Verification and certification report form for CDM project activities

(Version 01.0)

Complete this form in accordance with the "Attachment: Instructions for filling out the verification and certification report form for CDM project activities" at the end of this form.

VERICATION AND CERTIFICATION REPORT	
Title of the project activity	Ganpati co-generation project at Medak,Andhra Pradesh
Reference number of the project activity	0370[1]
Version number of the verification and certification report	01
Completion date of the verification and certification report	2016-10-04
Monitoring period number and duration of this monitoring period	Monitoring period 2 of Crediting Period 2 25/06/2012 to 24/03/2016
Version number of monitoring report to which this report applies	02
Crediting period of the project activity corresponding to this monitoring period	01 Jan 10 - 31 Dec 16
Project participant(s)	- Ganpati Sugar Industries Limited, India - Noble Carbon Credits Limited (UnitedKingdom of Great Britain and NorthernIreland) - Vitol S.A (Switzerland)
Host Party	India
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral Scope: 01, Energy industries (renewable - / non-renewable sources) AMS-I.C. ver. 17Thermal energy production with or without electricity
Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD	176,207 tCO_{2e}
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	97,702tCO_{2e}
Name of DOE	LGAI Technological Center, S.A. (LGAI Tech. Center S.A)
Name, position and signature of	

[1] http://cdm.unfccc.int/Projects/DB/SGS-UKL1146080365.67/view

theapprover of the verification and certification report	Juan Sendín Caballero , B.U Systems Certifications  Manager

SECTION A. Executive summary

The project activity is a bagasse based co-generation facility installed at Ganpati Sugar Industries Limited's (GSIL) sugar mill at Sanga Reddy, Medak District of Andhra Pradesh[2], India. The bagasse used as fuel in the project activity is the co-product of sugar production process and is therefore a renewable carbon neutral source of electricity. The project activity is a small scale project activity and conforms to Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

The project activity is a grid connected bagasse based co-generation power plant with a high pressure and temperature steam configuration of 67 kg/cm^2 and 480^{o}C boiler with an extraction cum condensing type turbo-generator, 55 tonnes per hour capacity boiler using bagasse as the fuel. The power generated from the project is partly utilized for the plant and its auxiliaries. The remaining power is exported to the grid.
Relevant dates for the project activity:

- Project implementation Started in 29/04/2001[3]
- Continued its operation since 1st January 2003
- 1st crediting period Issued i.e., from 01/01/2003 to 31/12/2009
- 2nd Crediting period, 1st MP – from 01/01/2010 to 24/06/2012
- 2nd Crediting period, 2nd MP (Current MP) – from 25/06/2012 to 24/03/2016

Total GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this Monitoring period: 97,702 tonnes CO_{2e}

The project site is located at Kulbagur, Fasalwadi Village, Sanga Reddy, Telangana.

1. Verification Scope: The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification is based on the submitted monitoring report, the validated and registered PDD as well as its validation report ,the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance. Based on the requirements in the VVS version 09.0, Applus+ LGAI has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion. The verification considers both quantitative and qualitative information on emission reductions. The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

[2]As per Andhra Pradesh reorganization Act, 2014, the state of Andhra Pradesh is bifurcated into Telangana and residuary Andhra Pradesh. As per this new act, the Medak district where project activity is located comes under Telangana state. Thus Andhra Pradesh mentioned in MR represents the new Telangana state as per Andhra Pradesh reorganization Act, 2014. The DOE checked and found that all the legislation related to the Telangana state is as per rules and regulation prescribed in the registered PDD and thus there is no impact on the project activity due to the name change (i.e.state of Andhra Pradesh is bifurcated into Telangana and residuary Andhra Pradesh).

[3]Turbo-generator supply contract date

2. Methodology:

Applus+ LGAI'sapproach to the verification is a two-stage process.

In the 1st stage, Applus+ LGAI completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

Applus+ LGAI used a periodical Verification Checklist which, based on the risk-based assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the 2nd stage,using the Verification Checklist, Applus+ LGAIverified the implementation of the monitoring plan and the data presented in the Monitoring Reportfor the period in question. This involved a site visit and a desk review of the Monitoring Report. This Verification Report describes the findings of this assessment.

Assessment team

According to the sectoral scopes / technical area and experiences in the sectoral or national business environment, Applus+ LGAI has composed a projectassessment team in accordance with the appointment rules in Applus+ LGAI complying with EB's requirements. The composition of assessment team has to be approved by the Applus+ LGAI ensuring that the required skills are covered by the team. The four qualification levels for team members that are assigned by formal appointment rules as below:

- Leader Auditor (LA)
- Auditor (A)
- Auditor Trainee (T)
- Technical Experts (E)

The detail is mentioned below is section B of this report. The CV of personal are incorporated in Appendix 2 of this report.

3. Review of Documentation:

The Monitoring Report version 01 submitted by the PP was made publicly available on the UNFCCC website before the verification activities started. The published MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- verify the completeness of the data and the information presented in the MR;
- Check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD and verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid;
- Evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

A complete list of documents reviewed is available in Appendix 3 of this report.

4. On-site Assessment and follow-up Interviews:

As a part of the verification, the on-site inspection has been performed by the assessment team.

The objective of the on-site assessment is to:
- confirm the implementation and operation of the project;
- review the data flow for generating, aggregating and reporting the monitoring parameters;
- confirm the correct implementation of procedures for operations and data collection;
- cross-check the information provided in the MR documentation with other sources;
- check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.;
- review the calculations and assumptions used to obtain the GHG data and ER;
- Indentify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

The details are mentioned in section D.2 of this report.

5. Quality of Evidences

Sufficient evidence covering the full verification period in the required frequency is available to verify the figures stated in the final MR. The source of the evidences will be discussed in Appendix 3 of this report. Specific cross-checks have been done in cases that further sources were available. The monitoring report's figures were checked by the assessment team against the raw data. The data collection system meets the requirements of the monitoring plan as per the methodology.

6. Reporting of Findings

As an outcome of the verification process, theassessment team can raise different types of findings.

Where a non-conformance arises the assessment team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;

b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;

c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;

d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The assessment team shall raise a Clarification Request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

All CARs and CLs raised during verification shall be resolved prior to submitting a request for issuance.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period. All the CARs/CLs are being discussed in Appendix 4 of this report

7. Internal Quality Control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally

approved either by the DOE's Technical Manager or the Deputy. In case one of these two persons is part of the assessment team, the approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the request of issuance is submitted to CDM EB along with the requisite documents.

SECTION B. Verification team, technical reviewer and approver

B.1. Verificationteam member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	ER	DAS	SUKANTA	Outsource entity	Y	Y	Y	Y
	Technical Expert	ER	DAS	SUKANTA	Outsource entity	Y	Y	Y	Y

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Sitjes Cabanas	Miquel	Applus+ LGAI
2.	Technical reviewer (support)	IR	RodrigoVega	Natalia	Applus+ LGAI

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	No risk	Nil	Not applicable	Complete verification of all the values indicated in the emission reduction spreadsheetwith documents such as JMR/Invoices and all the monitoring parameters are covered. Assessment team visited the complete plant site and there was no sampling involved neither during onsite visit nor during document verifications.

C.2. Consideration of materiality in conducting the verification

In line with Guidelines for Application of materiality in verifications, a reasonable level of assurance is defined for the verification of the project by complete verification of all the values indicated in the emission reduction spreadsheet with source documents such as JMR/Invoices There are no material errors, omissions or misstatements.

SECTION D. Means of verification

D.1. Desk review

The verification was performed primarily based on the review of the monitoring report version 01 and the supporting documentations. This process included review of data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment used including calibration requirements, and the QA/QC procedures, and an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reduction.

The initial MR Version 1.0 submitted by the project participant and additional background documents related to the emission reductions are reviewed as an initial step of the verification process. The subsequent step involved the identification of corrective action requests and clarification requests (CAR and CR) which are presented in Appendix 4 of this report. As a result of these findings, the MR is revised to MR Version 02. MR Version 02 is then checked by the assessment team and found that the MR is revised according to the findings raised and thus a positive verification opinion is provided. A complete list of all documents and records reviewed is as attached in Appendix 03 of this report.

D.2. On-site inspection

Duration of on-site inspection: **26+**27/09/2016				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	The verification team conducted visits to the project site on 26+27/09/2016 to confirm the information and to resolve issues identified in the document review. An on-site assessment was conducted as a part of verification activity and involved: 1) an assessment of the implementation and operation of the CDM project activity as per the registered PDD 2) a review of information flows for generating, aggregating and reporting of the monitoring parameters 3) interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan 4) a cross-check between information provided in the MR and data from other sources 5) a check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the PDD and the applied methodology 6) a review of calculations and assumptions made in determining the GHG data and ERs, and 7) an identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters	The project site is located at Kulbagur, Fasalwadi Village, Sanga Reddy, Telangana	26+27/09/2016	Mr. Das

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Narayana Murthy	G. Surya	GM – (Engineering) Ganpati Sugar Industries Limited	26+ 27/09/2016	As described above in section D.2 of this report	Mr. Das
2	Patil	Ramkrishna	GM, EKI Energy Services Limited	26+27/09/2016	As described above in section D.2 of this report	Mr. Das

D.4. Sampling approach

Assessment team visited the complete plant site and there was no sampling involved neither during onsite visit nor during document verifications.

D.5. Clarification requests, corrective action requestsand forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	00	00	00
Compliance of the project implementation with the registered PDD	00	00	00
Post-registration changes	00	00	00
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	00	00	00
Compliance of monitoring activities with the registered monitoring plan	00	00	00
Compliance with the calibration frequency requirements for measuring instruments	00	01	00
Assessment of data and calculation of emission reductions or net removals	00	02	00
Others (please specify) 1. Matter related technical specifications of the equipments installed 2. Matter related to breakdown details of the power plant	00	02	00
Total	00	05	00

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	The verification team has determined whether the monitoring report was completed using the valid version available at UN home page. The verification team has checked whether all the sections of the monitoring report follows the guidelines provided in the template.
Findings	No finding raised regarding this compliance
Conclusion	PP has used the version 5.1 of the MR form which is the current and active version. The monitoring report has been prepared as per the instructions provided in the template. DOE has made the version 1.0 of the monitoring report covering the monitoring period from 25/06/2012 to 24/03/2016 publicly available on 27/07/2016 through its dedicated interface on the UNFCCC CDM website before undertaking the site visit for the verification on26+27/09/2016. The verification team has concluded that the monitoring report was completed using the valid version of the applicable monitoring report form and is followed the guidelines contained in the template.

E.2. Remaining forward action requests from validation and/or previous verification

No FAR was raised during the previous verification.

E.3. Compliance of the project implementation with the registered project design document

Means of verification	The verification team determined the conformity of the actual implemented project activity and its operation with the registered project design document. DOE has, by means of a desk review and an on-site visit, assessed whether all physical features of the proposed CDM project activity proposed in the registered PDD are in place, and that the project participants have operated the CDM project activity as per the registered PDD
Findings	No CAR raised for the present verification
Conclusion	The verification team has reviewed the commissioning certificates to conclude that the capacity of the project is same as mentioned in the registered PDD. The capacity does not change after the registration of the project activity. The project activity is a grid connected bagasse based co-generation power plant with a high pressure and temperature steam configuration of 67 kg/cm^2 and 480^{o}C boiler with an extraction cum condensing type turbo-generator, 55 tonnes per hour capacity boiler using bagasse as the fuel. The power generated from the project is partly utilized for the plant and its auxiliaries. The remaining power is exported to the grid. Based on the documentary evidence of commissioning certificates and physical verification DOE concludes that the project was implemented as per the registered PDD.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

There are no temporary deviations observed for this monitoring period.

E.4.2. Corrections

No correction approval is required from EB.

E.4.3. Changes to the start date of the crediting period

This is 2nd periodic verification (2nd crediting period) and there is no change in the start date of crediting period

E.4.4. Inclusion of a monitoring plan to a registered project activity

The monitoring plan was already included in the registered PDD (UN number: 0370). Thus this clause is not applicable

E.4.5. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

Not applicable for this present monitoring period.

E.4.6. Changes to the project design of a registered project activity

No change in project design for the current monitoring period.

E.4.7. Types of changes specific to afforestation and reforestation project activities

Not applicable for this project activity.

E.5. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline

Means of verification	The verification team determined whether the registered monitoring plan is in accordance with the applied methodology AMS.I.C ver. 17including applicable tools.
Findings	No Finding was raised regarding Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline
Conclusion	The verification team was is able to confirm that the monitoring plan contained in the registered PDD is in accordance with the approved methodology applied by the project activity, i.e. AMS.I.C ver. 17and its applicable tools

E.6. Compliance of monitoring activities with the registered monitoring plan

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	The assessment team checked the registered PDD to confirm the ex-ante fixed parameter mentioned in the current monitoring report. Assessment team also interviewed the personal onsite to check further regarding the ex-ante values used for emission reduction calculation.
Findings	No findings were raised regarding the same.
Conclusion	$EF_{grid,\ OM,\ y}$, $EF_{grid,BM,y}$, NCV_{diesel}, $EF_{diesel\ /\ EFCO2,i,y}$were mentioned as ex-ante fixed parameter. Assessment team checked the values, source of data, choice of data, purpose of the data mentioned in the MR from the registered PDD and confirms that the similar approach was considered for the current monitoring period also. There is no mismatch from the ex-ante fixed value as in registered PDD and thus assessment team confirms that the values were used correctly and appropriately.

E.6.2. Data and parameters monitored

Means of verification	The assessment team checked the registered PDD to confirm the ex-post parameter mentioned in the current monitoring report. Assessment team also interviewed the personal onsite to check further regarding the ex-post parameter monitoring and confirms that the same is in line with the registered PDD.
Findings	No findings were raised regarding this issue.
Conclusion	During the verification all relevant monitoring parameters mentioned in the MR (as also listed in chapter B.7.1, B.7.2 and Annex 4 of the registered PDD) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. It can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements. The calibration of measurement equipment has been conducted at the Frequency as specified by the methodology and monitoring plan of the registered PDD

E.6.3. Implementation of sampling plan

Means of verification	The verification assessed whether the compliance of the sampling efforts and surveys with the registered sampling plan in accordance with the “Standard for sampling and surveys for CDM project activities and programme of activities” if PP had applied a sampling approach to determine data and parameters monitored.
Findings	There is no CAR/CL raised in this section.
Conclusion	PP did not apply sampling plan to determine data and parameters monitored during

	this monitoring period. Assessment team visited the complete plant site and there was no sampling involved neither during onsite visit nor during document verifications.

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	The verification team determined whether the calibration of the measuring equipment that has an impact on the claimed emission reductions is conducted by the PP at a frequency specified in the registered monitoring plan.
Findings	CAR 02 was raised during the verification process and closed successfully. Please check Appendix 4 for the detail closure.
Conclusion	The calibration details for meters used for monitoring parameters are as below

Description	**Serial Number**	**Date of last calibration**	**Calibration Validity**	**Delay in calibration if applicable**
MAIN METER	1959480	4-Jul-11	4-Jul-12	Not Applicable
Make: L&T	1959478	02-Jul-12	02-Jul-13	Not Applicable
Type: ER 300P	3148278	24-Jun-13	24-Jun-14	Not Applicable
Accuracy: 0.2S	2781671	05-Sep-14	05-Sep-15	Yes, from 24/06/2014 to 05/09/2014 (Error Factor applied)
	2781671	02-Sep-15	02-Sep-16	Not Applicable
CHECK METER	3148278	4-Jul-11	4-Jul-12	Not Applicable
Make: L&T	1999438	02-Jul-12	02-Jul-13	Not Applicable
Type: ER 300P	8039598	24-Jun-13	24-Jun-14	Not Applicable
Accuracy: 0.2S	2781672	05-Sep-14	05-Sep-15	Yes, from 24/06/2014 to 05/09/2014 (Error Factor applied)
	2781672	02-Sep-15	02-Sep-16	Not Applicable

Note - main and check meters have been changed every year till Sept 2014.
Calibration frequency has been considered as annual as per registered PDD though national standard i.e CEA notification follows once in five years calibration frequency.

DIESEL TANK LEVEL GUAGE CALIBRATION DETAILS		
Sl.No	**Calibration Date**	**Calibration due date**
1	28-May-12	27-May-13
2	26-May-13	25-May-14
3	21-May-14	20-May-15
4	18-May-15	17-May-16

The calibration frequency is followed as per the registered PDD however whenever there is a delay in calibration error factor is applied for emission reduction calculation and thus acceptable to the DOE.

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan
Findings	CAR 1 and CAR 5 were raised during the verification process and closed

	successfully. Please check Appendix 4 for the detail closure.
Conclusion	The baseline emission is calculated as per the formula mentioned in the registered PDD and approved methodology. All the parameters used in the calculation is correct and as per onsite practice and registered PDD. DOE confirms that as per Paragraph 17 of approved methodology AMS.I.C, the baseline emissions for supply of electricity to and/or displacement electricity from a grid shall be calculated as per the procedures detailed in AMS-I.D. As per AMS I.D version 16, Paragraph 11 states that "The baseline emissions are the product of electrical energy baseline EGBL,y expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor" BEy = EGBL,y * EFCO2,grid,y Where: BEy Baseline Emissions in year y; t CO_{2e} EGBL,y Energy baseline in year y; kWh EFCO2,grid,y Emission Factor in year y; t CO_{2e}/kWh Energy baseline (EGBL,y) is the net electricity produced by the renewable generating unit delivered to the grid by the project that otherwise would have been generated by the operation of grid connected fossil fuel power plants. The Emission Factor (EFCO2,grid,y) Is the CO2 grid emission factor. For this project activity, the combined margin baseline emission factor value for the southern regional grid has been directly adopted from the CEA database. EFCO2 =0.86167 tCO_2/MWh BEy = EGBL,y * EFCO2,grid,y =113,404.220 * 0.86167 =97,717 tCO_2 The calculation approach is thus appropriate and hence DOE is of the opinion that the calculation is conservative and correct.

E.8.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan
Findings	No findings were raised
Conclusion	DOE confirms that for the project activity, since the CO2 emissions from fossil fuel combustion are only from diesel consumption for electricity generation. The above formula can henceforth be referred as: PEy = FCdiesel x COEFdiesel Where : PEy Are the CO2 emissions from diesel consumption during the year y (tCO2/yr); FCdiesel Is the quantity of diesel consumed in process during the year y (tons/yr), which equals to the Quantity of diesel consumed in litres/yr times the density of diesel (ρdiesel) in kg/lit and divide by 1000 kg/ton to convert the unit of FCdiesel to tons/yr. COEFdiesel Is the CO2 emission coefficient of diesel in year y (tCO2/ton). COEFdiesel is based on Option B of "Tool to calculate project or leakage CO2 emissions from fossil fuel Combustion". COEFdiesel = NCVdiesel x EFCO2, diesel Option A for calculating the CO2 emission coefficient is not used, as the necessary data is not available since the approach is based on the chemical composition of the fossil fuel type. Hence the preferred approach is Option B of "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", Version 02, to

	calculate the CO2 emission coefficient (COEFi,y) Therefore, Project emissions due to diesel consumption for electricity generation (PEy) can be calculated finally as follows: PEy = FCdiesel x NCVdiesel x EFCO2, diesel Where: FCdiesel Is the quantity of diesel consumed in process during the year y (tons/yr), NCVdiesel Is net calorific value of the diesel (GJ/ton) EFCO2, diesel Is the CO2 emission factor of diesel in year y (tCO2/GJ)

E.8.3. Calculation of leakage GHG emissions

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan
Findings	No findings were raised.
Conclusion	DOE confirms that the latest methodology AMS.I.C.Version 17, Para 37 states that "If the energy generating equipment currently being utilised is transferred from outside the boundary to the project activity, leakage is to be considered". No leakage emissions are considered for the proposed project activity since no energy generating equipment is from outside the boundary to the project activity transferred from another activity and/or the existing equipment is transferred to another activity. Further Para 38 states that "In case collection/processing/transportation of biomass residues is outside the project boundary CO2 emissions from collection/processing/transportation (If biomass residues are transported over a distance of more than 200 kilometres due to the implementation of the project activity then this leakage source attributed to transportation shall be considered, otherwise it can be neglected) of biomass residues to the project site". The biomass used in the project activity is the mill generated bagasse available within the project premises. Collection/processing/transportation of bagasse is within the sugar plant and not outside the project boundary. Hence no leakage sources are considered and CO2 emissions from same are zero.

E.8.4. Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
Findings	CAR 5 were raised during the verification process and closed successfully. Please check Appendix 4 for the detail closure.
Conclusion	Emission reductions in this monitoring period are: Total Baseline Emissions: 97,717tCO_2e Total Project Emission: 15 tCO_2e Total Leakage: 0

E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The verification team has determined the CER achieved during this monitoring period with the estimated value and reason for increase if any.
Findings	No findings were raised
Conclusion	The actual CER is -44.6% % less than the estimated value. This difference has occurred due to less availability of sugar cane during monitoring period and hence the project activity couldn't generate the estimated power. Therefore, less amount of power has been exported to the grid which resulted in lower number of emission reductions from project activity

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	The verification team has determined the CER achieved during this monitoring period with the estimated value and reason for increase if any.
Findings	No findings were raised
Conclusion	The actual CER is -44.6% % less than the estimated value. This difference has occurred due to less availability of sugar cane during monitoring period and hence the project activity couldn't generate the estimated power. Therefore, less amount of power has been exported to the grid which resulted in lower number of emission reductions from project activity

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	The verification team has determined the CER achieved during first commitment period and second commitment period
Findings	There is no CAR/CL raised in this section.
Conclusion	1. GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012: 6,179 tCO2e 2. GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards: 91,523tCO2e

SECTION F. Internal quality control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the DOE's Technical Manager or the Deputy. In case one of these two persons is part of the assessment team, the approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the request of issuance is submitted to CDM EB along with the requisite documents

SECTION G. Verification opinion

Applus+ LGAI has been engaged byGanpati Sugar Industries Limited, India to perform the 2nd periodic verification (2nd crediting period) of the "Ganpati co-generation project at Medak, Andhra Pradesh" (UNFCCC Ref. No. 0370).

The management ofGanpati Sugar Industries Limited is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the registered PDD version 08 completed on 14/11/2013 and the applied methodology AMS.I.C version 17.

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board.Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is operated as planned and described in the project design document approved by the EB;
- the monitoring plan is as per the applied methodology;

- the monitoring in Monitoring Report is as per the PDD and the monitoring plan approved by the EB;
- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for "Ganpati co-generation project at Medak, Andhra Pradesh"for the monitoring period 25/06/2012 to 24/03/2016as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period:	From 25/06/2012 to 24/03/2016
Verified emissions in the above reporting period:	
Leakage emissions	0 tCO_2 equivalents
Project emissions	15 tCO_2 equivalents
Baseline emissions	97,717tCO_2 equivalents
Emission reductions	97,702tCO_2equivalents

Signature

Assessment team:Mr. Sukanta Das (Team Leader / Leader Auditor)

DOE Representative (1) :Miquel Sitjes Cabanas (CDM Technical Manager)
DOE Representative (2) :Natalia Rodrigo Vega (CDM Project ActivityManager)

B.U. Systems Certification Area Manager: Juan Sendín Caballero

SECTION H. Certification statement

Same as above

Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CMS	Central Monitoring system
CEA	Central Electricity Authority
CL	Clarification request
CM	Combined Margin
CMS	Central Monitoring system
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions sheet
FAR	Forward Action Request
JMR	Joint Meter reading
GHG	Greenhouse gas(es)
GWP	Global Warming potential
RBI	Reserve Bank Of India
PP	Project Participant

Appendix 2. Competence of team members and technical reviewers

1. Mr. Sukanta DAS, has done M. SC in (Electronics and Photonics) and M. Tech in (Energy technology) from Tezpur Central University/ Indian Institute of technology Bombay in India respectively. He is a certified lead auditor for ISO 14001 EMS LA and ISO 9001 QMS LA from International registry for Certified Auditors (IRCA) and Certified Lean Management practitioner from Quality Council of India (QCI). He has more than eight years of working experience at TUV NoRD/ Re-consult/CRA/APPLUS certifications under various categories of projects stating from Renewable to waste to supercritical projects. He was JI/ CDM Lead Assessor in TUV NoRD and was involved in more than 100 CDM validation and verifications activities in Gold Standard, VCS, CDM projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1, 13 technical areas 1.2/1.1/13.1. Currently he is associated with True Quality Certifications Private Limited and is empanelled with APPLUS certification to carry out GHG audit.

2. Mr. Miquel Sitjes Cabanas has a Bachelor Science degree in Chemistry by the Universidad de Barcelona - Spain (1975). He has 15 years of experience in a Spanish chemical group company specialized in the manufacturing of raw chemical products, where he worked as the Manager of Production and Quality and Environmental Control. He also worked in the Spanish pharmaceutical industry for 7 years as Quality, Manufacturing and Environmental Manager. Currently, he works for Applus+ LGAI Technological Center since 1999. Since 2006, he is the Technical Manager of Applus+LGAI, working under quality, and environmental standards such as ISO 9001, ISO 14001, GHG Verification, CDM, VCS and GS

3. Ms. Natalia Rodrigo Vega has a Bachelor's Degree on Environmental Engineering and Master´s Degree on Environmental and Quality Management System (under ISO 9001 and 14001).

   She Works in Applus Environmental and Quality Management Systems Department since March 2012, being specially involved on technical support tasks related to CDM-VCS and GS Standards, among others (i.e. GHG verification and ProyectoClima)

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	NA	Commissioning certificates of the power plant	Commissioning certificates of the CO-gen boiler and turbine	Project participant
2	NA	Contract of the project participant with the DOE	Contract document signed between PP and DOE	Project participant
3	NA	VVS standard-version 09	UNFCCC web site	UNFCCC
4	NA	Calibration certificates	Calibration certificates of all the monitoring meters	Project participant
5	NA	MR version 01 MR version 02	MR version 01 dated 09/07/2016 MR version 02 dated 30/09/2016	Project participant
6	NA	ER sheet version 01	ER sheet version 01 dated 30/09/2016	Project participant
7	NA	Actual geo-coordinates by GE	Actual coordinates	Project participant
8	NA	JMR/Invoices	JMR/Invoices for the complete Monitoring period	Project participant
9	NA	Guidelines for Application of materiality in verifications version 2.0	UNFCCC web site	UNFCCC

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1 Remaining FAR from validation and/or previous verification

NA

Table 2. CAR from this verification

CAR ID	01	**Section no.**		**Date:**28-09-2016
Description of CAR				
The supporting documents like the Commission certificates of the boilers and turbines, Log book records (If any), invoices, Electricity bills in case of captive consumption and documents related to all the monitoring parameters involved in the project activity are not submitted to the assessment team. The emission reduction calculation as presented in the Monitoring report version 01 is thus reserved. Corrective action is sought in this regard.				
Project participant response				**Date:**30/09/2016
The commissioning certificates of boiler and turbine are submitted to DOE. The joint meter reading records, invoices for export /import data, log book data and reports for other monitoring parameters are submitted to DOE.				
Documentation provided by project participant				
Commissioning certificates of boiler and turbine Joint meter reading records, invoices for export /import data, log book data and reports				
DOE assessment				**Date:**04/10/2016
Commissioning certificates are checked and it was observed that the installed equipments are in line with PDD/MR. The monthly data corresponding to different monitoring parameters were submitted to the assessment team. JMR/Invoices are also submitted for present verification CAR is thus closed.				

CAR ID	02	**Section no.**		**Date:**28-09-2016
Description of CAR				
During the site visit and subsequent document review it was observed that the calibration details of the site meters (including all the monitoring meters) are missing for the complete monitoring period. Corrective action is sought in the respective section of the MR and supporting documents for further analysis.				
Project participant response				**Date:**30/09/2016
The calibration certificates for export/import meter and diesel tank has been submitted to DOE. The NCV and moisture is measured through external accredited laboratory, thus no any calibration details are applicable for these parameters. The MR is revised accordingly.				
Documentation provided by project participant				
Revised MR version 02 dated 30/09/2016				
DOE assessment				**Date:** 04/10/2016
All the calibration reports were checked by the assessment team for all the monitoring parameters. The calibrations are as per the frequency mentioned in the PDD/MR. However whenever there was a delay in calibration error factor was applied. The same is thus acceptable to the DOE. CAR is this closed.				

CAR ID	03	**Section no.**		**Date:**28-09-2016
Description of CAR				
The technical details of all the measuring parameters (Like Co-gen boiler, electricity meters) and equipment used (like steam turbine etc)for the monitoring period is missing. The assessment will be reserved till the supporting is submitted to the assessment team.				
Project participant response				**Date:**30/09/2016
The technical details for Turbine and boiler has been submitted now				
Documentation provided by project participant				
Technical details for Turbine and boiler				
DOE assessment				**Date:**04/10/2016
The technical specifications as mentioned in the MR are as per the site equipments installed and also in line with manufacturer specifications. The technical specifications are now revised in the MR version 02. CAR is thus closed.				

CAR ID	04	**Section no.**		**Date:**28-09-2016
Description of CAR				
The breakdown details of the plant are missing in the MR. Moreover, the supporting document regarding the breakdown details are also not provided to the assessment team. Corrective action is sought in the respective section of the MR and supporting documents for further analysis.				

Project participant response	**Date:**30/09/2016
Being sugar industry, the project activity is exporting electricity to grid only in season and maintenance is carried out during off season only.	
Documentation provided by project participant	
Log book records (Shut down details)	
DOE assessment	**Date:** 04/10/2016
The breakdown details were checked by the assessment team. All scheduled maintenance and work is done by the PP. NO forced break down observed CAR is thus closed.	

CAR ID	05	**Section no.**		**Date:**28-09-2016
Description of CAR				
The emission reduction calculation is not detailed out in the MR. Please provide a sample calculation for each state for further analysis. Moreover, details Emission reduction sheet is also not provided to the assessment team. Corrective action is sought in this regard.				
Project participant response				**Date:**30/09/2016
The emission reduction calculations are detailed in revised MR and ER spreadsheet for the project activity is submitted to DOE.				
Documentation provided by project participant				
Revised MR version 02 dated 30/09/2016 Revised ER spreadsheet version 02 dated 30/09/2016				
DOE assessment				**Date:** 04/10/2016
Sample calculation is acceptable to the DOE. The emission reduction calculation is now detailed out in the MR. CAR is thus closed.				