VERIFICATION AND CERTIFICATION REPORT

Rajshree Sugars & Chemicals Limited

RSCL Cogeneration Expansion project

SGS Climate Change Programme
SGS United Kingdom Ltd
SGS House
217-221 London Road
Camberley Surrey
GU15 3EY
United Kingdom

SGS United Kingdom Ltd | SGS House, 217-221 London Road, Camberley, Surrey GU15 3EY **Tel** +44 (0)1276 697810 **Fax** +44 (0)1276 697888
Registered in England No. 1193985 Rossmore Business Park, Ellesmere Port, Cheshire CH65 3EN www.sgs.com
Member of SGS Group (Société Générale de Surveillance)

Date of Issue:	Project No.:
20-02-2008	CDMVer0172
Project Title	Organisational Unit:
RSCL Cogeneration Expansion project	SGS United Kingdom Limited
Revision Number	Client:
2	Rajshree Sugars & Chemicals Limited

Summary:

SGS United Kingdom Ltd has performed the second periodic verification of the CDM project RSCL Cogeneration Expansion Project and UNFCCC Ref. Number 0127. The verification includes confirming the implementation of the monitoring plan of the registered PDD UNFCCC reg. no 0127 and the application of the monitoring methodology as per AM0015, version 1. A site visit was conducted to verify the data submitted in the monitoring report.

The project activity involves installation of a 22 MW bagasse based power project. This comprises of one turbine of 22MW. One boiler of 120TPH capacity working at pressure 87 kg/cm2 and temperature 515 deg C. The project has the option to supply surplus power to the grid. Overall the project replaces the equivalent amount of energy from the southern regional grid. This results into indirect CO2 emission reductions at the grid power plants which mainly use fossil fuels. In the baseline the plant remains self sufficient in power and does not export to grid. Due to the project activity which is exporting power to grid the project has replaced the GHG emission which otherwise would have been emitted by the grid power plants to generate equivalent amount of energy.

SGS confirms that the project is implemented in accordance with the validated and registered Project Design Document. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 89701 tCO2e during period 01/10/2006 up to 30/09/2007.

Subject:			
CDM project Verification			**Indexing terms**
Report Title			
RSCL Cogeneration Expansion Project			
Technical Review (name and date)			
Siddharth Yadav		☒	No Distribution (without permission from the Client or responsible organisational unit)
Authorized Signatory (name and date)			
Irma Lubrecht		☐	Limited distribution
Date of Final Decision: 20-02-2008	Number 15	☐	Unrestricted distribution

Abbreviations

AM	Approved Methodology
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission reduction
DOE	Designated Operational Entity
ER	Emission Reduction
IPCC	Intergovernmental Panel on Climate Change
kWh	Kilo Watt hour
MP	Monitoring Plan
MR	Monitoring Report
MT	Metric Tonne
MW	Mega Watt
MWh	Mega Watt hour
NIR	New Information Request
PDD	Project Design document
PE	Project Emissions
PPA	Power Purchase Agreement
PP	Project participant
QA / QC	Quality Assurance / Quality Control
RSCL	Rajshree Sugars & Chemicals Limited
SV	Site visit
TNEB	Tamil Nadu Electricity Board
TNPCB	Tamil Nadu Pollution Control Board

Table of Content

1. Introduction

1.1 Objective

SGS United Kingdom Ltd has been contracted by Rajshree Sugars & Chemicals Limited to perform an independent verification of its CDM project RSCL Cogeneration Expansion Project. CDM projects must undergo periodic audits and verification of emission reductions as the basis for issuance of Certified Emission Reductions (CERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The emissions report conforms with the requirements of the monitoring plan in the registered PDD and the approved methodology; and
- The data reported are complete and transparent.

1.2 Scope

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on the validated and registered project design document and the monitoring report. The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

SGS has, based on the recommendations in the Validation and Verification Manual, employed a risk-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

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

1.3 Project Activity and Period Covered

This engagement covers emissions and emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the following project and period.

Title of Project Activity:	RSCL Cogeneration Expansion Project
UNFCCC Registration No:	UNFCCC registration No 0127
Monitoring Period Covered in this Report	01/10/2006 to 30/09/2007 (second periodic verification)
Project Participants	Rajshree Sugars & Chemicals Limited
Location of the Project Activity:	Mundiyampakkam village, Villupuram district, in the state of Tamil Nadu, India

The project activity involves installation of a 22 MW bagasse based power project. This comprises of one turbine of 22MW. One boiler of 120TPH capacity working at pressure 87 kg/cm2 and temperature 515 deg C. The project has the option to supply surplus power to the grid. Overall the project replaces the equivalent amount of energy from the southern regional grid. This results into indirect CO2 emission reductions at the grid power plants which mainly use fossil fuels. In the baseline the plant remains self sufficient in power and does not export to grid. Due to the project activity which is exporting power to grid the project has replaced the GHG emission which otherwise would have been emitted by the grid power plants to generate equivalent amount of energy.

2. Methodology

2.1 General Approach

SGS's approach to the verification is a two-stage process.

In the first stage, SGS 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.

At the end of this stage, SGS produced a Periodic Verification Checklist which, based on the risk assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

Using the Periodic Verification checklist, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report for 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.

2.2 Verification Team for this Assessment

Name	*Role*	*SGS Office*
Pankaj Mohan	Lead Assessor	SGS India

2.3 Means of Verification

2.3.1 Review of Documentation

The validated PDD, the monitoring report submitted by the client and additional background documents related to the project performance were reviewed. A complete list of all documents reviewed is attached in section 8 of this report.

2.3.2 Site Visits

As part of the verification, the following on-site inspections have been performed

Location: Mundiyampakkam village, Villupuram district, in the state of Tamil Nadu, India
Date: 25th & 26th October 2007

Coverage	***Source of information / Persons interviewed***
Assessment of Project Boundary	Physical Verification
Physical components	Physical Verification /Commissioning certificates
Plant Operations	Plant Manual
Monitoring and measuring system • *Collection of measurements* • *Observations of established practices* • *Testing of the accuracy of monitoring equipment* • *Data Verification of monitoring parameters*	Physical Verification /logs/ Calibration procedures/ Calibration certificates/QA / QC Manual/ Mr. Venkatesh
CDM monitoring & reporting documentation	Mr. Venkatesh
Quality Assurance – Management and operating system	Internal Audit procedure/ Internal Audit records. Mr. Venkatesh
Environmental Monitoring	PCB consents/ PCB Ambient Air quality/Stack monitoring report/

2.4 Reporting of Findings

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

In general, where insufficient or inaccurate information is available and clarification or new information is required the team shall raise a New Information Request (NIR) specifying what additional information is required.

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

I. the verification is not able to obtain sufficient evidence for the reported emission reductions or part of the reported emission reductions. In this case these emission reductions shall not be verified and certified;

II. the verification has identified misstatements in the reported emission reductions. Emission reductions with misstatements shall be discounted based on the verifiers ex-post determination of the achieved emission reductions

The verification process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification actors. These have no impact upon the completion of the verification activity.

Corrective Action Requests and New Information Requests are detailed in Periodic Verification Checklist. The Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

The current report if for the second periodic verification of this project.

2.5 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment Team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

3. Verification Findings

3.1 Project Documentation and Compliance with the Registered PDD

The project documentation is in line with the registered PDD and Monitoring methodology of AM0015 version 1.

The emission reduction for the monitoring period 1-10-2006 to 30-09-2007 was mentioned as 80831 tCO2e in PDD as per assumption of 260 days of operation. The MR is mentioning the value as 89702 tCO2e. CAR1 was raised to get the clarification for the same. The PP replied by providing the justification that the emission reduction value increases due to more number of days of operation i.e. 290 days instead of 260 days which was assumed during PDD validation. The sugar cane availability during this season was more but this will not continue as it is depending on the seasonal variations as well. This increase in the number of days in not in contravention to the registered PDD/approved methodology as the bagasse used as a feedstock for cogeneration is supplied from the same facility where the project is implemented and there is no increase in the Bagasse production in the facility due to the implementation of the project (as desired in the approved methodology AM0015 version 1). The justification was accepted after verifying the relevant documentary evidences i.e. plant records for number of days of operation i.e. 290 days as against the assumption of 260 days in PDD. This was also checked that the installed capacity 22MW and export of surplus power as allowed by Power purchase agreement (PPA) has also not increased due to the increase in operational days. The Plant records, PPA and present records were also checked during site visit and obtained the copy of the same. Hence this was accepted and CAR1 was closed out.

3.2 Monitoring Results

- Quantity of fossil fuel i used at the project site due to the project activity (FFiy)

No modifications took place to the boiler to permit the combustion of fossil fuel and therefore no fossil fuel was consumed in the boilers during the monitoring period. This was checked during the site visit and found that there is no fossil fuel consumption at the site. This was also checked from the pollution control board consent which states that the consent is valid for biomass fuel only.

- Electricity supplied to the grid by the project (EGy)

The data has been monitored for the project by using the calibrated (main) meter having serial number 04252763. Electricity export data has been taken from the invoices raised by the factory on TNEB, the purchaser of electricity. The export data was also checked against the TNEB card and the log sheets maintained by the plant personnel and signed by both the plant personnel and Assistant Engineer of the state electricity board. The total value reported was 96557500 kWh for the period 1st October 2006 to 30th September 2007. The value verified was 96557500 kWh.

- CO2 emission factor for the grid (EFy)

The value is calculated ex-ante as per PDD. The value is mentioned as 0.929 tCO2/MWh on page number 23 of registered PDD.

- Confirmation of storage of bagasse not more than a year

In sugar cane crushing season, the bagasse is utilised in the boiler on first in first out basis from the storage. In the project case the storage of bagasse starts from September 06 till the project again started in the end of December 06 so the bagasse was only stored for around 75 days for start up of the boiler in the next crushing season. The storage period remains less than a year and the same was verified.

- Environmental Consent and Monitoring

The plant operated under a valid consent from the Tamil Nadu Pollution Control Board (TNPCB) and a copy of this consent was provided to the verifier during site visit. The data shown demonstrates the compliance on air and water through the audits conducted by the TNPCB.

3.3 Remaining Issues, CAR's, FAR's from Previous Validation or Verification

There are no previous issues from the validation or from the first verification. This is the second periodic verification.

3.4 Project Implementation

Project was implemented and equipment installed as described in the registered PDD version 3 dated 30th October 2005;

The project has been already implemented and the activity has been operational. The equipment installations were checked and they conform to details in the registered PDD. This was also checked during second verification as well.

3.5 Completeness of Monitoring

The reporting procedures reflect the content of the monitoring plan. The monitoring mechanism is effective and reliable

3.6 Accuracy of Emission Reduction Calculations

The calculation of emission reductions is found to be rounded up and it is more than the mentioned in PDD. One CAR was raised, CAR02 was raised on the rounding up of emission reductions due to which the CER value increased to 89702 tCO2e. The PP responded by providing the revised calculation sheet removing the rounding up and also provided the revised monitoring report. These were checked and found to be correct now and the CER value decreased to 89701 tCO2e. The response to CAR02 was checked and found satisfactory and hence CAR02 was closed. The details of the reported and the verified values for all parameters are listed in section 5.

3.7 Quality of Evidence to Determine Emission Reductions

Critical parameters used for the determination of the Emission Reductions are discussed above in section 3.2 above. All the data recorded is in compliance with the monitoring report. NIR 3 was raised to include the export meter numbers and calibration dates in monitoring report. The PP replied by providing the revised monitoring report including the Export meter (Main & Check) serial numbers and the date of calibration. The revised monitoring report version 03 was checked and found that it is mentioning the meter serial numbers as 04252763 (main meter) and 04252755 (check meter). These were also checked physically during the site visit. Hence NIR3 was closed out.

3.8 Management System and Quality Assurance

The companies involved in the project have followed quality assurance system implementation and there is a CDM procedure in place. This was confirmed through physical verifications of the data, through interviews and observed practices and therefore we can affirm that the management system for the CDM project is in place; with the responsibilities properly identified and in place.

In order to verify data quality, the Companies involves in the project works in accordance with a quality assurance procedure (*Procedure for Monitoring Plan Implementation*), which establishes the operational and management structure implemented.

3.9 Data from External Sources

IPCC data for fossil fuel emission factor i.e. 96.1 from chapter 1 table 1.4. NCV and oxidation factor was checked from IPCC guidelines 2006. The values used is 18.9 TJ /t taken from chapter 1 table 1.2. The oxidation factor used is 1 taken from chapter 1 table 1.4.

Central Electricity Authority data is used to calculate baseline emission factor 0.929 tCO2 /MWh as mentioned in registered PDD and have been fixed ex-ante at the time of validation as mentioned in registered PDD page number 23.

4. Overview of Results

Assessment Against the Provisions of Decision 17/CP.7:

Is the project documentation in accordance with the requirements of the registered PDD and relevant provision of decision 17/CP.7, EB decisions and guidance and the COP/MOP?

Yes. The results of the compliance assessment are recorded in the verification checklist which is used as an internal report only.

Have on-site inspections been performed that may comprise, inter alia, a review of performance records, interviews with project participants and local stakeholders, collection of measurements, observations of established practices and testing of the accuracy of monitoring equipment?

Yes. Pankaj Mohan Lead Assessor visited the site and undertook interviews, collected data, audited the implementation of procedures, checked calibration certificates and checked data, inter alia.

The results of the site visits are recorded in the verification checklist which is used as an internal report only.

The evidences have been checked and collected. The revised monitoring report is attached with this verification report.

Has data from additional sources been used? If yes, please detail the source and significance.

The baseline emission factor is fixed ex-ante as mentioned in registered PDD page 16 and the value is 0.929 tCO2 / MWh as per the validated PDD page 23.

Please review the monitoring results and verify that the monitoring methodologies for the estimation of reductions in anthropogenic emissions by sources have been applied correctly and their documentation is complete and transparent.

Yes. The monitoring methodology has been correctly applied and the monitoring report and supporting references are complete and transparent.

Have any recommendations for changes to the monitoring methodology for any future crediting period been issued to the project participant?

No changes in monitoring methodology from the first verification. This is the second verification.

Determine the reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the CDM project activity, based on the data and information using calculation procedures consistent with those contained in the registered project design document and the monitoring plan.

*The data used in anthropogenic emission reduction calculation is consistent with those contained in the registered PDD and monitoring plan. The emission reduction was 80831 tCO2 for the period 01/10/2006 to 30/09/2007 as per the estimation made in the registered PDD. The actual emission reduction has been verified as **89701** tCO2 for the same period.*

Identify and inform the project participants of any concerns related to the conformity of the actual project activity and its operation with the registered project design document. Project participants shall address the concerns and supply relevant additional information.

"No such non conformity of the actual project activity and its operation with the registered project design document has been observed."

Post monitoring report on UNFCCC website

Yes, the monitoring report is available at ref. UNFCCC Project Reference Number 0127 on UNFCCC website
http://cdm.unfccc.int/Issuance/MonitoringReports

5. Calculation of Emission Reductions

Parameter	*Reported Value*	*Verified Value*
Electricity Exported (kWh)	96557500	96557500
Grid emission factor (tCO2/MWh)	0.929	0.929
Fossil fuel usage (MT)	0	0
CoEFi (TCO2/TJ)	1816.29	1816.29

Baseline emission reductions calculated = 89701 tCO2e

Project emission reductions calculated = 0 tCO2e

Net emission reductions calculated = 89701 tCO2e

6. Recommendations for Changes in the Monitoring Plan

No recommendations made

7. Verification and Certification Statement

SGS United Kingdom Ltd has been contracted by Rajshree sugars & Chemicals Limited to perform the verification of the emission reductions reported for the CDM project RSCL Cogeneration Expansion Project and UNFCC Reference Number 0127 in the period Insert 01-10-2006 to 30-09-2007.

The verification is based on the validated and registered project design document and the monitoring report for this project. Verification is performed in accordance with section I of Decision 3/CMP.1, and relevant decisions of the CDM EB and CoP/MoP. The scope of this engagement covers the verification and certification of greenhouse gas emission reductions generated by the above project during the above mentioned period, as reported in RSCL Cogeneration expansion project dated 12-12-2007 version 03 of monitoring report.

The management of the Rajshree Sugars & Chemicals 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 Monitoring Report version 03 12/12/2007. The development and maintenance of records and reporting procedures are in accordance with the monitoring report, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of the RSCL Cogeneration Expansion Project.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and the calculation of emission reductions from the project for the period 01/10/2006 to 30/09/2007 based on the reported emissions in the Monitoring Report for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, SGS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

SGS confirms that the project is implemented as described in the validated and registered project design documents. Based on the information we have seen and evaluated, we confirm the following:

Name and Reference Number of Project	RSCL Cogeneration Expansion Project UNFCCC Reference Number 0127
Registered PDD and Approved Methodology used for Verification	Registered PDD dated 30th October 2005 version 3 And Approved Methodology AM0015 version 1
Applicable Period	01-10-2006 to 30-09-2007
Total GHG Emission Reductions Verified	89701 tCO2e

Signed on behalf of the Verification Body by Authorized Signatory

Signature: 

Name: Irma Lubrecht

Date: 20-02-2008

8. Document References

/1/ Registered PDD version 3 dated 30th October 2005

/2/ Approved methodology AM0015 version 1

/3/ Monitoring Report version 1 dated 8th October 2007

/4/ Monitoring Report version 2 dated 26th October 2007

/5/ Monitoring report version 3 dated 12th December 2007

/6/ Calibration certificate of main meter 04252763 of NABL accredited lab

/7/ Calibration certificate of Check meter 04252755 of NABL accredited lab

/8/ Export meter invoices, TNEB card and logbook signed by Assistant engineer TNEB & PP representative.

/9/ IPCC 2006 guidelines for CoEFi , NCV, & Oxidation values

/10/ Emission reduction excel sheet

- o0o -