



VERIFICATION AND CERTIFICATION REPORT

“MONDI RICHARDS BAY BIOMASS PROJECT” IN SOUTH AFRICA

UNFCCC REFERENCE 0966

MONITORING AND REPORTING PERIOD:
1 OCTOBER 2005 TO 31 MARCH 2007.

REPORT No. 2007-1669

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DET NORSKE VERITAS



VERIFICATION AND CERTIFICATION REPORT

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Client: Mondi Business Paper, Richards Bay South Africa	Client ref.: Hendrik Louw/Ciska Terblanche

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Summary:

Det Norske Veritas Certification AS (DNV) has been commissioned by Mondi Business Paper, Richards Bay, South Africa to carry out the verification and certification of emission reductions generated by the “Mondi Richards Bay Biomass Project”, South Africa, for the period 1 October 2005 to 31 March 2007.

In our opinion, the “Mondi Richards Bay Biomass Project” reported GHG emission reductions for the period from 1 October 2005 to 31 March 2007 as reported in the revised CDM Monitoring Report version 17.0 dated May 2009, are fairly stated.

The GHG emission reductions were calculated correctly on the basis of the approved Monitoring Methodology (AM0036 version 1), the monitoring plan and the project design document. As a consequence, Det Norske Veritas is able to certify that the emission reductions from the project during the period 1 October 2005 to 31 March 2007, amount to 78 011 tonnes of CO₂ equivalent.

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***Abbreviations***

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DNV	Det Norske Veritas
DOE	Designated Operational Entity
DCS	Distributed Control Systems
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GJ	Giga Joules
GWh	Giga Watt hour
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
kWh	Kilo Watt hour
MW	Mega Watt
N ₂ O	Nitrous oxide
NGO	Non-governmental Organisation
NIR	New Information Request
PDD	Project Design Document



1 INTRODUCTION

Det Norske Veritas Certification AS (DNV) has been commissioned by Mondi Business Paper to carry out a verification of the emission reductions reported by the “Mondi Richards Bay Biomass Project” in S. Africa (hereafter the project) for the period 1 October 2005 to 31 March 2007. This report contains the findings from this verification assignment and a certification statement for the certified emission reductions.

1.1 Objective

Verification is the periodic independent review and *ex post* determination by the Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined verification period.

Certification is the written assurance by a DOE that, during a specific period in time, a project activity achieved the emission reductions as verified.

1.2 Scope

The verification scope is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a high level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records.

The verification shall ensure that reported emission reductions are complete and that sufficient evidence is provided in order to give reasonable assurance that the amount of calculated GHG emission reductions is fairly stated.

The verification team has, based on the recommendations in the Validation and Verification Manual /5/.

1.3 GHG Project Description

Project Parties:	Republic of South Africa.
Title of project activity:	Mondi Richards Bay Biomass Project
UNFCCC registration No:	UNFCCC Registration No. 0966
Methodology applied:	AM0036 Version 1
Project Participants:	Mondi Business Paper
Location of the project activity:	The project is located at the site of Mondi Business Paper, Richards Bay in South Africa.



Project's crediting period	1 October 2005 to 31 September 2015 (fixed)
Verification period	1 October 2005 to 31 March 2007.
Project's actual starting date	The project activity was commissioned in two phases. The phase one was commissioned in November 2004 and comprised the installation of equipments to confirm that the co-fired boiler could combust higher quantities of biomass wastes than the baseline quantities, without affecting the production. The second phase was implemented in September 2005 and comprised the setting up of biomass waste handling and processing equipment in the wood yard. The activity also comprises the setting up of a biomass waste management system in the plantations around Richards Bay. The commissioning certificates for the commissioning of the two phases have been evidenced.

The primary objective of the project activity is to reduce the consumption of fossil fuel coal in the co-fired boiler used for the steam requirements, by increasing the quantity of biomass firing from the baseline quantity (fixed as the highest of the three year historical biomass fired). The reduction in the consumption of the fossil fuel coal in the boiler leads to the reduction of the GHG emissions. This is a partial fossil fuel switch (from coal to biomass waste) measure.

The start of the crediting period for the project activity is considered to be from 1 October 2005.

The emission reductions reported from the project for the period 1 October 2005 to 31 March 2007 as per the revised monitoring report dated May 2009, equate to 78 011 tonnes of CO₂ equivalent.

2 METHODOLOGY

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. As the CDM Executive Board has not yet formally endorsed the application of any materiality principle for verification of emission reductions from CDM projects - implying that emphasis should be on the significant contributors to emission reductions - the DNV team has for this assignment decided to check all factors and issues with the same emphasis. Despite this, the team has during its preparations identified the key reporting risks and used the assessment to determine to which extent the project operator's control systems were adequate for mitigation of these key reporting risks. In addition, other areas that can have an impact on reported emission reductions have also undergone detailed audit testing.

The verification process was guided by a verification checklist, which aims to ensure a transparent verification process. This document details how emission reductions have been verified and how the verification findings have been reached. The statement "data are found to be correct" refer to a situation where the auditors through the testing processes have found no discrepancies in the reported data and that these, in the opinion of the auditors, are free from material misstatements.



The verification team consisted of the following personnel:

<i>Role/Qualification</i>	<i>Last Name</i>	<i>First Name</i>	<i>Country</i>	<i>Type of involvement</i>					
				Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	Expert input
GHG Auditor/ Project manager	Folkestad	Tonje	Norway	X		X			
GHG Auditor	Haupt	Frederick	South Africa		X				
GHG Auditor	Kakaraparthi	Raman	India			X	X		
CDM verifier/technical team leader	Antunes	Felipe Lacerda	Brazil			X	X		
Technical reviewer	Brinks	Hendrik	Oslo					X	

Duration of verification

Preparations: 25, 26, 27 August 2007.

On-site verification: 5-7 September 2007.

Reporting & QA: 17 October 2007 – 15 May 2009.



2.1 Review of Documentation

The monitoring reports /1/ and the emission reduction calculations, provided in the form of spreadsheets, were assessed as a part of the verification. In addition the registered and validated Project Design Document /2/, and the validation report /3/ were also assessed. Moreover, other documents [/4/ - /6/] were assessed as evidence. Several versions of updated monitoring reports were also assessed in order to confirm the corrective actions requested during the verification process.

2.2 Site Visit

Detailed verification of all data contained in the monitoring report was performed during a site visit at Mondi Business Paper, Richard Bay on 5-7 September 2007. During the site visit, the following personnel were interviewed or assisted the verification team:

Name	Organization	Position
Sibs von Solms	Mondi Business Paper	Quality Manager
Mike Carter	Mondi Business Paper	Production
Mike Miller	Mondi Business Paper	Production
Ciska Terblanche	Mondi Business Paper	Project Responsible

2.3 Reporting of Findings

Findings established during the verification may be as follows:

A corrective action request (CAR) is issued, where:

- i. Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- ii. Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- iii. Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CL) shall be raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is issued for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

3 VERIFICATION FINDINGS

This section summarises the findings from the verification of the emission reductions reported for the “Mondi Richards Bay Biomass Project” in South Africa for the period 1 October 2005 to 31 March 2007.

3.1 Remaining Issues, CARs / FARs from Previous Validation or Verification

According to the validation report /3/, no CAR or CL's were required to be closed out during validation, by the validation body and the same has been verified by DNV. However one NIR



(13) was left to be reviewed during the verification. This was done and is detailed in the verification checklist.

One CAR was raised during the verification visit on the 5-7 September 2007. Furthermore, two CARs and one CL were raised during the reporting stage of the verification.

3.2 Project Implementation

The project activity consists of measures to increase the quantity of biomass firing in the co-fired boiler at the Mondi Business Paper facility, from the baseline quantities. The measures were implemented in two phases. The phase one was commissioned in November 2004 and comprised the installation of additional equipments to confirm that the co-fired boiler could combust higher quantities of biomass, without affecting the production. The second phase was implemented in September 2005 and comprised the setting up of biomass waste handling and processing equipment in the wood yard.

In the baseline scenario, the bark (generated from the debarking operations of the softwood) was alone being co-fired in the boiler. In the project scenario, the bark generation is increased by the installation of the Saalasti machine to utilize biomass waste from external sources after separating, shred, cleaning and conveying the processed biomass residues to the boiler. The project activity hence (1) maximizes the amount of biomass residues fired in the co-fired boiler, (2) prevents biomass residues from nearby facilities going to landfill and (3) prevents biomass residue in plantations from decay.

The project involved the installation of the following

- a) New Saalasti crush size 1212 bark shredder in the wood yard to effectively shred all the hardwood slivers, logs and planks.
- b) Secondary biomass feed system to tie into the primary feed system and a smaller Saalasti crush size 0609 bark shredder to handle the imported biomass.
- c) Upgrade the fly ash conveyors on the power boiler to handle the ash generated.

The project boundaries include the co-fired boiler, the wood yard, landfill sites and the plantations where the biomass residue is left to decay.

The Mondi Business paper facility has all the necessary permits in place.

3.3 Project Baseline

The approved baseline methodology of AM0036 version 1 “Fuel switch from fossil fuels to biomass residues in boilers for heat generation” is based on the new methodology “heat generation from biomass residues”, whose baseline and monitoring methodology is prepared by Mondi Business Paper, Richards Bay along with some elements from the new methodology NM0134rev: “Steam generation from biomass residues displacing fossil fuels” The methodology of AM0036 is applicable to the project activity as it satisfies all the applicability conditions.

The selected baseline as per the methodology is the continued operation of the existing co-fired boiler using the same fuel mix as in the baseline scenario, plantation biomass residues left to decay under mainly aerobic conditions on fields (B1) and small quantities of biomass residues



burnt in an uncontrolled manner without utilizing them for energy purposes (B3) and biomass residues from chipping facilities land filled in unmanaged landfill sites.

The baseline biomass consumptions (on wet basis) of 83 554 tonnes in year 2001, 87 178 tonnes in year 2002 and 85 589 tonnes in year 2003 in the co-fired boiler have been validated by SGS (DOE) during the validation. The highest value 87 178 tonnes was assumed to be used in the baseline.

3.4 Completeness of Monitoring

All monitoring parameter indicators as required by the monitoring methodology AM0036 version 1, the monitoring plan contained in the registered PDD as well as the management system for monitoring and reporting were assessed during the site visit. The following parameters as outlined in the monitoring plan are being monitored and archived.

Data / Parameter:	Total heat generated in the co-fired boiler at the project site, firing both biomass residues and fossil fuels
Measuring frequency:	Continuous measurement of steam flow, temperature and pressure in order to calculate the heat generated (enthalpy)
Recording frequency:	Daily
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	NiCr-Ni thermocouple, Rosemount temp transmitter Rosemount Pressure transmitter Flow nozzle with Rosemount DP transmitter
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	Not on a schedule. This is because the flows, pressures and temperatures can be cross referenced by the operator to other parameters on the boiler and steam header system. Attention to calibration is ad hoc and on request from the operator.
Is the calibration interval in line with the monitoring plan of the PDD?	N/A
Company performing the calibration:	Calibration is performed by a qualified artisan who is trade-tested for these specific skills, as part of normal inspection of the monitoring equipment.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	Thermal efficiency was calculated in order to confirm if this is comparable to previous years
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes



Data / Parameter:	Quantity of biomass residues (bark, chipping and plantation) used as fuel in the project plant
Measuring frequency:	Continuously
Recording frequency:	Aggregated annually
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Weighbridge
Is accuracy of the monitoring equipment as stated in the PDD?	The accuracy of the monitoring equipment was not stated in the PDD. However, the accuracy is 2%.
Calibration frequency /interval:	Annually
Is the calibration interval in line with the monitoring plan of the PDD?	N/A.
Company performing the calibration:	Natal Scale company
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	Yes, data is cross-checked with annual energy balance across the boiler
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes

Data / Parameter:	Moisture content of the biomass residues
Measuring frequency:	At least once every six months for chipping and bark and every month for the plantation
Recording frequency:	At least once every six months
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Gravimetric measurements (heating to 105°C) Measurement Methodology based on Tappi 258 om-94. Furnace and Mettler Top Pan Balance
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	Bi-annually
Is the calibration interval in line with the monitoring plan of the PDD?	Yes
Company performing the calibration:	Microsep
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	Values are compared to historical data from previous years.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. Samples are analyzed annually by an accredited laboratory.



Data / Parameter:	Quantity of coal fired in the boiler
Measuring frequency:	Continuously
Recording frequency:	Aggregated annually
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Weight meter
Is accuracy of the monitoring equipment as stated in the PDD?	The accuracy of the monitoring equipment was not stated in the PDD. However, the accuracy is 2%.
Calibration frequency /interval:	Upon request. Attention to calibration is ad hoc and on request from the operator.
Is the calibration interval in line with the monitoring plan of the PDD?	N/A
Company performing the calibration:	The calibration is performed by a qualified artisan who is trade-tested for these specific skills.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	Yes, data is cross-checked with annual energy balance across the boiler
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes

Data / Parameter:	On-site electricity consumption attributable to the project activity
Measuring frequency:	Continuously
Recording frequency:	Aggregated annually
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Transducer implemented on the crusher, electricity consumption sent to PI system.
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	Not on a schedule. This is a on/off switch which does not need calibration. This can also be cross referenced by the operator to other parameters on the system. Maintenance will be on request from the operator.
Is the calibration interval in line with the monitoring plan of the PDD?	N/A. Calibration interval was not established in the PDD
Company performing the calibration:	Maintenance is performed by a qualified artisan.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is (are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	This parameter is measured since 2007. Before this it was considered its full capacity at maximum load for all hours that it is in operation. The hours that the equipment are in



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	operation are monitored and recorded by the operation's process information system. DNV considers this approach conservative.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes

Data / Parameter:	Grid emission factor
Measuring frequency:	Annually
Recording frequency:	Annually
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	N/A
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	N/A
Is the calibration interval in line with the monitoring plan of the PDD?	N/A
Company performing the calibration:	N/A
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
Is(are) calibration(s) valid for the whole reporting period?	N/A
If applicable, has the reported data been cross-checked with other available data?	Data is sourced from the Eskom factors, the official government data form South Africa.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.

Data / Parameter:	Average truck load of the trucks used
Measuring frequency:	Per truckload
Recording frequency:	Per truckload
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Weighbridge
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	Yearly
Is the calibration interval in line with the monitoring plan of the PDD?	N/A
Company performing the calibration:	Sasco Africa
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is (are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	Data is cross checked with transport contractor information
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	



Data / Parameter:	Average return trip between biomass fuel supply sites and the project site
Measuring frequency:	Continuously
Recording frequency:	Aggregated annually
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	N/A
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	N/A
Is the calibration interval in line with the monitoring plan of the PDD?	N/A
Company performing the calibration:	N/A
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
Is(are) calibration(s) valid for the whole reporting period?	N/A
If applicable, has the reported data been cross-checked with other available data?	The distance records are compared to maps.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes

Data / Parameter:	Fuel consumption in trucks for transportation of biomass residues
Measuring frequency:	Annually
Recording frequency:	Annually
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	N/A
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	N/A
Is the calibration interval in line with the monitoring plan of the PDD?	N/A
Company performing the calibration:	N/A
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
Is(are) calibration(s) valid for the whole reporting period?	N/A
If applicable, has the reported data been cross-checked with other available data?	This information is supplied by the transport company and is crosschecked with the transport company logsheets and fuel consumption records.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes



Data / Parameter:	Net calorific value of coal
Measuring frequency:	Every six months
Recording frequency:	Every six months
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Information from the coal supplier obtained from analysis by two independent laboratories according to ISO 1928
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	N/A
Is the calibration interval in line with the monitoring plan of the PDD?	N/A
Company performing the calibration:	N/A
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
Is(are) calibration(s) valid for the whole reporting period?	N/A
If applicable, has the reported data been cross-checked with other available data?	Yes, with IPCC 1996 Guidelines
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.

Data / Parameter:	Net calorific value of biomass residues
Measuring frequency:	Every six months
Recording frequency:	Every six months
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Standard bomb calorie meter procedure
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	N/A
Is the calibration interval in line with the monitoring plan of the PDD?	N/A
Company performing the calibration:	N/A
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	N/A
Is(are) calibration(s) valid for the whole reporting period?	N/A
If applicable, has the reported data been cross-checked with other available data?	Yes. Samples are analyzed annually by an accredited laboratory.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes



Data / Parameter:	Total amount of waste prevented from disposal
Measuring frequency:	Continuously
Recording frequency:	Aggregate annually
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Weighbridge
Is accuracy of the monitoring equipment as stated in the PDD?	N/A
Calibration frequency /interval:	Yearly
Is the calibration interval in line with the monitoring plan of the PDD?	N/A
Company performing the calibration:	Sasco Africa
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	

Fulfillment of other requirements specified in the monitoring plan of PDD

#	Requirement given in PDD	How DNV verified the fulfillment of requirement
1	The moisture is measured by Mondi and cross checked with published national data (p. 83)	OK, e-mail message from Piet Kotze comparing results with published data.
2	Moisture samples are analyzed annually by an accredited laboratory (p.84)	OK, Test report from SABS (South Africa Bureau of Standards) dated 3 September 2007.
3	Coal NCV is measured by the supplier according to ISO 1928 (p.87)	Supplier confirmed that the method of analysis is consistent with ISO 1928
4	Coal samples are analyzed (NCV) annually by an accredited laboratory for cross checking (p.87)	Eskom Holdings data used for cross checking.
5	Biomass samples are analyzed (NCV) annually by an accredited laboratory for cross checking (p.87)	OK, Test report from SABS (South Africa Bureau of Standards) dated 3 September 2007.
6	A survey is carried on annually in order to demonstrate that there is a surplus of biomass in the region (p.89 – 92)	Suppliers of biomass were contacted and were able to confirm that even in the presence of the project, surplus biomass is being dumped, or would have been dumped if Mondi were not utilizing it. Also, the city of uMhlathuze, was contacted to obtain confirmation that no new industries or consumers of biomass waste (the type that is utilized in the project activity) in the area has established. Confirmation from the municipality was received that no new industries have been established since October 2005.
7	Internal audits should be carried on at	OK, internal audit report dated 6 June 2007



	least once a year (p. 94)	
8	The energy efficiency of the boiler using fossil fuel should be calculated once a year (p. 95)	This is not in line with the methodology and therefore not applicable.
9	Literature is reviewed annually to confirm the following values: CO ₂ emission factor for transportation of biomass with trucks, methane emission factor for combustion of biomass in the boilers, CO ₂ emission factor for coal displaced by biomass residues, decay rate of waste, fraction of degradable organic carbon in the waste, methane correction factor, fraction of organic carbon that can decompose, fraction of methane in the SWMS gas, oxidation factor, model correction factor. (p.100 – 102)	OK, IPCC 2006 values reviewed.

The fractions of methane captured/flared/combusted in the disposal sites have also been monitored.

The approach L1 has been applied to rule out leakage for the monitoring period. DNV has been able to confirm that surveys have been done by Mondi's personnel with major suppliers and also with the municipality. Furthermore, Mondi has provided documentation from suppliers responsible for the majority of the biomass supplied to the project site during the monitoring period, showing that either the biomass would have dumped if not delivered to Mondi or that even in the presence of the project suppliers have a surplus of biomass that are dumped. In addition, DNV has reviewed a statement from the municipality of uMhlathuze confirming that Mondi is currently the only purchaser of biomass for energy purposes in the area. In DNV's opinion, the above justifies that no market has emerged for competing uses of biomass, and supports the conclusion that the project does not cause any leakage of GHG.

IPCC 2006 default values have been used for the estimation of the methane generation from the biomass in anaerobic conditions in case it is land filled in the absence of the project. IPCC default value has also been used for the NCV of diesel.

The baseline for the project has been estimated as the sum of the emissions for natural decay of biomass in plantations/landfill and emissions from fossil fuel combustion for heat generation in the boiler.

The project emission in the project activity is a sum of a) CO₂ emissions from transport of the biomass to the project plant b) CO₂ equivalent emissions from the onsite consumption of electricity c) CH₄ emissions from the combustion of biomass.

The project does not result in any leakage of GHG emissions.



The excel worksheets a) Richards Bay emission reductions calculations verification (16) Feb 2009.xls and b) Appendix 3 Spreadsheet information for verification (6).xls, for the calculation of the CERs have been verified and found correct.

Necessary management system procedures including responsibility and authority of monitoring activities have been verified to be as per established and documented quality management system procedures. Knowledge of personnel associated with the project activity was also found to be satisfactory.

3.5 Accuracy of emission reduction calculations

No significant reporting risks have been identified for the data reported except for the corrective action requests (related to moisture content of bark and chipping residue, efficiency of the boiler and emission reduction calculations) and the clarification request (related to leakage) as mentioned in section 3.1 above and defined in Appendix B. The parameters reported, including source, frequency and review criteria as indicated in the monitoring plan were verified to be correct (except the CAR raised above) and in line with the validated monitoring plan of the PDD. The same has been archived in the project monitoring excel worksheet.

Summary of the CERs.

For the period 1 October 2005 to 31 March 2007.			
	CERs	Deviation from PDD	% Deviation
As per Registered PDD	154 650	-	-
Uploaded Monitoring report	153 080	-1 570	-1.01
Revised Monitoring report	78 011	-76 639	-49.56

In the published monitoring report, the deviation from the estimated CERs in the registered PDD is about -1% and is marginal. However, due to CAR1, CAR2 and CAR3, the emission reduction calculations were corrected to be in line with the methodology and the emission reductions are 50% lower than anticipated in the PDD.

The calculation of the emission reductions in the revised monitoring report version 17.0 of May 2009 were verified and are fairly stated.

The heat generated from biomass in the years 2001-2003 were 573.409 TJ, 490.230 TJ and 517.583 TJ, respectively. After implementation of the project activity the, heat generated from biomass was determined to be 1039.333 TJ in the first year and 450.287 TJ for the next half year.

The project utilizes various process control systems and its components like distributed control system (DCS) and supervisory control and data acquisition system (SCADA) for automatically capturing the production information parameters to the excel format. The weigh bridge calibration certificates have been evidenced. The verification team has assessed all continuous and daily data and the aggregated numbers are found to be correct.



3.6 Quality of Evidence to Determine Emission Reductions

All necessary documentation is collected, referenced and aggregated and is easily accessible in electronic format or on paper. Measurements are performed by calibrated equipment. The main instruments are calibrated as per schedule and the calibration records were witnessed. No assumptions are used that have any material influence on reported emission reductions.

The emission reductions reported for the period 1 October 2005 to 31 March 2007 was verified to be 78 011 tCO₂e.

3.7 Management System and Quality Assurance

The Mondi Business Paper has developed GHG emission reduction management system for management of the project in line with its existing ISO 9001 quality management systems. The governing procedures under the same cover the calibration and quality assurance of the monitoring and metering systems for the project activities. Internal calibrations are carried out annually and the calibration certificates of the instruments used for data monitoring and recording were also verified during the site visit.



4 CERTIFICATION STATEMENT

Det Norske Veritas Certification AS (DNV) has performed a verification of the emission reductions generated reported for the “Mondi Richards Bay Biomass Project” in South Africa (CDM Registration Reference No. 0966), for the period 1 October 2005 to 31 March 2007.

The project has applied the approved baseline and monitoring methodologies AM0036, version 1, and emissions and emissions reductions as reported in the revised monitoring report version 17.0 dated May 2009.

DNV express no opinion on the baseline methodology neither on the project nor on the validated and registered PDD.

Responsibilities of the Energy Efficiency through “Mondi Richards Bay Biomass Project” Project management of Mondi Business Paper Richards Bay and Det Norske Veritas Certification Ltd.

*The management of **Mondi Business Paper Richards Bay**, is responsible for the preparation of the GHG emissions reduction data on the basis set out within the revised CDM monitoring report (dated May 2009). The development and maintenance of records and reporting procedures are in accordance with the approved monitoring methodology AM0036 version 1.*

It is DNV’s responsibility to express an independent verification statement on the GHG emission reductions reported from the project for the period from 1 October 2005 to 31 March 2007 based on the verified emissions for the same period and the project’s compliance with the approved baseline and monitoring methodology AM0036, version 1.

Basis of GHG verification opinion

DNV’s verification approach was based on the requirements as defined under the Kyoto Protocol, the CDM modalities and procedures, as well as those defined by the CDM Executive Board and by the baseline and monitoring methodology AM0036, version 1.

DNV’s verification approach draws on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. DNV examination includes assessment of evidence relevant to the amounts and disclosures in relation to the project’s GHG emission reductions reported for the period from 1 October 2005 – 31 March 2007.

DNV planned and performed the work to obtain the information and explanations that we considered necessary to provide sufficient evidence to give reasonable assurance that the reported amount of GHG emission reductions in the revised monitoring report of May 2009 for the period from 1 October 2005 – 31 March 2007 is fairly stated.

DNV conducted the verification on the basis of the monitoring methodology AM0036 version 1 and the monitoring plan included in the PDD of the project. The verification included:

- *Collection of evidence supporting the reported data.*
- *checking whether the provisions of the monitoring methodology AM0036 version 1 and the monitoring plan in the PDD were consistently and appropriately applied.*



DNV has verified whether the information included in the CDM monitoring report for the project (version 1 dated July 2007 and the revised monitoring report version 17.0 of May 2009) is correct and that the emissions reductions achieved have been determined correctly.

Certification Statement

In our opinion, the GHG emission reductions stated in the revised CDM monitoring report version 17.0 of May 2009 for the “Mondi Richards Bay Biomass Project” in South Africa for the period from 1 October 2005 to 31 March 2007, are fairly stated. A correction of 75 069 tCO₂e CERs was made by DNV from the first monitoring report submitted by Mondi Business paper, Richards Bay and the revised monitoring report of May 2009, due to the issues raised in the CAR 1 as stated in section 3.1.

The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology (AM0036 version 1) and the monitoring plan contained in the registered PDD of 5 February 2007. Hence, Det Norske Veritas Certification AS is able to certify that the reported emission reductions from the project during the period 1 October 2005 to 31 March 2007 amount to 78 011 tonnes of CO₂ equivalent.

Oslo, 29 May 2009

Trine Kopperud

Head of Section

Climate Change Services –Approval Centre

Det Norske Veritas Certification AS



5 REFERENCES

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

- /1/ Monitoring Report: Project for “Mondi Richards Bay Biomass Project” in South Africa, dated July 2007, and the revised monitoring report version 17.0 dated May 2009.
- /2/ Mondi Business Paper, Richards Bay CDM Project Design Document: “Mondi Richards Bay Biomass Project”, in South Africa, version 6 dated 5 February 2007.
- /3/ SGS - Validation Report - Mondi Richards Bay Biomass Project” in South Africa – Report No CDM-VAL0676.

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

- /4/ Approved baseline and monitoring methodology AM0036 version 01 “Fuel switch from fossil fuels to biomass residues in boilers for heat generation”.
- /5/ *Validation and Verification Manual*, version 1, EB 44 annex 3
http://cdm.unfccc.int/EB/044/eb44_repan03.pdf
- /6/ Documentation on the moisture analysis records, NCV analysis, calibration certificates, Eskom annual report.

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

Name	Organization	Position
Sibs von Solms	Mondi Business Paper	Quality Manager
Mike Carter	Mondi Business Paper	Production
Mark Miller	Mondi Business Paper	Production
Ciska Terblanche	Mondi Business Paper	Project Responsible

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APPENDIX A

VERIFICATION CHECKLIST

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<i>A. Opening Session</i>			
A.1. Introduction to audits		Outline of the initial verification was presented by the verification team leader, e.g. -objectives -verification team, plan -confirmation of participation, -definition of FAR/CAR -obligation to confidentiality	OK
A.2. Clarification of access to data archives, records, plans, drawings etc.		Activities related to the project, e.g. measurement, calculation, reporting, calibration, control of documentation and records are covered by Mondi Business Paper's Quality Management System already implemented. Access to these was verified to be clear.	OK
A.3. Contractors for equipment and		The equipments used in the project activity have been supplied by the local	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
installation works <i>Who has installed the equipment? Who was contracted for planning etc.?</i>		suppliers.	
A.4. Actual status of installation works <i>Project installation should be finished at time of initial verification in so far as the project should be ready to generate emission reductions afterwards.</i>		All the systems as specified in the registered PDD have been implemented and are in operation at the time of the verification visit.	OK
B. Open issues indicated in validation report <i>Especially in projects which are not yet registered at CDM-EB or JI-SB, there might be some outstanding issues which should have been indicated by the validation report.</i>			
B.1. Missing steps to final approval		<p>According to the validation report /3/, while all the CARs and NIR were closed out, NIR 13 was closed out with a comment that it needed to be reviewed during verification. This was checked during the verification. While only biomass usage was envisaged during the project period, it was observed that fossil fuel also had to be used. The actual boiler efficiency as arrived at prior to the verification was only 68.8% and less than the 85% assumed during the validation, hence the column G and D do not match.</p> <p>NIR-13</p> <p>DOE: In table 12 it was noticed that for the determination of the $HG_{PJbiomass,y}$ the methodology under option b requires you to reference this to the total heat generated in the boilers using both biomass and fossil fuel. In the ex-ante calculation you are expecting to use biomass only during the project and therefore it would be expected that $HG_{PJbiomass,y}$ and $HG_{PJtotal,y}$ would be equal and hence column G in table 12 would equal column D.</p> <p>PP: [Comments] The reason for the difference in the values is the following: the measured enthalpy (steam) reflects the real boiler efficiency (76%) which is less than the 85% design efficiency used in the</p>	OK.

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<i>b) during future operation</i>			
C.6. Data acquisition and data processing systems <i>Check the eligibility of used systems.</i>		As in C.3	OK
C.7. Reporting procedures <i>Check how reports with relevance for the later determination of emission reductions will be generated</i>		Procedures necessary for management system envisaged, including responsibility and authority of monitoring activities have been verified to be as per established Quality Management System Procedures	OK
C.8. Documented instructions <i>Check whether the personnel performing tasks with sensitivity for the monitoring of emission reductions have access and knowledge of documented instructions, forming a part of the project's management system.</i>		Procedures necessary for management system envisaged, including responsibility and authority of monitoring activities have been verified to be as per established and documented Quality Management System Procedures. Knowledge of personnel associated with the project activity was also found to be satisfactory.	OK
C.9. Qualification and training <i>Check whether the personnel performing tasks with sensitivity for the monitoring of emission reductions has the appropriate competences, capabilities and qualifications to ensure the required data quality.</i>		As in C.5	OK
C.10. Responsibilities <i>Check whether all tasks required to gather data and prepare a monitoring report with the necessary quality have been allocated to responsible employees.</i>		As in C.5 and C.8	OK
C.11. Troubleshooting procedures <i>Check whether there are possibilities of redundant data monitoring in case of having problems with the used monitoring equipment. Such procedures March reduce risks for the buyers of emission</i>		As in C.5 and C.8	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<i>reductions (e.g. the Client)</i>			
D. Internal Data <i>Identifying the internal GHG data sources and ways in which the data have been collected, calculated, processed, aggregated and stored should be part of initial verification to assess accuracy and reliability of the internal GHG data..</i>			
D.1. Type and sources of internal data <i>Acquire information on type and source of internal GHG data, which is used in calculations of emission reductions. E.g.” continuous direct measurements”, “site-specific correlations”, “periodic direct measurements”, “use of models” and/or “use of default emissions factors”.</i>		All the data except for the receipt of the chips biomass residues that are weighed automatically get logged on to the Excel worksheet from the distributed control system.	OK
D.2. Data collection <i>How is data collected and processed? What are the means of quantifying emissions from the different data sources?</i>		All relevant data used to determine GHG emission are collated by means of EXCEL Spreadsheet, collected and reported through the DCS system. The data on the quantity of biomass receipt etc are fed in to the data sheets	OK
D.3. Quality assurance <i>Does internal data collection underlie sufficient quality assurance routines?</i>		All data to be collected come under the purview of the established Quality Management Systems.	OK
D.4. Significance and reporting risks <i>Assess the significance and reporting risks related to the different internal data sources. Potential reporting risks March be related to the calculation methods, accuracy of data sources and data collection and/or the information systems from which data is obtained. The significance of and risks associated with the data source indicate the level of verification effort required at a later stage.</i>		<p>No significant reporting risks are foreseen except for the CAR 1 issued for making correction on the parameters used for CER calculations.</p> <p>The calculations were reworked and have been verified.</p>	CAR-1

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
E. External Data <i>Especially for data of baseline emissions there might be the necessity to include external data sources. The access to such data and a proof of data quality should be part of initial verification. If it is deemed to be necessary, an entity delivering such data should be audited.</i>			
E.1. Type and sources of external data <i>Acquire information on type and source of external data, which is used in calculations of emission reductions</i>		IPCC default values have been used for estimation of the methane generation by anaerobic degradation from the biomass left to decay in landfills. The average grid emission factor of the South African grid has been sourced ex-post from the annual report.	OK
E.2. Access to external data <i>How is data transferred? How can reproducibility of data set be ensured?</i>		IP21 software is used to integrate DCS & Microsoft Excel, and forms the basis to fetch data from DCS server.	OK
E.3. Quality assurance <i>Does external data underlie any quality assurance routines?</i>		No	OK
E.4. Data uncertainty <i>Is it possible to assess the data uncertainty of external data? Are such routines included in reporting procedures?</i>		Data uncertainties are expected to be low and considered as low risk	OK
E.5. Emergency procedures <i>Are there any procedures which will be applicable if there is no access to relevant external data?</i>		Such emergencies are not foreseen	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
F. Environmental and Social Indicators <i>A Monitoring Plan March comprise environmental and/or social indicators which could be necessary to monitor for the success of the project activity.</i>			
F.1. Implementation of measures <i>A project activity March demand for the installation of measures (e.g. filtering systems or compensation areas), which are exceeding the local legal requirements. A check of the implementation or realization of such measures should be part of the initial verification.</i>		The project activity is not expected to lead to any adverse environmental impacts. The company has all the necessary permits in place.	OK
F.2. Monitoring equipment <i>Check where necessary whether the required metering systems have been installed. The meters have to comply with appropriate quality standards applicable for the used technology.</i>		As in F.2	OK
F.3. Quality assurance procedures <i>What quality assurance procedures will be applied for such data?</i>		These are as governed by established and certified Environment Management Systems.	OK
F.4. External data <i>Check the quality, reproducibility and uncertainty of external data.</i>		As in F.3	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
G. Management and Operational System <i>In order to ensure a successful operation of a Client project and the credibility and verifiability of the ERs achieved, the project must have a well defined management and operational system.</i>			
G.1. Documentation <i>The system should be documented by manuals and instructions for all procedures and routines with relevance to the quality of emission reductions. The accessibility of such documentations to persons working on the project has to be secured.</i>		Mondi Business Paper, Richards Bay has Management Systems such as ISO 9001:2000 and ISO 14001:2004 in place. Established documented procedures adequately cover the project activity also.	OK
G.2. Qualification and training <i>The system should describe the requirements on qualification and the need of training programs for all persons working on the emission reduction project. Performed training programs and certificates should be archived by the system.</i>		Procedures for training have been formalised and linked to existing ISO 9001:2000 systems and procedures.	OK
G.3. Allocation of responsibilities <i>The allocation of responsibilities should be documented in written manner.</i>		As in G.1	OK
G.4. Emergency procedures <i>The system should contain procedures which provide emergency concepts in case of unexpected problems with data access and/or data quality.</i>		As in G.1	OK
G.5. Data archiving <i>The system should provide routines for the archiving of all data which is required for verifying the project's performance in the context of consecutive verifications.</i>		Data archiving has been performed in line with the document/record control procedures appropriately.	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
G.6. Monitoring report <i>The system includes procedures for the calculation of emission reductions and the preparation of the monitoring report.</i>		Yes. These are as per established procedures and standardised excel sheet for emission reductions	OK
G.7. Internal audits and management review <i>The system includes internal control procedures, which allow the identification and solution of problems at an early stage.</i>		As in G.1	OK

APPENDIX B

CORRECTIVE ACTION REQUESTS CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Corrective action requests

CAR ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CAR 1	<p>The following deviations were observed from the monitoring plan in the registered PDD and need to be corrected.</p> <p>a) The moisture content of the bark and the chipping residues is to be analysed as per the PDD. In the CER calculations, for the first year, literature sourced values of 32% has been considered for the chipping residues. This needs to be justified.</p> <p>b) The analysed moisture content of the chipping residue in the second year was 29% (average). For the calculations, 26% has been considered on the assumption that further aeration would take place at the PP yard. In the absence of any moisture analysis at the PP yard, it is conservative to use the value of 29% only for the second year.</p> <p>The steam generation is seen calculated from the average of the instantaneous readings (as kg/s) and the assumed hours of operation. In line with the monitoring plan of the PDD, the total steam generation from the PI system need to be used for total heat generated.</p>	<p>The moisture content in the chips was analysed in house during 2005 and 2006 and averages to 29%. The results are provided. Consideration of 32% as sourced from literature is more conservative than the analysed values.</p> <p>The moisture value has been changed from 26% to 29% in the CER workings.</p> <p>The total steam generation data taken from the production information sheet has been included in the CER worksheet</p>	<p>The analysis data has been verified and consideration of 32% is deemed to be more conservative than using the average value of 29% as analysed.</p> <p>This has been verified and is OK.</p> <p>The data has been checked.</p> <p>CAR 1 is closed.</p>

CAR ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CAR 2	The methodology requires “Either use the higher value among (a) the measured efficiency prior to the implementation of the project activity and (b) manufacturer’s information on the efficiency OR assume an efficiency of 100% as a conservative default value.”. Since the manufacturer’s information is higher than the measured efficiency prior to the implementation of the project activity, either this efficiency (85.3%) has to be used or 100% efficiency.	Changes made accordingly. The efficiency was measured after implementation of the project. This efficiency was 68.38%. This compared to the efficiency of another, similar boiler, with no biomass addition, which was 69.5%. The manufacturer’s design efficiency stated 85.3%, thus this figure was used.	The calculations have been updated to 85.3% efficiency of the boiler and the emission reductions correspondingly reduced. CAR 2 closed.
CAR 3	The emission reduction calculations have to be done in accordance with the methodology. HG in Eq. 2 has to be heat generated, i.e. energy out, not energy supplied. Furthermore, the contribution from biomass of heat generated should be calculated by Eq. 3. The model correction factor for the methane avoidance component has to be aligned with the PDD.	Changes made accordingly.	The calculations were updated and the emission reductions were reduced significantly. CAR 3 closed.

Clarification requests

CL ID	Clarification request	Response by Project Participants	DNV's assessment of response by Project Participants
CL1	<p>The monitoring plan of the registered PDD lists four options (p. 89-92) for monitoring leakage, corresponding to the possible approaches given in AM0036 v.1. Table 3 of the monitoring report addresses L1-L3 among “Data available at validation but monitored during the project activity as part of the monitoring plan” (p. 16-17).</p> <p>a) It needs to be clarified which of the three approaches has (have) been used to rule out leakage in the first monitoring period.</p> <p>b) For L1 and L2, it needs to be clarified whether surveys have indeed been carried out, what the outcome was, and any documentation of the same.</p> <p>c) For L3, it needs to be clarified whether the supply of biomass has changed at the ultimate supplier of the project and a representative sample of other suppliers in the defined geographical region.</p>	<p>Sibs von Solms, a local employee, did surveys – he phoned the municipality and Piet Volchenk replied via fax or mail to confirm that leakage was not occurring.</p> <p>For L1, this survey was repeated with the major suppliers as well as municipality. Information from the uMthlathuze municipality, CTC, SilvaCel and Shincel was sent through indicating that Mondi is the only biomass residue consumer for energy purposes in the geographic area.</p>	<p>a) The updated monitoring report confirms that approach L1 has been applied to rule out leakage for the monitoring period.</p> <p>b) DNV has been able to confirm that surveys have been done by Mondi's personnel with major suppliers and also with the municipality. Furthermore, Mondi has provided documentation from suppliers responsible for more than half of the biomass supplied to the project site during the monitoring period, showing that either the biomass would have dumped if not delivered to Mondi or that even in the presence of the project suppliers have a surplus of biomass, which is dumped.</p> <p>In addition, DNV has reviewed a statement from the municipality of uMhlathuze confirming that Mondi is currently the only purchaser of biomass for energy purposes in the area.</p> <p>In DNV's opinion, the above justifies that no market has emerged for competing uses of biomass, and supports the conclusion that the project does not cause any leakage of GHG.</p> <p>c) The question is no longer applicable since it has been clarified that approach L1 was used.</p> <p>This CL has been closed.</p>

Forward action requests from previous verification

FAR ID	Forward action request	Response by Project Participants	DNV's assessment of response by Project Participants
	NA		

Forward action requests from this verification

FAR ID	Forward action request	Summary of how FAR has been addressed in this reporting period	Assessment of how FAR has been addressed
	<i>No FAR was issued</i>		

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