



VERIFICATION REPORT

***6.0 MW BIOMASS POWER
PROJECT OF AGRI GOLD PROJECTS
LIMITED (AGPL),
PRAKASHAM DISTRICT, ANDHRA PRADESH.***

Periodic Verification

Report No. INDIA-VER/30.49/2007

REVISION NO. 02

Bureau Veritas Certification

PERIODIC VERIFICATION/CERTIFICATION REPORT

Date of First Issue 01/01/2008	Organisational unit: Bureau Veritas Certification Holding S.A
Client: Agri Gold Projects Limited	Client ref.: Mr. A U Bhaskar Rao

Summary:
Bureau Veritas Certification has performed a verification of the CDM Project "6.0 MW Biomass power project of Agri Gold Projects Limited (AGPL), Prakasham District, Andhra Pradesh". The verification is based on the currently valid documentation of the UN Framework Convention on the Climate Change (UNFCCC). In this context, the relevant documents are the "Marrakech Accords".

The management of Agri Gold Projects Limited (AGPL) is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions "6.0 MW Biomass power project of Agri Gold Projects Limited (AGPL), Prakasham District, Andhra Pradesh" project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 3, dated 01.06.2006. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Project.

The verifier confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is ready to generate GHG emission reductions.

The verifier can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated we confirm the following statement:

Reporting period: From 01.04.2006 to 31.03.2007
Baseline emissions: **18,020** t eCO₂ equivalents.
Project emissions: **627** t eCO₂ equivalents.
Emission Reductions: **17,393** t eCO₂ equivalents.

Report No.: INDIA-Ver No/30.49/2007	Subject Group: GHG / CDM	Indexing terms ☒ No distribution without permission from the Client or responsible organisational unit ☐ Limited distribution ☐ Unrestricted distribution
Report title: 6.0 MW Biomass power project of Agri Gold Projects Limited (AGPL), Prakasham District, Andhra Pradesh.		
Work carried out by: R Sankaranarayanan P Srinivas Srikanth Sharaf		
Work verified by: H B Muralidhar		
Date of this Rev. 12/04/2008	Rev. No.: 02	No. Of Pages 31

PERIODIC VERIFICATION/CERTIFICATION REPORT

Abbreviations

AGPL	Agri Gold Projects Limited
APTRANSCO	Transmission Corporation of Andhra Pradesh
APSPDCL	Southern Power Distribution Company of Andhra Pradesh Limited
BMS	BVQI Management System
BVQI	Bureau Veritas Quality International
CAR	Corrective Action Request
CER	Certified Emission Reductions
CO2	Carbon Dioxide
FAR	Forward Action Request
DIS	Draft of International Standard
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
GHG	Green House Gases
I	Interview
IETA	International Emissions Trading Association
IPCC	Intergovernmental Panel for Climate Change
JMR	Joint Meter Readings
MP	Monitoring Plan
MU	Million Units
MV	Means of Verification
MW	Megawatt
NGO	Non Governmental Organisation
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change

PERIODIC VERIFICATION/CERTIFICATION REPORT

Table of Contents	Page
1 INTRODUCTION.....	5
1.1 Objective	5
1.2 Scope	5
1.3 GHG Project Description	6
1.4 Verification team	7
2 METHODOLOGY	7
2.1 Review of Documents	10
2.2 Follow-up Interviews	10
2.3 Resolution of Clarification, Corrective and Forward Action Requests	11
3 SECOND PERIODIC VERIFICATION FINDINGS	12
3.1 Remaining issues CAR's, FAR's from previous verification	12
3.2 Project Implementation	13
3.3 Internal and External Data	14
3.4 Environmental and Social Indicators	16
3.5 Management and Operational System	16
4 PROJECT SCORECARD	17
5 SECOND PERIODIC VERIFICATION STATEMENT	18
6 REFERENCES	19
APPENDIX A: COMPANY CDM PROJECT VERIFICATION PROTOCOL	21
APPENDIX B: CV's of Verifiers	31

VERIFICATION REPORT

1 INTRODUCTION

Agri Gold Projects Limited (AGPL) (hereafter called “the client”) has commissioned an independent verification by Bureau Veritas Certification of its CDM Project “6.0 MW Biomass power project of Agri Gold Projects Limited (AGPL), Prakasham District, Andhra Pradesh” (hereafter called “the project”). Verification is the periodic independent review and ex post determination by the Designated Operational Entity / Independent Entity of the monitored reductions in GHG emissions during defined verification period.

1.1 OBJECTIVE

The objective of the second periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan, further more the periodic verification evaluates the GHG emission reduction data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission reduction data is “free” of material misstatements; and verifies that the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records. If no prior initial verification has been carried out, the objective of the first periodic verification also includes the objectives of the initial verification.

The verification shall consider both qualitative and quantitative information on emission reductions. Quantitative data comprises the monitoring reports submitted to the verifier by the project entity. Qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emission reports, review and internal audit of calculations/data transfers.

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

1.2 SCOPE

The verification scope is defined as an independent and objective review of the monitored reductions in GHG emissions, validated project design document including baseline and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. Bureau Veritas Certification has, based on the recommendations in the Validation and Verification Manual (IETA/PCF, v. 3.3, 2004), employed a risk-based approach in the validation, focusing on the identification of significant risks for monitoring the reduction in GHG emissions.

The validation is not meant to provide any consulting towards the Client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

VERIFICATION REPORT

The verification team was provided with a Monitoring report dated 30 October 2007, covering the period 01 April 2006 to 31 March 2007 which has been made publicly available on the UNFCCC website (<http://cdm.unfccc.int/Issuance/MonitoringReports>). Based on this documentation a document review and a fact-finding mission in form of an on-site audit have taken place. Afterwards the client decided to revise the Monitoring Report according to the CAR/FAR/CL's indicated in the verification process.

The final Monitoring Report – Version 2, covering the period 01/04/2006 to 31/03/2007 serves as the basis for the assessment presented herewith.

1.3 GHG Project Description

The project activity involves implementation and operation of a Bagasse based power project of Agri Gold Projects Limited a grid connected renewable energy project at Prakasham District of the state of Andhra Pradesh, India.

Agri Gold Projects Limited (AGPL) was established after receiving clearance from Non Conventional Energy Development Corporation of Andhra Pradesh Limited (NEDCAP) and has set up a 4 MW biomass based plant in village Duppadu. AGPL later entered into a power purchase agreement with Transmission Corporation of Andhra Pradesh (APTRANSCO).

AGPL has installed capacity of the project activity of 6.0 MW (gross). This is grid-connected biomass based renewable energy power plant with high-pressure steam turbine configuration. The Power Purchase Agreement (PPA) with APTRANSCO is for 6 MW of power to the grid.

Primary fuels for the power plant are Juliflora and Rice Husk and the fuel requirement for this project is 60,000 t/yr of biomass at 100% capacity.

A survey on availability of such biomass fuels indicates that the fuels to be used are available in abundance within radii of 50 km from the plant site. In addition to this other fuels like cotton stalk, black gram stalk and groundnut shell are also available abundantly and could be considered as alternative fuels.

Project activity leads to local benefits such as proper utilization of surplus biomass; generation of eco-friendly green power and avoidance of burning of agriculture waste. The project activity has sought a 7-year renewable crediting period starting from 07/07/2003.

The development of this project has reduced the Green house Gas (GHG) emissions produced by the Southern Region grid generation mix, which is dominated by fossil fuel based power plants.

The project participant is Agri Gold Projects Limited, India.

The project starting date is 4th February 2001 and has renewable crediting period for 7 years starting from 07th July 2003 to 07th July 2010.

VERIFICATION REPORT

1.4 Verification team

The verification team consists of the following personnel:

Mr. R Sankaranarayanan

Bureau Veritas Certification, Team Leader, Climate Change Verifier

Mr. P Srinivas

Bureau Veritas Certification, Climate Change Verifier

Mr. Srikant Sharaf

Bureau Veritas Certification, Climate Change Verifier - Specialist

Mr. H B Muralidhar

Bureau Veritas Certification, Internal reviewer

2 METHODOLOGY

The verification is as a desk review and field visit including discussions and interviews with selected experts and stakeholders.

In order to ensure transparency, a verification protocol was customized for the project, according to the Validation and Verification Manual (IETA/PCF) a verification protocol is used as part of the verification. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

- It organizes, details and clarifies the requirements the project is expected to meet; and
- It ensures a transparent verification process where the verifier will documents how a particular requirement has been verified and the result of the verification;

The verification protocol consists of three tables under Periodic verification checklist. The different columns in these tables are described in Figure 1.

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification procedures.

The completed verification protocol is enclosed in Appendix A to this report.

Periodic Verification Checklist Table1: Data Management System/Controls		
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks

VERIFICATION REPORT

The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table. A	A Score is assigned as follows: Full - all best-practice expectations are implemented. Partial - a proportion of the best practice expectations is implemented Limited - this should be given if little or none of the system component is in place.	Description of circumstances and further commendation to the conclusion. This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non compliance with stated requirements. The corrective action requests are numbered and presented to the client in the verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications.
---	--	--

Periodic Verification Checklist

Table 2: GHG calculation procedures and management control testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
Identify and list potential reporting risks based on an assessment of the emission estimation procedures, i.e. - The calculation methods, - Raw data collection and sources of supporting documentation, - Reports/databases/information systems from which data is obtained. Identify key source data. Examples of source data include metering records, process monitors, operational logs, laboratory/analytical data, accounting records, utility data and vendor data. Check appropriate calibration and maintenance of equipment, and assess the likely accuracy of data supplied. Focus on those risks that impact the accuracy, completeness and consistency of the reported data. Risks are weakness in the GHG calculation systems and may include:	Identify the key controls for each area with potential reporting risks. Assess the adequacy of the key controls and eventually test that the key controls are actually in operation. Internal controls include (not exhaustive): - Understanding of responsibilities and roles - Reporting, reviewing and fit formal management approval of data; - Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data trails etc. - Controls to ensure the arithmetical accuracy of the GHG data generated and accounting records e.g. internal audits, and checking/ review procedures; - Controls over the computer information systems; - Review processes for identification and understanding of key process	Identify areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks Areas where data accuracy, completeness and consistency could be improved are highlighted.

VERIFICATION REPORT

- Manual transfer of data/manual calculations, - Unclear origins of data, - Accuracy due to technological limitations, - Lack of appropriate data protection measures? For example, protected calculation cells in spreadsheets and/or password restrictions.	parameters and implementation of calibration maintenance regimes - Comparing and analysing the GHG data with previous periods, targets and benchmarks. When testing the specific internal controls, the following questions are considered: 1. Is the control designed properly to ensure that it would either prevent or detect and correct any significant misstatements? 2. To what extent have the internal controls been implemented according to their design; 3. To what extent have the internal controls (if existing) functioned properly (policies and procedures have been followed) throughout the period? 4. How does management assess the internal control as reliable?	
--	--	--

Periodic Verification Checklist

Table 3: Detailed audit testing of residual risk areas and random testing

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
List the residual areas of risks (Table 2 where detailed audit testing is necessary. In addition, other material areas may be selected for detailed audit testing.	The additional verification testing performed is described. Testing may include: 1. Sample cross checking of manual transfers of data 2. Recalculation 3. Spreadsheet 'walk throughs' to check links and equations 4. Inspection of calibration and maintenance records for key equipment	Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties should be highlighted. Errors and uncertainty can be due to a number of reasons: Calculation errors. These may be due to inaccurate manual transposition, use of inappropriate emission factors or assumptions etc. Lack of clarity in the monitoring

VERIFICATION REPORT

	equipment Check sampling analysis results Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.	plan. This could lead to inconsistent approaches to calculations or scope of reported data. Technological limitations. There may be inherent uncertainties (error bands) associated with the methods used to measure emissions e.g. use of particular equipment such as meters. Lack of source data. Data for some sources may not be cost effective or practical to collect. This may result in the use of default data which has been derived based on certain assumptions/conditions and which will therefore have varying applicability in different situations. The second two categories are explored with the site personnel, based on their knowledge and experience of the processes. High-risk process parameters or source data (i.e. those with a significant influence on the reported data, such as meters) are reviewed for these uncertainties.
--	---	---

2.1 REVIEW OF DOCUMENTS

The Monitoring report submitted by Agri Gold Projects Limited (AGPL) and additional background documents related to the project design and baseline, i.e. Indian Law, Guidelines for Completing the Project Design Document (CDM-PDD), the Proposed New Methodology: Baseline (CDM-NMB) and the Proposed New Methodology: Monitoring (CDM-NMM), Approved methodology under category 1D of the appendix B of the simplified modalities and procedures for small scale CDM project activities, Clarifications on Verification Requirements to be Checked by a Designated Operational Entity were reviewed.

The verification findings presented in this report relate to the project as described in the PDD version 03.

2.2. FOLLOW-UP INTERVIEWS

On 04th and 05th December 2007 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Agri Gold Projects Limited

VERIFICATION REPORT

(AGPL), Prakasham District, Andhra Pradesh, were interviewed. The main topics of the interviews are summarized in Table1.

Table1 Interview topics

Interviewed organization	Interview Topics
Agri Gold Projects Limited	Project Design and implementation Technical Equipment and operation Monitoring Plan Monitored data Data uncertainty and residual risks GHG Calculation Environmental Impacts Compliance with National Laws and regulations.
Bunge India Limited- Consultant	Monitoring Plan Monitored data Data uncertainty and residual risks GHG Calculation

2.3 RESOLUTION OF CORRECTIVE AND FORWARD ACTION REQUESTS

The objective of this phase of the verification was to resolve the requests for corrective actions and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

Findings established during the initial verification could either be seen as a non-fulfillment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CAR) are issued, where:

- i. There is a clear deviation concerning the implementation of the project as defined by the PDD;
- ii. Requirements set by the MP or qualifications in a validation opinion have not been met; or
- iii. There is a risk that the project would not be able to deliver (high quality) CERs.

Forward Action Requests (FAR) are issued, where:

- iv. The actual status requires a special focus on this item for the next consecutive verification, or
- v. An adjustment of the MP is recommended.

The verification team may also use the term Clarification Request, which would be where:

- vi. Additional information is needed to fully clarify an issue.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.



VERIFICATION REPORT

3.0 SECOND PERIODIC VERIFICATION FINDINGS

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

- 1) The findings from the desk review of the original project activity documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Verification Protocol in Appendix A.
- 2) The conclusions for verification subject are presented.

Clarification Request – 1:

As described in the PDD the critical parameters for determining the GHG emissions are

1. The amount of electricity exported to the grid – Being measured through calibrated meters.
2. Project emissions due to use of diesel for blending of biomass, biomass transportation and power import.

The monitoring report does not capture project emissions due to biomass transported from collection to the project site.

Resolution:

Project emissions due to biomass consumed by way of approximation was only done. Now, project emissions due to transported biomass are calculated and have been updated in the monitoring report and CER calculations. Response is satisfactory hence closed.

Clarification Request – 2:

There is formal auditing and review procedure in place. However, it needs to focus on GHG data during Internal audits and spot checks on the overall reliability of calculation process.

Resolution:

Project proponent has understood the requirements. The scope of internal audits will now on include other GHG data and spot checks on overall reliability of calculation process. Response is satisfactory hence closed.

3.1. Remaining issues CAR's, FAR's from previous verification

FAR-1: Structured system of training of personnel supervising the GHG project activity needs to be ensured and complied for consistent performance in future times.

Conclusion:

During the interviews and interactions during the 2nd Verification activity, the verification team could find the personnel involved in the GHG project are well aware of the activities under CDM and monitoring of data.

FAR-2: The internal audit has been planned and conducted. This process needs to be improved as two audits conducted in March and May 2006 did not specifically focus on GHG data. Management reviews were reportedly in place through meetings. However, record for the last six monthly management review was not available.

VERIFICATION REPORT

Qualitative improvement in the area of specific and measurable improvements needs to be built.

Conclusion:

There is formal auditing and review procedure that has been developed. There are discussions on improvements in the project and also actions to be taken to reduce the project emissions. Relevant records are being maintained. However, more focus required on spot checks on the overall reliability of calculation process.

3.1.1 Discussion

Based on the validation report the verification team identified no missing steps. The project has been registered under the CDM under the Reference No 0534.

Concerned Electrical Engineer evaluates and ensures the readings collected through JMR and ensure that these are matching with the daily logbook data. Electricity Board makes payment based on conservative estimates and therefore there are adequate checks and balances for eliminating any uncertainties in the monitoring mechanism. Calibration Records of the energy meters are found available for main meters and check meters. Verification team ensured the compliance of records and maintenance during visit to 33 kV Kesinenipalle sub station which is about 7 km from the plant.

3.1.2 Findings

There are no other findings for reporting.

3.1.3 Conclusion

The project complies with the requirements.

3.2 PROJECT IMPLEMENTATION

3.2.1 Discussion

The project was implemented and commissioned before the registration. All facilities and equipments as described in the PDD have been installed.

The total installed capacity of the power project is 6.0 MW. The power generated is wheeled through Transmission Corporation of Andhra Pradesh (APTRANSCO). The development of this project has reduced the Green house Gas (GHG) emissions produced by the Southern Region grid generation mix, which is dominated by fossil fuel based power plants. The list of vendors who supplied major equipments in the Plant is given below:

#	Equipment	Supplier
1.	Steam Generator	M/s. Isgec John Thompson– TWT 6069 Water Tube Boiler 28 TPH, 67Kg / Sq. cm., 486 Deg. C., Stoker Fired. 2-3 Phase Synchronous Generator – VA Tech Make. Sr. No. C641021 Yr. 2002. Type – HTM – 080D04.
2.	Turbine	M/s. Triveni Engineering & Industries Limited – Sr. No.–34 and Year of Manufacturing 2002. Cap: 6000 Kwh.



VERIFICATION REPORT

The power exported to the grid is being monitored through energy meters. The meters have been calibrated and sealed by the APTRANSCO.

The Power Purchase Agreement with the APTRANSCO includes the procedure and methodology of computation of exported power in case of the failure of the meters. Identification of these turbines and boiler was confirmed with earlier data and calculations were performed to confirm the accuracy of emission reduction. ISGEC make Spreader Stoker fired Boiler having 28.0TPH capacity at 67 kg/cm²g and 6000 KWh turbine are confirmed.

The procedures also include the responsibilities of various site personnel.

3.2.2 Findings

There are no other findings.

3.2.3 Conclusion

Project proponent has adhered to all the conditions stipulated in the Power Purchase Agreement and applicable Pollution Control Board consents.

3.3 Internal & External data

3.3.1 Discussion

As per the monitoring plan for calculating the CERs, the following data needs to be monitored.

- i) Power exports and imports from the grid.
- ii) Total Power generated and Auxiliary consumption
- iii) Biomass fuel quantity.
- iv) Calorific value of biomass fuel.
- v) Diesel Consumption.

Joint meter readings are taken along with the State Electricity officials (APTRANSCO) on 22nd of every month for the power exports to the grid and imports from the grid. However, during every financial year endings i.e. in March, a separate additional JMR is prepared for the period from 22nd to 31st March to account for total financial year generation. In addition total power generated is recorded hourly and auxiliary power consumed by the power plant is being recorded daily. Logbooks are being maintained.

State Electricity Board calibrates the meters used for measuring the power export to the grid.

Site In charge evaluates and ensures the readings collected through JMR are matching with the daily logbook data. Electricity Board makes payment based on conservative estimates and therefore there are adequate checks and balances for eliminating any uncertainties in the monitoring mechanism. Calibration Records of the energy meters are found available for main meters and check meters. Verification team ensured the working system of these meters during visit to Sub Station and assured that the readings produced in the monitoring report is correct. Monthly export-import register for power is found signed by the Divisional Electrical Engineer, however at some places signature of AGPL was found missing.

VERIFICATION REPORT

Project proponent has opted to update the emission factor based on ex-post monitoring. In the monitoring report, there were two options of estimating emission factor.

1. The average of the “approximate operating margin” and the “build margin”, where:

- ✓ The “approximate operating margin” is the weighted average emissions (in kgCO₂equ/kWh) of all generating sources surviving the system, excluding hydro, geothermal, wind, low-cost biomass, nuclear and solar generation.
- ✓ The “build margin” is the weighted average emissions (in kgCO₂equ/kWh) of recent capacity additions to the system, defined as the higher (in MWh) of most recent 20% of plants built or the 5 most recent plants;

OR

2. The weighted average emissions (in kgCO₂equ/kWh) of current generation mix.

Project proponent has opted for weighted average emissions of current generation mix of Southern grid to estimate the emission factor. The verification team has verified the calculations of emission factor and accepted it as estimated at 0.683 tCO₂/MWh, since this is on a conservative side in comparison of 0.72 tCO₂/MWh (which will be through the first option). PDD indicates the annual baseline emissions as 21,520 t CO₂. The actual baseline emissions for the Monitoring period i.e. from 1st April 2006 to 31st March 2007 are 18,020 t CO₂ and the actual CERs claimed and verified for the same period as per Monitoring report version 2.0 dated 11.02.2008 is 17,393 tCO₂. Project emissions are 627 t CO₂ for this period.

Verification team performed the calculations considering the JMR and MR readings conclude correctness of projected emission reductions.

Procedures have been identified and implemented to monitor the data that need to be collected and recorded. Fuel related parameters identified for monitoring biomass quantity transported by trucks and tractors, biomass calorific value and Diesel quantities consumed are also being monitored.

DOE confirms the verification of all the records as per Version 2.0 of “Monitoring Report”.

3.3.2 Findings

APTRANSCO is responsible for upkeep; calibration and maintenance of main meter and check meters. Diesel consumption for all the equipments handling biomass and DG sets (for emergency and lighting loads) are being monitored and recorded by the PP. Overall the system is reliable, controlled and has virtually very remote possibility of uncertainty and error.

3.3.3 Conclusion

The project proponent has adhered to the conditions stipulated as per the Power Purchase Agreement.

The project proponent has also adhered to the conditions stipulated as per the monitoring plan of the registered PDD (Version: 3.0, 01/06/2006).

VERIFICATION REPORT

3.4 Environmental and Social Indicators

3.4.1 Discussion

The project participant has maintained valid records related to statutory permits related to environmental and social responsibilities and other documents such as monthly invoices and records of payment received from the Andhra Pradesh State Electricity Board. Consent Order from Andhra Pradesh Pollution Control Board for Air and Water (APPCB/VJA/NLR/127/HO/2007/1144 dated 24.08.2007 and valid till 30.09.2008) was found complying and values within limits.

Involvement of local persons in the project activity has helped them in the direct or indirect employment. About 100 persons from nearby areas are employed in the plant for direct / indirect works. The plant supervisors and employees including service providers are from the local areas and appreciate the opportunities for employment due to the project.

The procedure for compliance with environmental regulations includes the following.

- i) Obtaining yearly consents under Air and Water Act from the Andhra Pradesh Pollution Control Board.
- ii) Monitoring of Various environmental parameters under Air and Water Acts and Hazardous waste management rules.

DOE is of the opinion that the project participant has maintained valid consents and records are available for complying the required environmental parameters such as qualitative and quantitative tests for water and ambient air.

There are no other specific social indicators related to the projects.

3.4.2 Findings

There are no other specific findings.

3.4.3 Conclusion

The project complies with the requirements.

3.5 Management and Operational System

3.5.1 Discussion

The Monitoring and Verification report of Agri Gold Projects Limited has clearly identified the management and operational system for various steps involved in the project, which includes recording and monitoring of the data. The procedure for training of monitoring personnel includes all personnel involved in the project and the employees are found competent in the core job assigned to them. Chief General Manager is overall in-charge of the project. Other Engineering Managers, Supervisors and technicians assist him in day-to-day operations and monitoring of the project.

Necessary procedures have been defined in the Power Purchase Agreement and other internal documentation relevant for determination of electricity export to the grid. Routines for archiving of data are being followed as regular practice. CDM specific internal audits have been planned and records for the same were found available during verification site visit. Review meetings are being conducted to explore possibilities to improve performance of the project as well as reduce project emissions.

VERIFICATION REPORT

3.5.2 Finding

The Monitoring and Verification report has identified the management and operational system for the various steps involved in the project, which includes recording and monitoring of the data. Necessary procedures have been defined in the Power purchase Agreement and other internal documentation relevant for determination of electricity export and imports. These were found complied satisfactorily. Internal audits have been planned and complied as per identified frequency. Periodic reviews are done on various project activities.

3.5.3 Conclusion

CDM project operations and instructions are found controlled and it is found to be effective. Instructions are given to individuals from the office. There is regular and structured communication between corporate office and factory. There is adequate adherence to the instructions and procedures. Site-specific operation and management is found controlled and effective.

The Management System for CDM Project is in place for example, organization structure with responsibilities have been properly identified and are in place. Periodic review being a regular practice ensures quality assurance of various procedures followed for recording various parameters. Key parameters are measured and reviewed periodically as per procedures.

4 PROJECT SCORECARD

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Calculated Emission Reductions	
Completeness	Source coverage/ boundary definition	✓	✓	✓	All relevant sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently
Accuracy	Physical Measurement and Analysis	✓	CL-1	✓	Error in reporting of project emissions due to transport of biomass. Refer CL-1.
	Data calculations	✓	✓	✓	Calculations of emission reductions are found to be correct and transparent.
	Data management & reporting	✓	✓	✓	There is formal auditing and review procedure in place. However, it needs to focus on GHG data during Internal audits and spot checks on the overall reliability of calculation process Data management and reporting as found to be correct. Refer CL -2

VERIFICATION REPORT

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Calculated Emission Reductions	
Consistency	Changes in the project	✓	✓	✓	There are no changes in the project.

5.0 SECOND PERIODIC VERIFICATION STATEMENT

Bureau Veritas Certification has performed a verification Project “6.0 MW Biomass power project of Agri Gold Projects Limited (AGPL), Prakasham District, Andhra Pradesh”. The verification is based on the currently valid documentation of the UN Framework Convention on the Climate Change (UNFCCC). In this context, the relevant documents are the “ Marrakech Accords”.

The management of Agri Gold Projects Limited (AGPL) is responsible for preparation of GHG emissions data and reported GHG emissions reductions “6.0 MW Biomass power project of Agri Gold Projects Limited (AGPL), Prakasham District, Andhra Pradesh” project on the basis set out within project Monitoring and Verification Plan indicated in the final PDD version 3 dated 01/06/2006. The development and maintenance of records and reporting procedures in accordance with that plan, including calculations and determination of GHG emission reductions from the project activity is responsibility of management of the Project.

The verifiers confirm that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is ready to generate GHG emission reductions.

The verifier can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement -

Reporting period: From 01/04/2006 to 31/03/2007

Baseline emissions: **18,020** t eCO₂ equivalents.

Project emissions: **627** t eCO₂ equivalents.

Emission Reductions: **17,393** t eCO₂ equivalents.



VERIFICATION REPORT

6. 0 REFERENCES

Category 1 Documents:

List documents provided by the Client that relate directly to the GHG components of the project. These should have been used as direct sources of evidence for the initial verification conclusions, and are usually further checked through interviews with key personnel.

- /1/ Agri Gold Projects Limited (AGPL) – Project Design Document, Version No 03 - 01/06/2006
- /2/ Initial and first Verification Report issued by BVQI – Rev. 02 dated 13/01/2007.
- /3/ Monitoring Procedures and measurement procedures including calibration procedures.
- /4/ Monitoring Report - Agri Gold Projects Limited (AGPL)– Rev.1.0 – Dated 30/10/2007
- /5/ Monitoring Report - Agri Gold Projects Limited (AGPL)– Rev.2.0 – Dated 11/02/2008
- /6/ Excel sheet – “EF weighted average- Southern grid”.
- /7/ Power Purchase Agreement between APTRANSCO and Agri Gold Projects Limited (AGPL)

Category 2 Documents:

List background documents related to the design and/or methodologies employed in the design or other reference documents. Where applicable, Category 2 documents should have been used to cross check project assumptions and confirm the validity of information given in the Category 1 documents and in verification interviews.

- /1/ Joint Meter Readings of AGPL from period ranging 01st to 22nd April 2006 – Hard copy.
- /2/ Joint Meter Readings of AGPL from period ranging 23rd April 2006 to 22nd March 2007– Hard copy (monthly JMR's).
- /3/ Joint Meter Readings of AGPL from period ranging 22nd to 31st March 2007 – Hard copy.
- /4/ Consent order from Andhra Pradesh Pollution Control Board APPCB/VJA/NLR/127/HO/2007-1144 dated 24.08.2007 – Hard copy.
- /5/ Daily Monitoring charts and reports consisting of daily log sheets transfer to soft forms, preservation of records and calibration reports – Hard copy.
- /6/ Incoming Register for feed arrivals available at the security gate – Hard copy.
- /7/ Records of calorific value of different type of biomass.
- /8/ Records of consumption of Diesel.
- /9/ Certificate for AVERY weighbridge 40 MT calibration – Hard copy.
- /10/ Training Records for supervisors and operators – Hard copy.
- /11/ Environmental Monitoring Records.
- /12/ Monthly Export-Import register signed by Divisional Electric Engineer of State Electricity Board – Hard copy.
- /13/ Calibration certificates for 2007 for main and check meters.



VERIFICATION REPORT

Persons interviewed:

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

- /1/ Mr. A Rama Mohan Rao – Chief General Manager – AGPL
- /2/ Mr. V V Raghava Reddy – Chief Engineer – AGPL
- /3/ Mr. B Brahmananda Reddy – Dy. Manager (Electrical) – AGPL
- /4/ Mr. G Venkata Reddy – Accounts Assistant – AGPL
- /5/ Mr. Krishna Kumar – Weigh Bridge in-charge – AGPL
- /6/ Mr. Sourish Dasgupta – Consultant – Bunge India Private Limited

- o0o -

Mumbai, 11/02/2008

Chennai, 11/02/2008

H B Muralidhar

R Sankaranarayanan

BUREAU VERITAS CERTIFICATION

Report No: INDIA-VER/30.49/2007 /Rev.00

VERIFICATION REPORT



APPENDIX A: COMPANY CDM PROJECT VERIFICATION PROTOCOL



2. Periodic Verification Checklist

Table 1: Data Management System/Controls

The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table. A score is assigned as follows:

- Full - all best-practice expectations are implemented.
- Partial - a proportion of the best practice expectations is implemented
- Limited - this should be given if little or none of the system component is in place.

Expectations for GHG data management system/controls	Score	Verifiers Comments (Including Forward Action Requests)
A. Defined organisational structure, responsibilities and competencies		
A.1. Position and roles Position and role of each person in the GHG data management process is clearly defined and implemented, from raw data generation to submission of the final data. Accountability of senior management must also be demonstrated.	Full	The overall responsibility of the project O & M is with the Sr.Manager (Operations) and Deputy Manager (Electrical). The designations of The chief Engineer (Operations & Maintenance) (now Sr. Manager (Operations)) and Deputy Chief Engineer (Electrical) (now Deputy Manager (Electrical)) have been changed. Other personnel identified for the project activities include shift In-charge, operators and technicians etc.



Expectations for GHG data management system/controls	Score	Verifiers Comments (Including Forward Action Requests)
A.2.Responsibilities Specific monitoring and reporting tasks and responsibilities are included in job descriptions or special instructions for employees.	Full	Shift Engineers will record hourly data at generation end, does operational reporting. Sr. Manager (Operations) and Chief Engineer will review the same.
A.3.Competencies needed Competencies needed for each aspect of the GHG determination process are analyzed. Personnel competencies are assessed and training program implemented as required.	Full	Relevant competencies are identified. These include competencies for operation, maintenance and monitoring in the project area.
B. Conformance with monitoring plan		
B.1.Reporting procedures Reporting procedures should reflect the monitoring plan content. Where deviations from the monitoring plan occur, the impact of this on the data is estimated and the reasons justified.	Full	Monitoring practices match with frequency of monitoring parameters indicated in monitoring plan in PDD.
B.2.Necessary Changes Necessary changes to the monitoring plan are identified and changes are integrated in local procedures as necessary.	Full	Changes to the Monitoring plan are not required.
C. Application of GHG determination methods		
C.1.Methods used There are documented description of the methods used to determine GHG emissions and justification for the chosen methods. If applicable, procedures for capturing emissions from non-routine or exceptional events are in place and implemented.	Full	Data recorded as per the monitoring plan has been used for determining the emission reductions. Monitoring Reports are generated using the data recorded for electricity generated and exported. Imported Electricity, Usage of Diesel for biomass internal transfer, operation of DG sets and Biomass procured.



Expectations for GHG data management system/controls	Score	Verifiers Comments (Including Forward Action Requests)
C.2.Information/process flow An information/process flow diagram, describing the entire process from raw data to reported totals is developed.	Full	The procedure for recording the power exported to and power imported from the grid has been indicated in the PDD. The monitoring and verification report includes the monitoring of power supply to and import from the grid.
C.3.Data transfer Where data is transferred between or within systems/spreadsheets, the method of transfer (automatic/manual) is highlighted - automatic links/updates are implemented where possible. All assumptions and the references to original data sources are documented.	Full	Generation data from Power plant is logged in to register and Reports are then sent to top management for review.
C.4.Data trails Requirements for documented data trails are defined and implemented and all documentation are physically available.	Full	The procedure for recording the power exported to and power imported from the grid has been indicated in the PDD. The monitoring and verification report includes the monitoring of power supply to and import from the grid.
D. Identification and maintenance of key process parameters		



Expectations for GHG data management system/controls	Score	Verifiers Comments (Including Forward Action Requests)
D.1. Identification of key parameters The key physical process parameters that are critical for the determination of GHG emissions (e.g. meters, sampling methods) are identified.	Partial	As described in the PDD the critical parameters for determining the GHG emissions are 1. The amount of electricity exported to the grid – Being measured through calibrated meters. 2. Project emissions due to use of diesel for blending of biomass, biomass transportation and power import. The monitoring report does not capture project emissions due to biomass transported from collection to the project site. Refer CL-1.
D.2. Calibration/maintenance Appropriate calibration/maintenance requirements are determined.	Full	The calibration of monitoring equipment (Both check meters and main meters) is being done half yearly by APTRANSCO.
E. GHG Calculations		
E.1. Use of estimates and default data Where estimates or default data are used, these are validated and periodically evaluated to ensure their ongoing appropriateness and accuracy, particularly following changes to circumstances, equipment etc. The validation and periodic evaluation of this is documented.	Full	The default data used in the calculations of emission reductions is fixed during the validation stage. There are no changes in circumstances and equipment during the verification period.



Expectations for GHG data management system/controls	Score	Verifiers Comments (Including Forward Action Requests)
E.2. Guidance on checks and reviews Guidance is provided on when, where and how checks and reviews are to be carried out, and what evidence needs to be documented. This includes spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes.	Partial	There is formal auditing and review procedure in place. However, it needs to focus on GHG data during Internal audits and spot checks on the overall reliability of calculation process. Refer CL-2.
E.3. Internal verification Internal verifications include the GHG data management systems, to ensure consistent application of calculation methods.	Full	There is formal management review procedure in place that review all the CDM related issues. Review meetings are regularly conducted, which discusses GHG process performance.
E.4. Internal validation Data reported from internal departments should be validated visibly (by signature or electronically) by an employee who is able to assess the accuracy and completeness of the data. Supporting information on the data limitations, problems should also be included in the data trail.	Full	System is evidently in place for validation of results. General Manager and Director review the data.
E.5. Data protection measures Data protection measures for databases/spreadsheets should be in place (access restrictions and editor rights).	Full	The key parameters are being measured and recorded in the respective documents / registers in paper form as well entered in computer. Calculations of baseline and emission reduction calculations are also available electronically. The only electronic document that is necessary as per the PDD is the spreadsheet calculations for the emission reductions.



Expectations for GHG data management system/controls	Score	Verifiers Comments (Including Forward Action Requests)
E.6.IT systems IT systems used for GHG monitoring and reporting should be tested and documented.	Full	IT systems used for GHG monitoring involves are only basic MS tools. The system is found checked for virus and data reviewed for accuracy.

Table 2: GHG calculation procedures and management control testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
CL-1 As described in the PDD the critical parameters for determining the GHG emissions are 1. The amount of electricity exported to the grid – Being measured through calibrated meters. 2. Project emissions due to use of diesel for blending of biomass, biomass transportation and power import. Monitoring report does not capture project emissions due to biomass transported from collection to the project site.	Monitoring of data related to project activity was assessed. The management controls on data being monitoring was also assessed for understanding the consistency. Method of assessing biomass used for generating power was checked.	Residual risk lies in accuracy of evaluating the biomass stocks as it is done based on the height of the biomass stacks.



Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
CL-2 There is formal auditing and review procedure in place. However, it needs to focus on GHG data during Internal audits and spot checks on the overall reliability of calculation process.	Internal audit report and management review minutes were reviewed with respect to laid down procedures.	Residual risk lies in failure of identification of areas for improvement. This may result due to in-effective and unfocussed (GHG) audit. Will result in lack of control on future GHG activities.

Table 3: Detailed audit testing of residual risk areas and random testing

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
Residual risk lies in accuracy of evaluating the biomass stocks as it is done based on the height of the biomass stacks.	Leakages due to biomass transport may not be accurate by assessing the stock by the height. Cross verification to calculate the biomass used was done to compare the results.	The audit team has concluded that based on the residual risk areas, it will be required to calculate biomass transported from the weigh bridge entries. The project proponent has installed biomass flow meter to monitor the biomass used in an effective way.
Residual risk lies in failure of identification of areas for improvement. This may result due to in-effective and unfocussed (GHG) audit. Will result in lack of control on future GHG activities.	Internal audit findings and management review results were checked. GHG related issues were investigated and the depth of implementation and effectiveness was concluded during interactions.	The audit team has concluded that based on the residual risk areas, during internal audits more focus is required on GHG data and spot checks on calculation process.

**Table 4 Resolutions of Corrective Action and Forward Action Requests.**

Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 2	Summary of project owner response	Verification team conclusion
As described in the PDD the critical parameters for determining the GHG emissions are 1. The amount of electricity exported to the grid – Being measured through calibrated meters. 2. Project emissions due to use of diesel for blending of biomass, biomass transportation and power import. The monitoring report does not capture project emissions due to biomass transported from collection to the project site.	D.1. CL-1	The revised monitoring report version 2.0 has estimated the project emission due to biomass transportation from collection to the project site.	The organization was evaluating the biomass usage by measuring the stock of biomass. Organization has now calculated the biomass usage from the total biomass transported by trucks and tractors. They have also installed a biomass flow meter to measure the biomass used for power generation. CL-1 is resolved and closed.



There is formal auditing and review procedure in place. However, it needs to focus on GHG data during Internal audits and spot checks on the overall reliability of calculation process	E.2. CL-2	The Project Proponent (PP) maintains necessary records on GHG data pertaining to both baseline emission and project emission. The scope of the Internal Audit (IA) carried out by PP reflects the details of plant performance, power generation, export and all the necessary monitoring parameters included in the PDD. The PP has also carried out an audit on the project emissions and has identified necessary measures to reduce the project emission. The required evidences towards the same have already been submitted to the DOE. However the scope of the IA, henceforth, will include other GHG data such as baseline emission and will also carry out spot checks on overall reliability of calculation process.	Although the audit process is established but specific focus on GHG data. Organization has responded to make appropriate system for spot checks of calculation process. CL-2 is closed.
--	----------------------	--	--



APPENDIX B: CVS OF VERIFIERS

Mr. R Sankaranarayanan: B Tech (Chemical) graduate with 23 years of experience in manufacturing industries and 9 years in Management system auditing. He has been involved in validation / Verification for more than 30 CDM Projects.

Mr. P Srinivas: He is the Lead auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. He is Mechanical Engineer and has several years of Industrial work experience in the field of Power generation and related projects. He has undergone intensive training on Clean Development Mechanism. He is technical expert in the team and so far has carried out Validation/verification for more than 25 CDM projects.

Mr. Srikant Saraf: He is an electrical engineer and is expert in power transmission, monitoring and transmission. He has more than 10 years of experience in Electrical Industries. He has been trained for Clean Development Mechanism requirements and has since accompanied verification teams as power expert during CDM validation and verification visits.

Mr. H. B. Muralidhar : He is the Lead auditor for Environmental Management System, Quality Management system and Occupational Health and Safety Management System.. He has several years of Industrial work experience in the field of environmental management systems. He is the technical expert & conducted Validation / Verification for more than 50 CDM Projects.