plant) have been separately evaluated. Separate baseline emission factors for regional grids is established *ex-ante* based on approved methodology ACM002 using a combined margin approach. The weighted average of the “operating margin” and the “build margin” emission coefficient for southern regional grid of India has been estimated to be 0.988 kg CO₂e / kWh and western regional grid of India has been estimated to be 0.984 kg CO₂e / kWh. The “operating margin” emission factors have been estimated based on the “simple OM” approach as low cost / must run plants constitute less than 50% of the generation of the southern and western regional grids. For OM calculations the vintage data for the years 2001~2002, 2002~2003 and 2003~2004 are used. The completeness of the set of power plants as well as the correctness of the reported fuel consumption and electricity generation data has been verified. All data has been sourced from data published by the Central Electricity Authority.

The monitoring plan also provides provision for monitoring leakage caused by transportation of additional amount of additives. The parameters associated with leakage determination have been verified and found to be correct. Calibration and maintenance of process instrumentation are also as per approved monitoring methodology and are governed by the established procedures as a part of quality management system of the organisation.

Documentation have been reviewed and revised to cover issues such as internal audit, performance reviews and corrective actions pertaining to the blended cement project.

The monitoring of sustainable development indicators has not been included in the monitoring plan. This is considered acceptable as the DNA of India does not warrant monitoring of such indicators.



3.6 Calculation of GHG Emissions

The calculation of the GHG emissions has been done as per the ACM0005 version 2. All the aspects related to the direct and indirect GHG emissions have been addressed and the calculations are presented in a transparent manner.

The project, on implementation, is expected to result in reductions of an average 83 209 tonnes of CO₂ equivalent per year.

DNV has verified all the factors, sources and calculations based on production data and confirmed the reasonableness of the forecasted emission reductions.

3.7 Environmental Impacts

Indian regulation does not warrant an EIA to be conducted for this size of the project. The project proponent has assessed the possible impacts of project activity on the neighbouring environment through environment management system and established that no adverse environmental impacts are foreseen. This assessment has been verified and is deemed appropriate.

3.8 Comments by Local Stakeholders

While a formal stakeholders' process is not mandatory for this type of project under Indian Environmental Regulations, Orient cement has identified the local community, statutory and regulatory bodies, thermal power plants supplying fly ash, and employees of the organisation as key stakeholders. Through meetings and direct consultation stakeholders were consulted on the socio-economic impacts of the project activity.

Interactions with the stakeholders were verified and it has been confirmed that no adverse comments were received.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD of 05th November 2005 was made publicly available on DNV's climate change website (www.dnv.com/certification/climatechange) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 8th November 2005 to 7th December 2005.

No comment was received during the period.



5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “Blended cement with increased blend at Orient cement’s Devapur and Jalgaon plants in India”. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The project has been proposed as a unilateral project by Orient Cement. India as the host country meets the relevant participation requirements for the CDM and has approved its voluntary participation in the project. The DNA of India has confirmed that the project assists in achieving sustainable development.

The project activity reduces clinker production and associated GHG emissions by displacing clinker with fly ash in the production of Pozzolona Portland Cement. Emissions arising from the calcination of limestone and fossil-fuel based process energy will be reduced. By increasing percentage of fly ash in the cement production, the project results in reduction of CO₂ emissions that are real, measurable and gives long-term benefits to the mitigation of climate change. An analysis of relevant barriers demonstrates that the proposed project is not a likely baseline scenario and emission reductions are hence additional to any that would occur in its absence.

The project correctly applies the approved baseline methodology ACM0005 version-02 “Consolidated Baseline Methodology for increasing the Blend in Cement Production”. The baseline has been selected by determining the common prevailing clinker percentage of PPC in other manufacturing plants in the selected region that use similar raw material as the project and which face similar economic, market and technological circumstances.

In summary, it is DNV’s opinion that the “Blended cement with increased blend at Orient cement’s Devapur and Jalgaon plants in India”, as described in the PDD version 3 of 10th February 2006, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0005 version-02 . DNV thus requests the registration of the project as a CDM project activity.



REFERENCES

Documents provided by the project proponent that relate directly to the project:

- / 1/ “Blended cement with increased blend at Orient cement’s Devapur and Jalgaon plants in India”, Project Design Document, version 02, dated 5th November 2005 and version 03 dated 10th February 2006.
- / 2/ DNA of India, Host country approval letter dated 12th April 2006.
- / 3/ Detailed Base line calculation excel sheet.

Background documents related to the design and/or methodologies employed in the design or other reference documents:

- / 4/ International Emission Trading Association (IETA) & the World Bank’s Prototype Carbon Fund (PCF): *Validation and Verification Manual*. <http://www.vvmanual.info>
- / 5/ ACM0005 Approved methodology Version 02 – Consolidated baseline Methodology for Increasing the Blend in Cement production.

Persons interviewed during the validation, or persons who contributed with other information that are not included in the documents listed above:

- / 6/ M/s. Orient Cements: 1. Mr. M.L. Pachisia – Managing Director
2. Mr. Bhagwat Pandey – Executive Vice President
3. Mr. S.C. Bhanot - Vice president (Operations)
4. Mr. H.B.S Parihar - Asst. Vice President – Jalgaon Unit
5. Mr. A.K.Tiwari - Senior Manager Devapur Unit
6. Mr. V.V.Srinivas Kumar – Sr. Engineer Devapur Unit

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APPENDIX A

CDM 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	OK	Table 2, 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, CDM Modalities and Procedures §40a	CAR-1 OK	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	OK	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	CAR-1 OK	
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	OK	Table 2, 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, CDM Modalities and Procedures §43	OK	Table 2, Section B.2
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Decision 17/CP.7	OK	Not applicable as there is no Annex-I country involved in the project.
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK	The Designated National Authority for host party India

Requirement	Reference	Conclusion	Cross Reference / Comment
			has been formed under the Ministry of Environment and Forests. (MoEF)
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities §30/31a	OK	India has already acceded to the Kyoto protocol
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	Not Applicable	Not applicable as no Annex I country is involved.
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	Not Applicable	Not applicable as no Annex I country is involved.
12. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	CDM Modalities and Procedures §37b	OK	Table 2, Section G
13. 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.	CDM Modalities and Procedures §37c	OK	Table 2, Section F
14. Baseline and monitoring methodology shall be previously approved by the CDM Executive Board	CDM Modalities and Procedures §37e	OK	Table 2, Section B.1.1 and D.1.1
15. 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	CDM Modalities and Procedures §37f	OK	Table 2, Section D
16. 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	CDM Modalities and Procedures §40	OK	The PDD was made publicly available on DNV Certification's website

Requirement	Reference	Conclusion	Cross Reference / Comment
comments have been made publicly available			www.dnv.com/certification/climatechange) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during the period from 08 th November 2005 to 07 th December 2005.
17. 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	CDM Modalities and Procedures §45c,d	OK	Table 2, Section B.2
18. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK	Table 2, Section B.2
19. The project design document shall be in conformance with the UNFCCC CDM-PDD format	CDM Modalities and Procedures Appendix B, EB Decision	OK	

Table 2 Requirements Checklist

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity <i>The project design is assessed.</i>					
A.1. Project Boundaries <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	/ 1/	DR	Yes, the project spatial boundaries cover 2 units. 1. Devapur Unit: Devapur village, Adilabad district, AP, India 2. Jalgaon Unit: Nashirabad Village, Jalgaon district, Maharastra, India The clinker for the Jalgaon unit is supplied from Devapur Unit.		OK
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/ 1/	DR	Yes, the project system boundary includes the cement production plant, on site power generation and grid power. Transportation of additional additives is also included in the project boundary. The boundary considered accounts; <ul style="list-style-type: none"> • direct emissions at the cement plant due to fuel combustion. • Direct emissions due to calcinations of limestone. • Indirect emissions from fossil fuel combustion in power plants in grid and self generation due to electricity consumption at cement plant. 		OK

* MoV = Means of Verification, DR= Document Review, I= Interview

Page A-4

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A.2. Technology to be employed <i>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.</i>					
A.2.1. Does the project design engineering reflect current good practices?	/ 1/ / 6/	DR I	Yes, the project design reflects current good practises. The fly ash is transported in tankers and is stored in enclosed silos to avoid fugitive emissions. The fly ash is pneumatically evacuated from the tanker to storage silo. The feeding of fly ash during the grinding is metered through a Solid flow meter.		OK
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 technologies in the host country?	/ 1/	DR	Yes, the technology used will result in better control of the cement quality as well as result in controlling the fugitive emissions.		OK
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/ 1/	DR	No, The project technology as a whole will not be substituted, but it is possible, that the project incorporates better control systems for the process as technology progresses.		OK
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	/ 1/ / 6/	DR I	Yes, the project will require extensive training in areas of production control, quality control and marketing. But the project does not envisage extensive maintenance efforts, since most of the equipment used would be similar to baseline.		OK

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/ 1/	DR	The project will require minimal additional training and maintenance efforts. As Orient Cement is certified to ISO 9001:2000 and ISO 14001, established management systems are expected to be adequate to take care of these additional requirements.		OK
A.3. Contribution to Sustainable Development <i>The project's contribution to sustainable development is assessed.</i>					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	/ 1/	DR	Yes, the project is in line with the Bureau of Indian Standards (BIS) specifications for Portland Pozzolona Cement (PPC) as per IS 1489.		OK
A.3.2. Is the project in line with host-country specific CDM requirements?	/ 1/ / 6/	DR I	The project does not have the formal approval from DNA of India.	CAR-1	OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/ 1/	DR	No assessment in PDD against the sustainable development indicators of India. The project also does not have an approval from DNA of India that the project meets the sustainable development policies set by the DNA.	CAR-2	OK
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/ 1/	DR	Yes, apart from GHG emission reduction, the project helps to reduce the impact of disposal of fly ash from coal based thermal power plants. The project also helps to conserve the limestone reserves as well as reduce the fossil fuel consumption.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
B. Project Baseline <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
B.1. Baseline Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Does the CDM Executive Board previously approve the baseline methodology?	/ 1/	DR	Yes, the project applies the approved consolidated baseline methodology ACM 0005 "Consolidated Baseline Methodology for-increasing the blend in Cement production".		OK
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/ 1/ / 6/	DR I	<p>Yes, the appropriateness is justified by meeting the applicability conditions.</p> <p>The project aims at reducing the share of clinker in the production of cement beyond the current practises of India.</p> <p>The additive used will be fly ash from coal based thermal plants.</p> <p>A clarification is requested to demonstrate that there is no shortage of fly ash in the region. And also an evidence of formal agreement with power plant for continuous availability of good quality fly ash.</p> <p>There is no alternative allocation or use of fly ash other than the project, i.e., manufacture of Portland Pozzolona Cement</p>	CL1	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			(PPC). Orient Cement does not export PPC. Adequate data are available on cement types in market. One of the prime sources of data is reports published by Cement manufacturers association (CMA).		OK
B.2. Baseline Determination <i>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.</i>					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	/ 1/ / 6/	DR I	<p>Yes, the application, discussions and determination of chosen baseline are transparent.</p> <p>The region is considered as a 350 km radius of each plant and during site visit it is learnt that the region includes, both Andhra Pradesh and Maharastra states. A clarity on this and clear description in PDD is required.</p> <p>This meets the 3 applicability criteria's:</p> <ul style="list-style-type: none"> • 75% of project activity plant's cement production is sold. • Includes at least 5 other plants with the required published data. • The production in the region is at least four times the project activity plant's output. 	CAR 3	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/ 1/	DR	<p>The benchmark for baseline emission as in ACM 0005 is used in determining the baseline. The lowest value of the 3 Methods are considered for establishing the baseline.</p> <ul style="list-style-type: none"> - Mass % of clinker for the 5 highest brands, for the calculation the lowest in clinker %, as conservative figure. - The list of the project plants used to establish the top 20% of the production of PPC in the region needs to be provided. - If the region is defined as 350 kms around each plant (350 radius), A clarification is sought for why, the analysis and the baseline have not been established separately for each plant. - The third option of % clinker before implementation of CDM project is not applicable since, there was no production of PPC before the project. 	CL-2	OK
B.2.3. Has the baseline been established on a project-specific basis?	/ 1/	DR	Monitored amount of raw material, fossil fuel and power consumed at both the units are used to establish the baseline emission factors. The baseline for the project is thus established on project specific basis.		OK
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/ 1/	DR	Yes, it does take into account relevant national policies; the bureau of Indian standards has prescribed a maximum limit of 35% of additives for PPC.		OK
B.2.5. Is the baseline determination compatible with	/ 1/	DR	Yes.		OK

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Page A-9

Page A-10

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			Step 3. (Barrier analysis) The arguments under technological barrier are very weak to substantiate that the barrier exists. Lack of infrastructure as given in PDD is for implementation of technology and not project. Handling system, collection, transport etc are infrastructure for the project. The barrier should be what infrastructure prevents from implementing a particular technology; A clear explanation is sought on this.	CL-5	OK
			Evidence required for the statement "OC invested in qualified cement technologists and engineers for doing R &D". Also details on investment on R&D are also required.	CL-6	OK
			Market acceptability barrier: The acceptance levels of PPC are very poor due to quality apprehensions resulting from low awareness levels increased efforts on independent market survey and marketing		OK
			Step 4: Common practise analysis: The project is confirmed not to represent common practice at the time of project initiation		OK
			Step 5: Impact of CDM registration: The approval and registration and revenue generated as CDM project will help in		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			overcoming the barrier, which will attract other players to implement this. The revenue will also aid in stabilising the project activity by overcoming the barriers.		
B.2.8. Have the major risks to the baseline been identified?	/ 1/	DR	YES		OK
B.2.9. Is all literature and sources clearly referenced?	/ 1/	DR	Data in excel sheet does not indicate data source. No references in the PDD also.	CAR 5	OK
C. Duration of the Project/ Crediting Period <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	/ 1/	DR	Clarification on the project starting date is sought. The operational lifetime of the project is expected to be 20 years.	CAR 4	OK
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?	/ 1/	DR	Yes, The fixed crediting period of 10 years with no renewal is chosen.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D. Monitoring Plan <i>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).</i>					
D.1. Monitoring Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
D.1.1. Is the monitoring methodology previously approved by the CDM Executive Board?	/ 1/	DR	The project applies the approved consolidated monitoring methodology ACM 0005 "Consolidated monitoring Methodology for-increasing the blend in Cement production", Version 1, dated 30 September 2005. It requires to adopt the revised version 2 dated 28 November.	CAR-6	OK
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/ 1/	DR	<p>Yes, the appropriateness is justified by meeting the applicability conditions.</p> <p>The project aims at reducing the share of clinker in the production of cement beyond the current practises of India.</p> <p>The additive used will be fly ash from coal based thermal plants and there is no shortage of fly ash.</p> <p>There is no alternative allocation or use of fly ash other than the project, i.e., manufacture of Portland Pozzolona Cement</p>		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			(PPC). Orient cements do not export PPC. Adequate data are available on cement types in market. One of the prime sources of data is reports published by Cement manufacturers association (CMA).		
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/ 1/	DR	Yes.		OK
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/ 1/	DR	Yes.		OK
D.2. Monitoring of Project Emissions <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
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/ / 6/	DR I	Yes, the monitoring plan provides collection and archiving of all relevant data as stipulated under ACM 0005. The data as given by ID no – 14-20, 27 & 28 in ACM 0005 are not monitored since no energy spends on preparation of additive. .		OK
D.2.2. Are the choices of project GHG indicators reasonable?	/ 1/	DR	Yes, It is as per ACM 005.	CAR6	OK
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	/ 1/	DR	Yes.		OK
D.2.4. Will the indicators give opportunity for real measurements of project emissions?	/ 1/	DR	Yes.		OK
D.2.5. Will the indicators enable comparison of project data and performance over time?	/ 1/	DR	Yes.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.3. Monitoring of Leakage <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/ 1/	DR	Yes, the monitoring plan provides collection and archiving of all relevant data as stipulated under ACM 0005. required to incorporate changes of new version on methodology.	CAR-6	OK
D.3.2. Are the choices of leakage indicators reasonable?	/ 1/	DR	Yes, It is as per ACM 0005.		OK
D.3.3. Will it be possible to monitor / measure the specified leakage indicators?	/ 1/	DR	Yes		OK
D.3.4. Will the indicators give opportunity for real measurements of leakage effects?	/ 1/	DR	Yes		OK
D.4. Monitoring of Baseline Emissions <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/ 1/	DR	Yes, the monitoring plan provides collection and archiving of all relevant data as stipulated under ACM 0005. The data as given by ID no – 14-20, 27 & 28 in ACM 0005 are not monitored since no energy spends on preparation of additive.		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/ 1/	DR	Yes, It is as per ACM 0005.		OK
D.4.3. Will it be possible to monitor / measure the specified baseline indicators?	/ 1/	DR	Yes		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.4.4. Will the indicators give opportunity for real measurements of baseline emissions?			Yes		OK
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts <i>It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	/ 1/ / 6/	DR I	No, But both the units are certified for Environmental Management System under ISO 14001 standard. Hence all relevant environmental monitoring are covered.		OK
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	/ 1/	DR	Not applicable, see comments in D.5.1.		OK
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	/ 1/	DR	Not applicable, see comments in D.5.1.		OK
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/ 1/	DR	Not applicable, see comments in D.5.1.		OK
D.6. Project Management Planning <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
D.6.1. Is the authority and responsibility of project management clearly described?	/ 1/ / 6/	DR I	Yes, OC has formed a team comprising of qualified quality and cement industry expertise to conceive, install and make the project operational.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and	/ 1/	DR	Yes, this is integrated with quality management system in practise (in line with		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
reporting clearly described?			ISO 9001:2000).		
D.6.3. Are procedures identified for training of monitoring personnel?	/ 1/	DR	Yes, this is integrated with quality management system in practise (in line with ISO 9001:2000).		OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/ 1/	DR I	No emergencies envisaged which can cause unintended emission.		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/ 1/ / 6/	DR I	Yes, the units are certified under ISO 9001:2000 and 14001:2004 and the procedures applicable under the management system are extended to the project monitoring equipments also.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/ 1/	DR	Yes		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/ 1/	DR	Yes		OK
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/	DR	Yes		OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/ 1/	DR	Yes		OK
D.6.10. Are procedures identified for review of reported results/data?	/ 1/ / 6/	DR I	Yes, head of plant will verify the reported data.		OK
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/ 1/ / 6/	DR I	Yes		OK
D.6.12. Are procedures identified for project	/ 1/	DR	Yes		OK

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Page A-17

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
performance reviews before data is submitted for verification, internally or externally?					
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/ 1/ / 6/	DR I	Yes.		OK
E. Calculation of GHG Emissions by Source <i>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.</i>					
E.1.Predicted Project GHG Emissions <i>The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.</i>					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	/ 1/	DR	Yes, The following GHG emissions are accounted for as stipulated in ACM 0005. <ul style="list-style-type: none"> Emissions from calcinations of lime stone. Emissions from combustion of fossil fuel and electricity for clinker production and processing of raw material. Emissions from electricity used for grinding of cement. Emissions from electricity used for additives preparation.		OK
E.1.2. Are the GHG calculations documented in a	/ 1/	DR	Details on grid calculations are required as units are distributed in both southern		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
complete and transparent manner?			(Devapur unit) and western region (Jalgaon Unit). And conservativeness on grid emissions has not been demonstrated.	CL7	
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	/ 1/	DR	Comments reserved till E.1.2 is resolved.	CL7	OK
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	/ 1/	DR	Comments reserved till E.1.2 is resolved.	CL7	OK
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	/ 1/	DR	The relevant GHG is only CO2 and all relevant source categories are also covered.		OK
E.2. Leakage <i>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.</i>					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/ 1/	DR	As outlined in ACM 0005 leakage effects due to transport of raw materials like limestone, gypsum etc. are not considered in order to keep the calculations conservative. This is not mentioned in PDD. The increase in emissions due to transport of additives is accounted for the project.	CAR7	OK
E.2.2. Have these leakage effects been properly accounted for in calculations?	/ 1/	DR	Yes these are accounted for.		OK
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	/ 1/	DR	ACM 0005. Version 2 dated 28 th November 2005 is to be followed.	CAR6	OK
E.2.4. Are the calculations documented in a complete and transparent manner?	/ 1/	DR	ACM 0005. Version 2 dated 28 th November 2005 is to be followed.	CAR6	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			Comments reserved.		
E.2.5. Have conservative assumptions been used when calculating leakage?	/ 1/	DR	ACM 0005. Version 2 dated 28 th November 2005 is to be followed. Comments reserved.	CAR-6	OK
E.2.6. Are uncertainties in the leakage estimates properly addressed?	/ 1/	DR	Yes		OK
E.3. Baseline Emissions <i>The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.</i>					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	/ 1/	DR	Comments reserved until section B.2, clarifications are resolved.		OK
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/ 1/	DR	Yes, The boundary considered accounts; <ul style="list-style-type: none"> • direct emissions at the cement plant due to fuel combustion. • Direct emissions due to calcinations of limestone. • Indirect emissions from fossil fuel combustion in power plants in grid and self generation due to electricity consumption at cement plant. 		OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/ 1/	DR	No, There is a difference between the data in worksheets consolidated and ER. The BE BC,y value in both work sheets are not identical. The grid calculations are not transparent.	CAR-8	OK
E.3.4. Have conservative assumptions been used	/ 1/	DR	Comments reserved till E.3.3 and B.2.3		

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
when calculating baseline emissions?					
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/ 1/	DR	There are no uncertainties associated with baseline GHG calculations.		OK
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	/ 1/	DR	Yes.		OK
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/	DR	Yes.		OK
F. Environmental Impacts <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/ 1/	DR	Yes, it is described.		OK
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/ 1/	DR	No, there are no requirements in India for an EIA, considering the nature and size of the project.		OK
F.1.3. Will the project create any adverse environmental effects?	/ 1/	DR	No adverse environmental effects are envisaged through the project.		OK
F.1.4. Are transboundary environmental impacts considered in the analysis?	/ 1/	DR	No transboundary environmental effects are envisaged through the project.		OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/ 1/	DR	Yes.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
F.1.6. Does the project comply with environmental legislation in the host country?	/ 1/	DR	Yes, the project has all applicable consents from the State pollution control board.		OK
G. Stakeholder Comments <i>The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.</i>					
G.1.1. Have relevant stakeholders been consulted?	/ 1/	DR	Yes, the stakeholders are consulted through an interview on 2005.11.04		OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/ 1/	DR	A meeting was conducted on 2005.11.04 to invite comments by local stakeholders		OK
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/	DR	Not required considering the nature and scale of the project.		OK
G.1.4. Is a summary of the stakeholder comments received provided?	/ 1/	DR	Yes.		OK
G.1.5. Has due account been taken of any stakeholder comments received?	/ 1/	DR	Yes.		OK

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Table 3 Resolution of Corrective Action and Clarification Requests

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
CAR 1 Written approval from the DNA of India has not been obtained	Table 1 No.2,4 A3.1	The letter of approval by the Indian DNA, Ministry of Environment and Forest, the India DNA, has been received same would be produced in hard copy. Annexure I to this document	Approval from DNA of India has been received and the same has been verified. CAR closed
CAR 2 No assessment in PDD against the sustainable development indicators of India. The project also does not have an approval from DNA of India that the project meets the sustainable development policies set by the DNA.	A3.3	This requirement has been correctly addressed in the PDD version 03 by identifying and addressing the Sustainable Development aspects set by Indian Government against the points addressing the contributions of the project to sustainable development of the country.	The information provided is accepted CAR closed
CAR 3 The region is considered as a 350 Km radius of each plant and during site visit it is learnt that the region includes both of the Andhra Pradesh and Maharashtra states. A clarification on this and clear description in PDD is requested.	B 2.1	Orient has initiated the project, i.e. 'of adding additional quantity of additive then the prevailing practise in the region' and simultaneously implemented it at – Devapur in Andhra Pradesh (Dec 2001) and Jalgaon in Maharashtra (July 2002). As details provided for the despatch data for both the plant (excel sheet attached), it is concluded that the more than 90% of the total production of the Devapur and Jalgaon plant is sold in Andhra Pradesh and Maharashtra.	It is verified that the selected region satisfies the requirements of ACM0005. Hence accepted CAR closed

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
		<p>Attached table of dispatch figures- Annex II</p> <p>Thus the definition of the baseline region combined for the plants is Andhra Pradesh and Maharashtra. Accordingly the other cement plants in the baseline has been selected to compute the prevailing practices of adding additive in PPC blend of cement during the base year of the project (2001-2002).</p> <p>Detail explanation has been provided in the revised PDD.</p>	
<p>CAR 4</p> <p>Project starting date is Mentioned as June 2001 (no date given). During site visit, no evidence was available supporting this date. The first Purchase Order dated on EEL India Limited dated 15.1.2001 for fly ash handling system has been shown. A clarification on this is required and conclusion on correct start date.</p>	<p>B 2.7</p> <p>C 1.1</p>	<p>Start date for project is 15/01/2001 when the project was conceived as a CDM project. Same has been mentioned in section C.1.1 of the PDD.</p>	<p>The complementary information provided is verified and accepted.</p> <p>CAR closed</p>
<p>CAR 5</p> <p>Data in excel sheet does not indicate data source. No references in the PDD also.</p>	<p>B 2.9</p>	<p>All the data sources are mentioned below and the same have been mentioned in relevant sections of the PDD also.</p> <p>All data related to PPC production, clinker used for the baseline has been taken from Cement Manufacture's Association, India, publication "Cement Statistics"</p>	<p>Provided information is accepted</p> <p>CAR Closed</p>

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
		http://www.cmaindia.org/ All data related to grid emission factor calculation has been taken from Central Electricity Authority of India (http://www.cea.nic.in/) and Regional Electricity Despatch Centres Western Region - www.wreb.gov.in/ Southern Region - http://www.srlhc.org/ All project performance related data has been taken from in-plant sources – Devapur and Jalgaon.	
CAR-6 The project applies the approved consolidated monitoring methodology ACM 0005 “Consolidated monitoring Methodology for-increasing the blend in Cement production”, Version 1, dated 30 September 2005. It requires to adopt the revised version 2 dated 28 November	D1.1 D 2.1 D 2.2 D 3.1 E 2.3 E 2.4 E 2.5	PDD has been revised adopting version 2 of the methodology ACM0005 dated 28/11/05.	Changes made are verified and acceptable as per revised methodology CAR Closed.
CAR-7 As outlined in ACM 0005. Leakage effects due to transport of raw materials like Limestone, Gypsum etc. are not considered to keep the calculations conservative. This is not mentioned in PDD.	E 2.1	This has been incorporated in the PDD to bring in the conservative approach.	The information provided is verified and accepted. CAR Closed.
CAR-8 There is a difference between the data in worksheets consolidated and ER. The BE	E 3.3	Calculations of emission reduction (ER) and grid calculations are attached with	Final calculation sheets provided are verified.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
BC _y value in both work sheets are not same. The grid calculations are not transparent.		this document as Annexure III and Annexure IV correspondingly. The figures on ER provided in the PDD are final and match with the ER figures in Annexure III.	CAR Closed
CL1 A clarification is sought to demonstrate that there is no shortage of fly ash in the region. And also an evidence of formal agreement with power plant for continuous availability of good quality fly ash	B 1.2	Orient Cement has written documents from NTPC and BTPS confirming to the total availability of fly ash and its supply to Orient Cement. A copy of the same is attached as Annexure V.	The information provided substantiates the requirement. Hence accepted CL closed
CL2 The list of the project plants used to establish the top 20% of the production of PPC in the region needs to be provided.	B 2.2 B 2.6	Details has been provided in the emission reduction calculation excel sheet (Annexure III) and also in the PDD in section B2 on pg no. 10	Details provided are verified and accepted. CL closed
CL3 If the region is defined as 350 kms around each plant (350 radius), A clarification is sought for why, the analysis and the baseline have not been established separately for each plant.	B 2.2 B 2.3 B 2.6	The region defined for the study is Maharashtra and Andhra Pradesh where more than 75% of the product is sold. The baseline calculation and analysis is based on cement plants in the region as defined above (same is reflected in Annexure III to this document). The same is mentioned in the PDD in section B2.	The region selection complies with the requirements of the consolidated methodology ACM0005 . CL closed
CL4 The arguments on investment barrier are not justified without a detail analysis. A detail analysis on business risk mentioned are sought	B 2.7	Calculation of Internal rate of return of the project with and without CDM benefits has been provided with detail analysis and consideration of business risk with reason thereof, to the validator to prove the Investment Additionality of the project. Based on these financial	IRR calculations, sensitivity analysis demonstrates the existence of investment barrier and supports additionality for the project CL closed

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
		calculations management of Orient decided to go for the project of adding increasing quantity of fly ash. IRR calculation attached as Annexure VI to this document	
CL-5 The arguments under technological barrier are weak to substantiate that the barrier exists. Lack of infrastructure as given in PDD is for implementation of technology and not project. Handling system, collection, transport etc are infrastructure for the project. The barrier should address what prevents the infrastructure from implementing a particular technology; A clear explanation for this is requested.	B 2.7	The likely and encountered technological problems, during initial phase of the project have been mentioned under the technological barrier in the PDD. Additional infrastructure had to be established by Orient cement in order to prevent and eliminate these problems. A detailed and clear explanation on the same is provided under the technological barrier in the PDD.	The information furnished in the PDD is accepted. CL closed.
CL-6 Evidence required for the statement "OC invested in qualified cement technologists and engineers for doing R &D". Also details on investment on R&D are also required.	B 2.7	The statement should read as <i>OC carried out extensive in house R&D and hence, incurred expenditure. Also training of the existing staff had to be carried out for blended cement production.</i> The same has been corrected under technological barrier in the PDD. Staff members attended various training programmes organized by reputed organizations like National Council for Cement and Building Material, Government of Andhra Pradesh etc. Details of the staff members attending these training programs, is attached as Annexure VII	The complementary information provided is accepted. CL closed.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
		to this document.	
CL7 Details on grid calculations are required as units are distributed in both southern (Devapur unit) and western region (Jalgaon Unit). And conservativeness on grid emissions has not been demonstrated	E 1.2 E 1.3 E 1.4	<p>The combined margin for southern grid is 988tCO₂/GWh and for Western grid is 984tCO₂/GWh. The difference in combined margin for the two grids is not significant hence, for Devapur and Jalgaon, Southern grid and Western grid is considered respectively. The grid calculations for each of them are attached as Annexure IV to this document.</p> <p>The grid emission factors are conservative as regional grids have been chosen instead of choosing Maharashtra and Andhra Pradesh for calculating combined margin.</p>	<p>The grid calculations provided are verified and consideration of southern and western region grids is acceptable as per new EB guidelines on region for calculations of grid emission factors in ACM002.</p> <p>CL closed.</p>

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