BIOMASS BASED COGENERATION PROJECT AT NECTAR LIFE SCIENCES LTD.

Project Title	Biomass Based Cogeneration Project at Nectar Life Sciences Ltd.
Version	3
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Report Title	Biomass Based Cogeneration Project at Nectar Life Sciences Ltd.
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Summary:

SGS United Kingdom Ltd has performed the 4th verification of the project "Biomass Based Cogeneration Project at Nectar Life Sciences Ltd." bearing VCS Project ID 251 against VCS Standard Version 3.4. The verification includes confirming the implementation of the monitoring plan of the registered VCS PD Version 5 dated 20/10/2010 and the application of the monitoring methodology as per AMS IC Version 15 dated 17/07/2009. A site visit was conducted to verify the data submitted in the Monitoring Report.

The project activity involves the installation of a new biomass based cogeneration system. The cogeneration system included a 6 MW single extraction cum condensing turbine generator and a 40 TPH capacity AFBC boiler with a pressure rating of 67 kg/cm2 and temperature 490°C. The extraction from the turbine is 20 TPH at 6 Kg/cm^2 and 256°C. It has been checked that, after extraction from the turbine, the steam is fed into the processes via Desuperheating System (DSH), where water from deareater is added into the steam which increases the quantity of steam up to 24 TPH and decreases the temperature of steam as per the process requirements. This is as per the VCS PD description and found to be appropriate.

The project activity is catering electricity to unit 1 complex and steam & electricity to unit 2 complex. Being a renewable energy project, this project contributes towards reducing GHG emissions by replacing the same amount of electricity from the Northern, Eastern, Western and North Eastern (NEWNE) which would otherwise be generated by a fossil fuel based power plant and steam which would otherwise be generated by a fossil fuel fired boiler.

The report describes a total of 7 findings which include:

- 5 Corrective Action Requests (CARs)
- 2 Clarification Requests (CLs)
- 0 Forward Action Requests (FARs)

All findings have been closed satisfactorily and have been discussed in Appendix 3 of this report.

SGS confirms that the project is implemented in accordance with the Registered VCS PD/4/ (VCS ID 251). The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the project GHG emissions and the resulting GHG emission reductions reported and related to the valid and validated project baseline and monitoring and its associated documents. Based on the information reviewed and verified (see Appendix 1 for full list), SGS confirm that the implementation of the project has resulted in 57,003 tCO2e emission reductions during the period 01/01/2012 to 31/12/2012 (both days included).

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1 INTRODUCTION

1.1 Objective

SGS United Kingdom Ltd has been contracted by M/s Nectar Life Sciences Limited to perform an independent verification of the fourth monitoring period for VCS registered project "Biomass Based Cogeneration Project at Nectar Life Sciences Ltd." (VCS ID 251) against VCS Standard Version 3.4[/1/]. The assessment team reviewed the GHG data collected for the period from 01/01/2012 to 31/12/2012 (both days included).

The purposes of this verification exercise are, by review of objective evidence, to independently review:

- Whether the project has resulted in emission reductions as declared by the organisation or GHG project's GHG assertion;
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

1.2 Scope and Criteria

This engagement covers the fourth periodic VCS verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of "Biomass Based Cogeneration Project at Nectar Life Sciences Ltd." as per the registered VCS PD[/4/], version 5 dated 20/10/2010.

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. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the defined reporting period.

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

1.3 Level of Assurance

The level of assurance of the verification report falls under reasonable assurance engagements as selected by the Client.

1.4 Summary Description of the Project

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:	Biomass Based Cogeneration Project at Nectar Life Sciences Ltd.
VCS Project ID	251
Monitoring Period Covered in this Report	01/01/2012 to 31/12/2012 (both days included)

Project Proponent	M/s Nectar Lifesciences Limited
Location of the Project Activity:	Villages: Saidpur District: Mohali State: Punjab Country: India

The project activity involved the installation of a new biomass based cogeneration system and the supply of the generated electricity to the NEWNE Grid; whilst the process steam was used for the manufacturing process of the Unit 2 complex of the pharmaceutical plant. This project consists of renewable energy generation, which can replace the electricity generation from the fossil fuel dominated grid. The project activity is resulting in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

The project activity consists of the cogeneration system included a 6 MW single extraction cum condensing turbine generator and a 40 TPH capacity Atmospheric Fluidised Bed Combustion (AFBC) boiler, with a steam pressure rating of 67 kg/cm2 and steam temperature output 490℃ . The project has been commissioned on 27/05/2007. The same has been verified against the commissioning certificate/17/.

The project activity is fully functional and the assessment team verified this during the site visit.

Discussion of CARs/CLs

CAR #1 (point 1) – The PP was requested to clarify the appropriateness of VCS MR template used. In response, the PP has revised the VCS MR template to latest version 3.3. Hence this was accepted and **CAR #1** (point 1) was **closed** out.

CAR #1 (point 2) – The PP was requested to clarify, why title of the MR is not mentioned on title page of the MR. In response, the PP has revised the VCS MR and included MR title in revised version MR 2. Hence this was accepted and **CAR #1** (point 2) was **closed** out.

CAR #1 (point 3) – The PP was requested to clarify crediting period included in section 1.6 of the MR in line with clause 3.8.1 of the VCS Standard version 3.4. In response, the PP has revised the crediting period in the revised MR Version 2. Hence this was accepted and **CAR #1** (point 3) was **closed** out.

CAR #1 (point 4) – The PP was requested to clarify, appropriateness and adequacy of the information included in section 2.1 of the MR in line with VCS MR template requirement. In response, the PP has clarified that the project is in operation except for regular shutdowns due to O&M requirements. This details has been described in the revised MR version 2. Hence this was accepted and **CAR #1** (point 4) was **closed** out.

Thus **CAR #1** is closed out

For detailed discussion please refer **CAR #1** in annex 2 of this report.

2 VERIFICATION PROCESS

2.1 Method and Criteria

SGS has produced a 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 Verification checklist, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report[/3/] 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 Document Review

The registered VCS PD[/4/], VCS MR[/3/], VCS validation report[/8/], previous VCS verification report[/9/] and additional supporting documents related to the project performance submitted by the client were reviewed. A complete list of all documents reviewed is mentioned in Appendix 1 of this report.

2.3 Interviews

The verification team has carried out interviews in order to verify the information included in the project documentation and to gain additional information regarding the compliance of the project with the VCS requirements. Before, during and after the on-site visit, the verification team has interviewed the representatives of the PP to confirm information provided in response to SGS findings, and to clarify issues identified during the document review and the site visit. Representatives of Nectar Life Sciences Ltd. were interviewed: The names and designations of the personnel interviewed are mentioned in section 2.4 of this report.

The main topics covered during the interview are as follows:

- General Aspects of the project
- Project Implementation
- Equipment and operation
- Staff Training procedures
- Calibration procedures
- Monitoring & Measuring System
- Data collection, recording and archiving procedure
- QA/QC procedures
- VCS documentation
- Emission reduction calculations

2.4 Site Inspections

As part of the verification, an on-site inspection has been performed by Sauvik Banerjee (Assessor; Local Assessor and Sectoral Expert (TA1.1)). The site visit was carried on 28th November 2013. During the site visit, representatives of the PP were interviewed; i.e. personnel responsible for monitoring data of the project activity, data collection and management, and QA/QC procedure. The details of the people interviewed and the topics discussed are mentioned in the table below:

Location: Village: Saidpur, Mohali districts, Punjab	**Date:** 28/11/2013
Coverage	**Source of Information / Persons Interviewed**
Electricity Generation Records Reliability & accuracy of readings considered for Calibration procedure, calculating baseline emissions, project emissions and leakage.	Paramjit Singh (Sr. Manager, NLL) Harcharan Singh (Asstt. Manager, NLL)
Monitoring and measuring system • Collection of measurements • Observations of established practices • Data Verification of monitoring parameters	Paramjit Singh (Sr. Manager, NLL) Harcharan Singh (Asstt. Manager, NLL)
QA/QC procedures, data management, internal audits to maintain data quality & reliability, maintenance Practices Consideration of monitoring period, monitoring methodology, project documentation and emission reduction calculations	Paramjit Singh (Sr. Manager, NLL) Harcharan Singh (Asstt. Manager, NLL) Anil Kumar N. (Asstt. General Manager, EKI Energy Services Ltd.)
Discussion to clarify issues identified during the document review and the site visit through the findings document	Paramjit Singh (Sr. Manager, NLL) Harcharan Singh (Asstt. Manager, NLL) Anil Kumar N. (Asstt. General Manager, EKI Energy Services Ltd.)

2.5 Resolution 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 Clarification Request (CL) 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 CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

FARs 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 Clarification Requests are detailed in Verification Checklist. The Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and FARs.

No forward action request was raised during the current verification. However, 05 corrective action requests and 02 clarification requests were raised during the verification process. The details of the findings have been provided under Appendix 3 of this report.

2.5.1 Forward Action Requests

There is no FAR raised during previous verifications and validation reports..

2.6 Eligibility for Validation Activities

This project activity is registered under the VCS Version 2007.1. Thus it is concluded that all the rules and validation requirements set by the VCS were already taken care of at the time of the VCS validation of the project activity. Thus no further validation is required for the project activity.

3 VALIDATION FINDINGS

Not applicable as explained under section 2.6.

3.1 Participation under Other GHG Programs

Not applicable as explained under section 2.6. Further, declaration from PP dated 29/07/2014 has been checked for no double counting of credits of current monitoring period..

3.2 Methodology Deviations

Not applicable as the project activity has already been validated and registered against the VCS 2007.1 Standard. The validation report of the project activity was also reviewed and it was observed that no methodology deviations have been sought during the validation of the project activity.

3.3 Project Description Deviations

Not applicable as the project activity has already been validated and registered against the VCS 2007.1 Standard. The validation report[/8/], previous VCS verification report[/9/], registered VCS PD[/4/] and VCS MR[/3/] of the project activity were reviewed through desk review and actual implementation of the project activity was checked during the verification site visit dated 28/11/2013. During site visit, it was observed that project activity is operating as stated in the registered VCS-PD[/4/]. No project description deviations were observed during the site visit at the project activity site.

3.4 Grouped Project

The project activity is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project has been implemented and is in operation as described in the registered VCS PD[/4/]. The same has been verified during the site visit. The project activity has been commissioned on 27/05/2007. The commissioning of the project activity has been verified against their commissioning certificate[/14/]. The commissioning has already been validated and reported in the VCS validation report[/8/] and the previous verification reports[/9/] of this project activity.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

The methodology (equations and formula) applied by the project proponent for the calculation of emission reductions is in accordance with the applied methodology AMS-IC version 15. The emission reductions have been arrived by the following equation:

ER2012 (tCO2e) = BE2012 (tCO2e) – PE2012 (tCO2e) – LE2012 (tCO2e) ---------- (1)

Where,

ER_{2012} = Emission Reductions accrued for the year 2012 by the project activity (tCO2e)

PE_{2012} = Project activity emissions for the year 2012 (tCO2e)

LE_{2012} = Leakage emissions for the year 2012 (tCO2e)

The Project Proponent has calculated the monthly baseline emissions for the year 2012 in accordance with the equation (3) of the methodology AMS IC version 15 as reproduced below:

$$BE_{cogen,CO2,y} = [(EG_{PJ,thermal,y} + EG_{PJ,electrical,y} * 3.6) / \eta_{BL,cogen}] * EF_{FF,CO2} \quad \text{---------- (2)}$$

Where:

$BE_{cogen,CO2,y}$	The baseline emissions from electricity and steam displaced by the project activity during the year y; tCO_2
$EG_{PJ,thermal,y}$	The net quantity of thermal energy supplied by the project activity during the year y; TJ
$EG_{PJ,electrical,y}$	The amount of electricity supplied by the project activity during the year y; GWh
3.6	Conversion factor; TJ/GWh
$\eta_{BL,cogen}$	The total efficiency (including both thermal and electrical) of the cogeneration plant using fossil fuel that would have been used in the absence of the project activity. Efficiency should be calculated as the total energy produced (electricity and steam/heat extracted) divided by thermal energy of the fuel used .
$EF_{FF,CO2}$	The CO_2 emission factor of the fossil fuel that would have been used in the baseline cogeneration plant; tCO_2 / TJ obtained from reliable local or national data if available, otherwise IPCC default emission factors are used

In above equation, the project proponent has taken default efficiency of the cogeneration plant as 100% which is fixed ex ante at the time of validation of the project. Similarly, the emission factor of coal is also fixed ex ante, which is the IPCC default emission factor for coal (96.1 tCO_2/TJ). The verification team considered both the values appropriate as default efficiency of the boiler is taken under the provisions of the Para 18 of the methodology AMS-I.C. version 15 itself and the value of emission factor has been taken from the IPCC, which was considered appropriate and conservative.

As described in the registered VCS-PD, the project proponent has also considered the project emissions accrued during the current monitoring period from diesel consumption used by the tractors (on site) for the levelling of the biomass. The algorithm used by the project proponent for the calculation of the project emissions from diesel consumption is also reproduced below:

$P.E. = (Q_D * D / 1000) * NCV_{Diesel} * EF_D$

Where:

P.E.	Project emission from the project activity; tCO_2e
Q_D	Quantity of diesel consumed in tractors used for levelizing the piles/heaps of biomass; Liters
D	Density of diesel; Kg/Liter
NCV_{Diesel}	Net Calorific Value of diesel; TJ/Tonnes
EF_D	Emission factor of diesel; tCO_2e/TJ

In the calculations of the project emissions from diesel consumption, the project proponent has taken three default values i.e. density of diesel (0.87 kg/ltr), NCV of diesel (0.04303 TJ/ton) and emission factor of diesel (74.1 tCO_2/TJ). All three default values have been fixed ex ante at the time of project validation; the values were taken from the data published by competent authorities. The values of $EG_{PJ,thermal,y}$ and $EG_{PJ,electrical,y}$ for the current monitoring period are based on metered data. Calibration certificate for current monitoring period were checked and the meters result were found to be in the acceptable range and hence the measured values are reliable. The PP has considered maximum distance of 150 KM for transportation and capacity of the truck as 8 tonnes per trip. Maximum distance of return trip from project site to collection center is mentioned to be 100 km in the registered PD. Hence, 150 KM is conservative for calculation of leakage. The detail calculation of leakage is checked from the emission reduction sheet and confirmed during site visit. The calculation approach adopted by the project proponent for leakage is in accordance with the registered VCS-PD and the approved methodology AMS-I.C. version 15.

The yearly values of emission reductions computed ex ante in the registered VCS-PD are 54,003 tCO2. However, during the current monitoring period the accrued emission reductions are 57,003 tCO2 which is higher by 5.55% than the emission reductions estimated in the registered VCS-PD. The verification team raised a Clarification Request (CL#5 in Appendix 3) as the reason for this increase was not clear in the monitoring report submitted by the project proponent. In response, the PP has provided justification for increase in the emission reductions. The MR Version 2 has clearly mentioned that the higher emission reductions for the current monitoring period is due to marginally higher PLF achieved by the project activity during current monitoring period. This was found to be appropriate and hence accepted by the Assessment team.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

The critical parameter used for the determination of the Emission Reductions is the net electricity supplied to the plant (Unit I and Unit II manufacturing complex) and the net steam supplied to the Unit 2 complex. The Gross Electricity generated by the co-generation system is recorded by the tri vector Energy meter of +/- 0.5 accuracy class (Make L&T) and the Net energy supplied (steam heat content) to unit 2 complex is recorded by highly reliable distributed control system (DCS). In addition, steam parameters (pressure, temperature and instantaneous as well as totalized steam flow) are measured by Yokagawa and ABB transducers which act as a primary input to the DCS system. The data pertaining to the above parameters are maintained in the identified Plant records. All the pressure transmitters and temperature transducers are calibrated on annual basis by NABL (National Accreditation Board for Laboratories of India) certified laboratory. The results of calibration indicate that all the measuring equipments are within accuracy range specified by the respective manufacturer or the acceptability criteria specified by the user (the calibration details are provided at the end of section 4.3 of this report). All the data are in compliance with the figures stated in the final monitoring report. There were no instances of any meter change or failure noticed within this monitoring period. The table presented below provides details of the source of the data and the reliability of the evidence for critical parameters directly affecting the GHG emission reductions.

Parameter description as per PD	Source as per PD	Reliability of the evidence
The net quantity of thermal energy supplied by the project activity during the current monitoring period	Hourly log sheets recorded from DCS of the power plant	Reliable as the evidence is based on metered data which is calibrated on regular intervals as per the frequency specified in the monitoring plan of the registered VCS-PD.
The net quantity of electricity supplied by the project activity during the current monitoring period	Shift log sheets recorded from the electronic trivector meters installed at the power plant	Reliable as the evidence is based on metered data which is calibrated on regular intervals as per the frequency specified in the monitoring plan of the registered VCS-PD.
Quantity of diesel consumed during the current monitoring period in levelling of the biomass (a project emission parameter)	Diesel purchase receipts from third party.	Reliable as data is based on the third party purchase slips
Quantity of Biomass purchased during the current monitoring period (leakage parameter)	Purchase slips generated by the project proponent for each truck.	Reliable as project proponent makes payment to the supplier on the basis of the biomass quantity specified in the biomass purchase slip.

The following parameters have been verified for current monitoring period:

(1) Gross electricity generated from co-generation plant.: (EG_y) (kWh)

As per the registered monitoring plan the gross electricity generated from co-generation plant is monitored daily and compiled monthly. The source of data is electricity log book and electronic database. This parameter is used for baseline emission calculation.

The verified value is 38,475,700 kWh

(2) Net electricity consumed by the co-generation plant.: ($EC_{Net\ Aux}$) kWh

The net electricity consumed by the co-generation plant is calculated daily. The value has been calculated as formula: $EC_{Net\ Aux} = EC_{Aux.} - (EC_{BCK} + EC_{Unit\ 10})$. This parameter is used for baseline emission calculation.

The verified value is 8,187,800 kWh

(3) It is the electricity consumed by BCK unit, Unit-10, and net auxiliary for the power plant.: (EC_{Aux}) (kWh)

The electricity consumed by BCK unit, Unit-10, and net auxiliary for the power plant is monitored daily. The source of data is electricity log book and electronic database. This parameter is used for baseline emission calculation.

The verified value is 13,014,100 kWh

(4) Electricity consumed at BCK unit.: (EC_{BCK}) (kWh)

The electricity consumed at BCK unit is monitored daily. The source of data is electricity log book and electronic database. This parameter is used for baseline emission calculation.

The verified value is 140,220 kWh

(5) Electricity consumed at Unit-10: ($EC_{Unit\text{-}10}$) (kWh)

The electricity consumed at Unit-10.is monitored daily. The source of data is electricity log book and electronic database. This parameter is used for baseline emission calculation.

The verified value is 4,686,080 kWh

(6) Net electricity generated from cogeneration plant: (EG_{Net}) (kWh)

The Net electricity generated from cogeneration plant is monitored daily. The source of data is electricity log book and electronic database. This parameter is used for baseline emission calculation.

The verified value is 30,287,900 kWh

(7) Quantity of Steam which was supplied to unit-2: ($Q_{Unit\text{-}2}$) (Tonnes)

The quantity of steam which was supplied to unit-2 is monitored daily. The source of data is plant log book and electronic database. This parameter is used for baseline emission calculation.

The verified value is 180,756 Tonnes

(8) Quantity of Steam which was supplied to unit-10: ($Q_{Unit\text{-}10}$) (Tonnes)

The quantity of steam which was supplied to unit-10 is monitored daily. The source of data is plant log book and electronic database. This parameter is used for baseline emission calculation.

The verified value is 32,230 Tonnes

(9) Plant of the Steam which was supplied to unit-2: (T_{Unit-2}) (℃)

The temperature of the steam which was supplied to unit-2 is monitored hourly. The source of data is log book and electronic database. This parameter is used for baseline emission calculation.

The verified value is 213 ℃

(10) Temperature of the Steam which was supplied to unit-10: ($T_{Unit-10}$) (℃)

The temperature of the steam which was supplied to unit-10 is monitored hourly. The source of data is log book and electronic database. This parameter is used for baseline emission calculation.

The verified value is 164 ℃

(11) Pressure of Steam which was supplied to unit-2 and unit-10: (P) (KG/cm^2)

The pressure of steam which was supplied to unit-2 and unit-10 is monitored daily. The source of data is log book and electronic database. This parameter is used for project emission calculation.

The verified value is 5.80 KG/cm^2

(12) Quantity of Rice Husk used: (Q_y) (Tonnes)

The quantity of Rice Husk used is monitored daily. The source of data is log book and electronic database. This parameter is used for project emission calculation.

The verified value is 82,947.69 Tonnes

(13) Quantity of Saw dust used: (Q_y) (Tonnes)

The Quantity of Saw dust used in the boiler was calculated by spring balance system which is in place for all the 3 conveyer belts is monitored daily. The source of data is electronic database. This parameter is used for leakage emission calculation.

The verified value is 4,001.04 Tonnes

Following parameters has been considered in the registered VCS PD[4]. However, these parameters are not applicable in the current monitoring period as values of these parameters are zero. This was checked verification of log books and during site visit observation.

a) Quantity of Paddy straw used: (Q_y) (Tonnes)

b) Quantity of Mustard husk used: (Q_y) (Tonnes)

c) Quantity of Barely used: (Q_y) (Tonnes)

d) Quantity of Sugarcane trash used: (Q_y) (Tonnes)

e) Quantity of Cotton sticks desi used: (Q_y) (Tonnes)

f) Quantity of Bajra stalk used: (Q_y) (Tonnes)

g) Quantity of Sunflower stalk used: (Q_y) (Tonnes)

h) Quantity of Moong straw used: (Q_y) (Tonnes)

i) Quantity of Arhar Stick used: (Q_y) (Tonnes)

j) Quantity of Arhar husk used: (Q_y) (Tonnes)

k) Quantity of Saw chips used: (Q_y) (Tonnes)

The assessment team has confirmed during the site visit that, all the parameters are monitored in compliance with the registered monitoring plan under the registered VCS PD /4/. During the verification assessment of the fourth monitoring period for the project activity, the accuracy of all the metering have been checked and found appropriate. The installation and working conditions of the meters were checked during the on-site inspection and were found to be satisfactory. Details of meters are provided in below table.

Parameter	Meter Sr. No.	Calibration Date	Calibration Due Date	Comments
EG_y	06744912	21/03/2011, 20/03/2012 and 19/03/2013	18/03/2014	Ok
EC_{Aux}	UPB09919	20/03/2012 and 19/03/2013	18/03/2014	Ok
EC_{BCK}	07882301	21/03/2011, 20/03/2012 and 19/03/2013	18/03/2014	Ok
$EC_{Unit-10}$	07884932	21/03/2011, 20/03/2012 and 19/03/2013	18/03/2014	Ok
Q_{Unit-2}	91G216756	21/03/2011, 20/03/2012 and 18/03/2013	18/03/2014	Ok
$Q_{Unit-10}$	0700043	21/03/2011, 20/03/2012 and 18/03/2013	17/03/2014	Ok
T_{Unit-2}	DSR 3219	21/03/2011, 20/03/2012 and 18/03/2013	17/03/2014	Ok
$T_{Unit-10}$	TE 1100	21/03/2011, 20/03/2012 and 18/03/2013	17/03/2014	Ok
P	91F935651	21/03/2011, 20/03/2012 and 18/03/2013	17/03/2014	Ok
$GCV_{Rice\ Husk}$	T/A5	31/12/2011 and 30/12/2012	29/12/2013	Ok

Discussion of CARs/CLs

CL #2 (point 1) – The PP was requested to clarify why metering details were not mentioned for monitoring parameters biomass quantity, calorific value and moisture content in MR version 1. Further, the accuracy classes were not specified for all the monitoring parameters. In response, the PP has provided metering details in the revised MR Version 2. However, the PP has not provided metering detail of Bomb calorimeter in MR Version 2, the PP was asked to provide complete details. In response, the PP has provided metering details for Bomb calorimeter in revised MR Version 3. Hence this was accepted and **CL #2** (point 1) was **closed** out.

CL #2 (point 2) – Calibration details provided were not relevant to current monitoring period i.e. 01/01/2012 to 31/12/2012 for the project activity. Further, the PP was requested to clarify the appropriateness of validity dates mentioned considering annual calibration frequency. In response, the

PP has provided calibration details covering entire monitoring period in the revised MR Version 3. Hence this was accepted and **CL #2** (point 2) was **closed** out.

Thus **CL #2** is closed out

For detailed discussion please refer **CL #2** in annex 2 of this report.

CAR #3 (point 1) – The PP was requested to clarify the appropriateness of monitoring parameters included in line with monitoring plan defined in VCS PD. In response, the PP has clarified that, the approach has been revised during first verification period. The MR and verification report for previous verifications were checked. The monitoring parameters are mentioned appropriately in line with the previous verification. Hence this was accepted and **CAR #3** (point 1) was **closed** out.

CAR #3 (point 2) – During the site visit, it was observed that process of "bunker loading" is being followed. The PP was requested to clarify monitoring equipment specified for monitoring parameter biomass quantity in section 3.2 of the VCS MR version 1. In response, the PP has confirmed that, the bunker loading method is followed for monitoring parameter biomass quantity in section 3.2 of the VCS MR version 2. This is in line with the actual procedure observed during site visit. Hence this was accepted and **CAR #3** (point 2) was **closed** out.

CAR #3 (point 3) – The PP was requested to clarify why values of the monitoring parameters mentioned were not for the complete monitoring period. In response, the PP has provided values of parameters for complete monitoring period. Hence this was accepted and **CAR #3** (point 3) was **closed** out.

CAR #3 (point 4) – The PP was requested to clarify the appropriateness of recording frequency specified in line with the VCS PD. Also the PP was requested to clarify why data was not submitted in line with recording frequency specified in the VCS MR version 1. In response, the PP has confirmed that the the data is recorded on daily basis and the compiled data on monthly basis is provided for verification. Hence this was accepted and **CAR #3** (point 4) was **closed** out.

CAR #3 (point 5) – The PP has included monitoring parameter "Gross calorific value" whereas VCS PD specifies monitoring of "Net calorific value" of biomasses being used in the project activity. The PP was requested to clarify appropriateness of the same. In response, the PP has confirmed that the data is recorded on daily basis and the compiled data on monthly basis is provided for verification. Hence this was accepted and **CAR #3** (point 5) was **closed** out.

Thus **CAR #3** is closed out

For detailed discussion please refer **CAR #3** in annex 2 of this report.

CAR #4 – The PP was requested to provide documentary evidences to support all the data reported in ER calculation sheet for current monitoring period. In response, the PP has provided all supportive documents for data and calibration. Further, the PP has also provided shutdown details in separate sheet.. Hence this was accepted and **CAR #4** was **closed** out.

Thus **CAR #4** is closed out

*For detailed discussion please refer **CAR #4** in annex 2 of this report.*

CL #5 – The PP was requested to clarify why Section 4.1 of the VCS MR version 1 doesn't include justification behind increased emission reductions than estimated emission reductions at the time of

validation of the project. In response, the PP has provided justification on increase in the emission reduction under section 4.1 of the revised MR Version 2. Hence this was accepted and **CL #5** was **closed** out.

Thus **CL #5** is closed out

For detailed discussion please refer **CL #5** in annex 2 of this report.

CAR #6 (point 1) – The PP was requested to clarify why total number of years for crediting period was not mentioned in section 1.6 of MR Version 3. Further, the PP was requested to clarify why end date of crediting period was inconsistent with the VCS PD. In response, the PP has corrected number of years for crediting period and end date of crediting period in revised MR Version 4. Hence this was accepted and **CAR #6** (point 1) was **closed** out.

CAR #6 (point 2) – The PP was requested to clarify why deviation section and font size of first row of monitoring parameters was not completed in line with the MR template requirement. In response, the PP has corrected deviation section and font size in MR Version 4 in line with the MR template requirement. Hence this was accepted and **CAR #6** (point 2) was **closed** out.

CAR #6 (point 3) – The PP was requested to clarify why the purpose of data section of monitoring parameters was not made consistent as per actual calculation requirement. In response, the PP has corrected purpose of data section of monitoring parameters in revised MR Version 4 as per actual calculation requirement. Hence this was accepted and **CAR #6** (point 3) was **closed** out.

CAR #6 (point 4) – The PP was requested to clarify why the calibration dates mentioned in MR version 4 were not consistent as per previous verification MR. In response, the PP has clarified that the calibration dates in the previous verification MR were a typo error. Calibration certificates were checked and confirmed that the dates mentioned in the current MR Version 4 are correct. Hence this was accepted and **CAR #6** (point 4) was **closed** out.

CAR #6 (point 5) – Tables mentioned in section 4.1 and 4.2 of the MR Version 3 has mentioned inconsistent period in month column. The PP was requested to clarify the issue. In response, the PP has corrected tables in revised MR Version 4. Hence this was accepted and **CAR #6** (point 5) was **closed** out.

Thus **CAR #6** is closed out

For detailed discussion please refer **CAR #6** in annex 2 of this report.

CAR #7 (point 1) – The PP was requested to clarify why diagram on page 8 of MR Version 4, differs to the diagram in the MR for MP3 (previous verification). In response, the PP has corrected diagram appropriately in revised MR Version 5. Hence this was accepted and **CAR #7** (point 1) was **closed** out.

CAR #7 (point 2) – The PP was requested to clarify why section 4.1 on page 36 of MR Version 4, states "6 MW of electricity and 24 TPH of steam extraction". The PP was requested to clarify this issue in line with the page 32 of the VCS PD. In response, the PP has corrected description appropriately in revised MR Version 5. Hence this was accepted and **CAR #7** (point 2) was **closed** out.

CAR #7 (point 3) – On page 11 of MR Version 4, parameters EF_D and NCV_{Diesel}: the links for these parameters were not working. The PP was requested to clarify this issue. In response, the PP has

corrected web links in revised MR Version 5. Hence this was accepted and **CAR #7** (point 3) was **closed** out.

Thus **CAR #7** is closed out

For detailed discussion please refer **CAR #7** in annex 2 of this report.

4.4 Non-Permanence Risk Analysis

Not applicable in this project activity.

5 VERIFICATION CONCLUSION

The scope of the verification

SGS has been contracted by M/s Nectar Lifesciences Limited to verify that the greenhouse gas (GHG) emission reductions reported for the fourth monitoring period (from 01/01/2012 to 31/12/2012) for the "Biomass Based Cogeneration Project at Nectar Life Sciences Ltd." (VCS ID-251) in the VCS Monitoring Report Version 05 dated 29/07/2014 are eligible for issuance as Verified Carbon Units.

This engagement covers the verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the "Biomass Based Cogeneration Project at Nectar Life Sciences Ltd." (VCS ID-251)[/7/].

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

Conclusions of the verification

(a) SGS is an entity accredited by the United Nations Framework Convention on Climate Change (UNFCCC) to undertake certification and verification services in the sector in which the Project is undertaken. The accreditation is accepted by VCSA as indicated in Clause 5 of VCS Program Guide Version 3.5[/2/].

(b) The VCS Monitoring Report, together with other information examined (Appendix 1 for full list), was prepared as per the VCS Monitoring Report Template, Version 3.3.

(c) The information in the VCS Monitoring Report together with other information examined (Appendix 1 for full list) by the assessment team, including all the information necessary to determine that the emission reductions achieved have been determined correctly.

(d) Based on the examination of the VCS Monitoring Report and other relevant information (Appendix 1 for full list), the project meets all the requirements of the VCS Standard Version 3.4[/1/].

(e) Based on our examination of the VCS Monitoring Report[/3/] and other relevant information (Appendix 1 for full list), the emission reductions during the monitoring period from 01/01/2012 to 31/12/2012 (both days included) are verified as 57,003 tCO_2e.

Liability statement with regards to the accuracy of the verification statement

The management of M/s Nectar Lifesciences Limited is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions. SGS is responsible for the verification and confirming the reported emissions for the project, as described in the VCS Monitoring Report[/3/].

Our certification approach draws on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes an assessment of evidence, through desk review, and where necessary, interviews, stakeholder discussions and site visits,

relevant to certifying the rightfulness of the amounts and disclosures in relation to the Project GHG emission reductions.

We 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 the amount of GHG emission reductions for the given period, prepared on the basis of the Monitoring Report, are fairly stated.

This assessment included:

- Collection of evidence supporting the reported data;
- Checking whether the provisions of the Monitoring Plan in the registered VCS PD, were consistently and appropriately applied;
- Site visit and interview of relevant staff.

We have verified whether the information included in the VCS Monitoring Report representing the emission reductions achieved has been determined correctly for the given period from the baseline figure.

Certification statements

Based on process and procedures conducted, in our opinion, the VCS Monitoring Report Version 05 dated 29/07/2014 on emission reductions during the reporting period from 01/01/2012 to 31/12/2012 (both days included), for “Biomass Based Cogeneration Project at Nectar Life Sciences Ltd.”, is materially correct and is a fair representation of the GHG data and information; the GHG emission reductions calculation is correct and emission reductions are fairly stated. All relevant facts have been found correct by our examination.

Therefore, SGS is able to certify that the project is in full compliance with the VCS Standard Version 3.4, and the quantity of the reported emission reductions during the below reporting period are completely, comparably, accurately and correctly reported.

Verification period: From 01/01/2012 to 31/12/2012

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or emovals (tCO_2e)	Project emissions or emovals (tCO_2e)	Leakage emovals (Tco_2e)	Net GHG emission reductions or emovals (tCO_2e)
2012	58,226	92	1,131	57,003

Vintage Period	**VCUs**
1st Jan 2012 to 31st Dec 2012	57,003
Total VCUS (tCO_2e)	57,003

Statement of Confidentiality

SGS will hold all information confidential until the client instructs otherwise or until it has been released in accordance with the VCS Standard Version 3.4/1/ requirements.

Signed on behalf of the Verification Body by Authorized Signatory

SGS United Kingdom Limited

Dated: 08/08/2014

Signature:

Lead Assessor

Vijaybhai Patel

Dated: 08/08/2014

Signature:

Technical Reviewer

Ramkrishna Patil

APPENDIX 1: DOCUMENT REFERENCES

1. VCS Standard Version 3.4
2. VCS Program definitions Version 3.5
3. Monitoring Report
   a. Version 1 dated 03/12/2013
   b. Version 2 dated 19/02/2014
   c. Version 3 dated 26/03/2014
   d. Version 4 dated 04/06/2014
   e. Version 5 dated 29/07/2014

MR Version	Revision dated	Main changes reason for Revision
1	03/12/2013	Initial version of the MR submitted for verification
5	29/07/2014	• MR template version 3.3 has been revised in line with the VCS requirement (Refer CAR #1) • Project title and ID are updated (Refer CAR #1) • The crediting period has been revised to 10 years (Refer CAR #1) • Operation details of the project activity included in line with MR completion guideline (Refer CAR #1) • Calibration details are corrected in line with actual calibration and validity (Refer CL #2 and CAR #4) • Shutdown details included (Refer CAR #4) • Justification for increase in emission reduction is included (Refer CL #2) • End date of crediting period is corrected (Refer CAR #6) • Purpose of data section is corrected (Refer CAR #6) • Year is corrected under section 4.1 and 4.2 of the MR (Refer CAR #6) • Section 4.1 of the MR is corrected (Refer CAR #7) • Web link and few editorial corrections are made (Refer CAR #7)

4. VCS Project Description Version 5 dated 20/10/2010
5. Emission Reduction Spreadsheet
   a. Version 1 dated 26/09/2013
   b. Version 2 dated 19/02/2014
   c. Version 3 dated 26/03/2014
   d. Version 4 dated 04/06/2014
   e. Version 5 dated 29/07/2014
6. Applied Methodology, AMS I C version 15 dated 17/07/2009
7. VCS Project Webpage (VCS ID. 251)
8. VCS Validation report Number: INDIA-VCS-VAL/90.49/2010 dated 21/10/2010 issued by Bureau Veritas Certification Holding SAS
9. Previous Verification Reports

a. 1st Verification: Report No.: INDIA-VCS-Ver/90.49/2010 dated 21/10/2010 issued by Bureau Veritas Certification Holding SAS b. 2nd Verification Report version 1.0 dated 05/07/2011 issued by Bureau Veritas Certification Holding SAS c. 3rd Verification Report No.: INDIA-VCS-Ver3/90.49/2012 version 2.0 dated 31/12/2012 issued by Bureau Veritas Certification Holding SAS
10. Daily electricity Generation and auxiliary consumption reports of the Power plant for the current monitoring period from 01/01/2012 to 31/12/2012
11. Daily steam consumption data for Unit -2 and Unit -10 for the current monitoring period from 01/01/2012 to 31/12/2012
12. Daily records of Gross Calorific Value (GCV) and Moisture Content of the Biomass for the current monitoring period from 01/01/2012 to 31/12/2012
13. Monthly biomass purchase/consumption Data and Records of annual plant operations days.
14. Purchase receipts of diesel for year 2012
15. Calibration Certificates for Gross Energy meter, Auxiliary energy meter, BCK energy meter, Unit I energy meter, Unit II energy meter and Unit 10 energy meter.
16. Calibration Certificates for Pressure Transmitters, Temperature Transudces, Steam Flow Transmitter, Steam Flow Totalizer.
17. Commissioning certificate dated 27/05/2007

APPENDIX 2: ABBREVIATIONS

AFBC	Atmospheric Fluidised Bed Combustion
CAR	Corrective Action Request
CL	Clarification Request
DCS	Distributed Control System
DSH	Desuperheating System
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse Gases
MR	Monitoring Report
MW	Mega Watt
MWh	MegaWatt hour
NEWNE	Northern, Eastern, Western and North Eastern
NLL	Nectar Lifesciences Ltd.
O&M	Operation & Maintenance
PP	Project Proponent
QA/QC	Quality Assurance/Quality Control
tCO2	Tonnes of Carbon Dioxide
TPH	Tonnes Per Hour
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCS PD	VCS Project Description
VCU	Verified Carbon Unit

APPENDIX 3: FINDINGS OVERVIEW

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	05	02	-

Date:	05/02/2014		Raised by:	Assessment Team	
Type:	CAR	Number:	01	Reference:	MR template requirements

Lead Assessor Comment:	**Date:** 05/02/2014

PP is requested to clarify if PP has used latest version of the VCS MR template available on http://www.v-c-s.org/program-documents

Monitoring Report title is not mentioned on the title page of the MR. Also project ID is mentioned incorrectly

PP is requested to check adequacy of content of information included in sections 1.1, 1.2 and 1.3 of the MR in line with MR template requirements.

PP is requested to clarify crediting period included in section 1.6 of the MR in line with clause 3.8.1 of the VCS Standard version 3.4.

PP is requested to clarify the appropriateness and adequacy of the information included in section 2.1 of the MR in line with VCS MR template requirement "*The operation of the project activity(s) during this monitoring period, including any information on events that may impact the GHG emission reductions or removals and monitoring.*"

Project Proponent Response:	**Date:** 19-02-2014

The MR is revised accordingly as per the DOE comments;

- The latest available version of MR, version 3.3 has been used for revised MR version 2.
- The Monitoring Report version 2 has been revised to mention the correct title and ID, i.e 251.
- The MR is revised as per the MR guidelines accordingly
- The crediting period has been revised to mention 10 years
- The project is in operation except for regular shutdowns due to O&M requirements, the same has been described in the revised MR version 2. Further there are no events which had an impact on the GHG emissions.

Documentation Provided as Evidence by Project Proponent:

Revised MR version 2 and ER sheet version 2 submitted along with MR

Information Verified by Lead Assessor:

Revised MR version 2 dated 19/02/2014 and ER sheet version 2 submitted along with MR

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 19/03/2014

The PP has revised the MR in the latest template version 3.3. Hence accepted.

Monitoring report title is provided on the title page of the revised MR along with project ID. Hence accepted.

The content of sections 1.1, 1.2 and 1.3 of the MR is revised in line with the MR template requirement. Hence accepted.

The PP has provided crediting period as 10 years, this is in line with the clause 3.8.1 of the VCS Standard

version 3.4. Hence accepted. The PP has provided confirmation on operation of the project activity during current monitoring period. This is in line with the MR template requirement. Hence accepted. Thus CAR #01 is closed out.	
Acceptance and Close out by Lead Assessor:	**Date:** 19/03/2014

Date:	05/02/2014		Raised by:	Assessment Team	
Type:	CL	Number:	02	Reference:	Monitoring Equipment and their calibration Details

Lead Assessor Comment:	**Date:** 05/02/2014

PP is requested to clarify why metering details are not mentioned for monitoring parameters biomass quantity, calorific value and moisture content. Also accuracy classes are not specified for all the monitoring parameters.

Calibration details provided are not relevant to current monitoring period i.e. 01/01/2012 to 31/12/2012 for the project activity. Also PP is requested to clarify the appropriateness of validity dates mentioned considering annual calibration frequency.

Project Proponent Response:	**Date:** 19-02-2014

The MR has been revised considering the DOE comments and the individual responses are as follows;

- The metering details for biomass quantity is based on bunker loading method, thus no metering required.
- Calorific value: it is a calculated values thus metering is not possible.
- Moisture content: it is a calculated values thus metering is not possible
- Accuracy for the instruments has now been mentioned.
- Calibration details covering the current monitoring period has been described.

Documentation Provided as Evidence by Project Proponent:

Revised MR. Version 2

Calibration certificates for the project activity.

Information Verified by Lead Assessor:

Revised MR version 2 dated 19/02/2014

Calibration certificates for the project activity

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 19/03/2014

Metering details: the biomass measurement are based on bunker method and hence this is accepted.

Calorific value: The PP has mentioned that this is a calculated parameter and hence metering is not possible. However, the MR clearly indicates that, “GCV of the fuels has been calculated using a Bomb Calorimeter and IR instrument present in the Lab at the project site”. The PP is requested to provide meter details for the instrument used to calculate calorific values. Open.

Moisture content: This is calculated parameter and hence accepted.

Accuracy class: Accuracy class of the meters are provided in the revised MR under respective parameters. Hence accepted.

Calibration details:

Calibration details provided are not relevant to current monitoring period i.e. 01/01/2012 to 31/12/2012 for the project activity. Calibration details up to March 2012 are not provided for all the parameters. Please clarify.

Thus CL #02 is Open.

Project Proponent Response:	**Date:** 09/04/2014

a. The details of the Bomb Calorimeter have now been provided in the MR version 3.

b. Calibration dates from 2011 have now been provided thus covering the entire monitoring period.

Documentation Provided as Evidence by Project Proponent:	
MR Version 3 *Calibration certificate for Bomb Calorimeter*	
Information Verified by Lead Assessor:	
Revised MR version 3 dated 26/03/2014 Calibration certificate for Bomb calorimeter	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 24/04/2014
The details of the bomb calorimeter are provided under section 3.4 of the revised MR. The details are in line with the calibration certificate and hence accepted. The calibration details for entire monitoring period are provided in the revised MR. Hence accepted. Thus CL #2 is closed out.	
Acceptance and Close out by Lead Assessor:	**Date:** 24/04/2014

Date:	05/02/2014		Raised by:	Assessment Team	
Type:	CAR	Number:	03	Reference:	Section 3.1 and 3.2

Lead Assessor Comment:	**Date:** 05/02/2014

PP is requested to clarify the appropriateness of monitoring parameters included in line with monitoring plan defined in VCS PD.

Also PP is requested to clarify monitoring equipment specified for monitoring parameter biomass quantity in section 3.2 of the VCS MR. During site visit, it was observed that process of "bunker loading" is being followed.

Also it is found that values of the monitoring parameters mentioned are not for the complete monitoring period. Please clarify.

PP is requested to clarify the appropriateness of recording frequency specified in line with the VCS PD. Also please clarify why data is not submitted in line with recording frequency specified in the VCS MR.

PP has included monitoring parameter "Gross calorific value" whereas VCS PD specifies monitoring of "Net calorific value" of biomasses being used in the project activity. Please clarify the appropriateness of the same.

Project Proponent Response:	**Date:** 19-02-2014

The responses are provided as follows;

- As per the first verification report for the project, the monitoring plan has been revised and the approach has been revalidated by the DOE, thus the same has been followed as per the DOE assessment.
- The monitoring of biomass quantity has been revised to consider the bunker loading method which has been observed during the site visit and also in compliance to the previous verification reports.
- The values for the parameters have been revised to mention the value for the complete monitoring period.
- The VCs PD mentions the data to be monitored daily further the values are compiled monthly. The same is in compliance to the previous monitoring reports.
- The VCS PD specifies NCV to be monitor, however in order to monitor NCV the parameter of GCV and moisture content has been monitored in order to calculate the NCV. The approach is inline with the 1st verification report, where the monitoring approach has been revised.

Documentation Provided as Evidence by Project Proponent:

MR version 2

Information Verified by Lead Assessor:

Revised MR version 2 dated 19/02/2014

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 19/03/2014

The approach has been revised during first verification period. The MR and verification report for previous verifications are checked. The monitoring parameters are appropriately mentioned and hence accepted.

The PP has confirmed that, the bunker loading method is followed for monitoring parameter biomass quantity in section 3.2 of the VCS MR. This is inline with the actual procedure observed during site visit. Hence accepted.

The values for the parameters have been revised and mention for the complete monitoring period. Hence accepted.

The data is recorded on daily basis on the site. This was confirmed during site visit. The compiled data on monthly basis is provided. Hence accepted.

The parameter of GCV and moisture content has been monitored in order to calculate the NCV for current monitoring period. The approach is inline with the 1st verification report, where the monitoring approach has

been revised. This is found to be appropriate and hence accepted. Thus CAR #03 is closed out.	
Acceptance and Close out by Lead Assessor:	**Date:** 19/03/2014

Date:	05/02/2014		Raised by:	Assessment Team	
Type:	CAR	Number:	04	Reference:	ER calculation sheet

Lead Assessor Comment:	**Date:** 05/02/2014
PP is requested to provide documentary evidences to support all the data reported in ER calculation sheet for whole monitoring period.	
Project Proponent Response:	**Date:** 19-02-2014
The documentary evidences for the project have been submitted. In case any further requirements, kindly let us know.	
Documentation Provided as Evidence by Project Proponent:	
Calibration Certificates, *commissioning certificate,* *Diesel Purchase copies,* *Temperature and pressure data of boiler,* *Temperature and pressure data of turbine.* *Shut down details*	
Information Verified by Lead Assessor:	
Calibration Certificates, Commissioning certificate dated 27/05/2007 Diesel Purchase copies, Temperature and pressure data of boiler, Temperature and pressure data of turbine. Shut down details	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 19/03/2014
Calibration certificate: The calibration certificates for 2011 and 2012 are provided. However, dates of the certificate and MR are not consistent. Please clarify. Commissioning certificate is checked and found to be ok. Hence accepted. Diesel Purchase copies are checked and the values of diesel provided in the ER sheet are consistent with the purchase receipt. Hence accepted Temperature and pressure data of boiler and turbine has been checked and found to be OK. Shut down details: Separate sheet with reasons of shutdown is provided. However, shutdown hours are not provided in the sheet. Please clarify. Thus CAR #04 is Open.	
Project Proponent Response:	**Date:** 09/04/2014
a. Calibration certificate: The MR has been revised to provide consistent dates. b. Shut down details: The shut down hours are now mentioned in the sheet. .	
Documentation Provided as Evidence by Project Proponent:	
MR Version 3 and ER sheet version 3 submitted along with MR *Shut down details*	
Information Verified by Lead Assessor:	
Revised MR version 3 dated 26/03/2014 and ER sheet version 3 submitted along with MR	

Calibration certificate provided with PP's response on 19/02/2014 Excel sheet with shutdown details	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 24/04/2014
The calibration dates are made consistent with the calibration certificate in the revised MR. Hence accepted. Shutdown details are provided in the revised MR and separate excel sheet. This is found satisfactory and hence accepted. Thus CAR #04 is closed out.	
Acceptance and Close out by Lead Assessor:	**Date:** 24/04/2014

Date:	05/02/2014		Raised by:	Assessment Team	
Type:	CL	Number:	05	Reference:	Section 4.1
Lead Assessor Comment:				**Date:** 05/02/2014	
Section 4.1 of the VCS MR doesn't include justification behind increased emission reductions than estimated emission reductions at the time of validation of the project activity.					
Project Proponent Response:				**Date:** 19-02-2014	
The project has performed a marginally higher PLF thus resulting in 6.5% higher emission reductions for the current monitoring period. The MR version 2 now mentions that the higher emission reductions for the current monitoring period is due to marginally higher PLF.					
Documentation Provided as Evidence by Project Proponent:					
Revised MR					
Information Verified by Lead Assessor:					
Revised MR version 2 dated 19/02/2014					
Reasoning for not Acceptance or Acceptance and Close Out:				**Date:** 19/03/2014	
The PP has provided justification on increase in the emission reduction under section 4.1 of the revised MR. Hence accepted. Thus CL #05 is closed out.					
Acceptance and Close out by Lead Assessor:				**Date:** 19/03/2014	

Date:	02/06/2014		Raised by:	Assessment Team	
Type:	CAR	Number:	06	Reference:	TR comments

Lead Assessor Comment: **Date:** 02/06/2014

1. The total number of years for crediting period is not mentioned in section 1.6 of MR Version 3. Further, end date of crediting period is inconsistent. Please clarify.
2. Deviation section and font size of first row of monitoring parameters is not completed in line with the MR template requirement. Please clarify.
3. The purpose of data section of monitoring parameters is not consistent as per actual calculation requirement. Please clarify.
4. The calibration dates mentioned in MR are not consistent as per previous verification MR. Please clarify.
5. Tables mentioned in section 4.1 and 4.2 of the MR Version 3 has mentioned inconsistent period in month column. Please clarify.

Project Participant Response: **Date:** 09/06/2014

1. The total number of years for crediting period is mentioned as 10 years in section 1.6 of MR Version 4. Further, end date of crediting period is now corrected.
2. Font size of first row of monitoring parameters is revised to be in compliance with the MR template requirement.
3. The purpose of data section of monitoring parameters is revised as per actual calculation requirement.
4. The calibration dates mentioned in MR are consistent with the calibration reports, however the previous MR has erroneously mentioned the dates. The calibration reports are attached herewith.
5. Tables mentioned in section 4.1 and 4.2 of the MR Version 4 have been revised.

Documentation Provided as Evidence by Project Participant:

Revised MR version 4 dated 04/06/2014 and ER sheet version 4 submitted along with MR

Calibration certificate

Information Verified by Lead Assessor:

Revised MR version 4 dated 04/06/2014 and ER sheet version 4 submitted along with MR

Calibration certificate

Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 12/06/2014

1. The total number of years for crediting period is mentioned in section 1.6 of revised MR Version 4. Further, end date of crediting period is made consistent. Hence accepted.
2. The deviation section is revised in line with the MR template requirement. The font size is made consistent in line with the MR completion guideline. Hence accepted.
3. The purpose of data section of monitoring parameters is revised consistently as per actual calculation requirement. Hence accepted.
4. The PP has clarified that the calibration dates in the previous MR were a typo error. Calibration certificates were checked and confirmed that the dates mentioned in the current MR are correct. Hence accepted.
5. The PP has revised tables mentioned in section 4.1 and 4.2 of the revised MR. Hence accepted.

Thus CAR #06 is closed out.

Acceptance and Close out by Lead Assessor: **Date:** 12/06/2014

Date:	02/06/2014		Raised by:	Assessment Team	
Type:	CAR	Number:	07	Reference:	UKCC comments

Lead Assessor Comment: **Date:** 22/07/2014

MR

1. On page 8 of MR version 4, the diagram on this page, differs to the diagram in the MR for MP3. The PP is requested to clarify the inconsistency observed.
2. On page 36 of MR version 4, section 4.1 states "*6 MW of electricity and 24 TPH of steam extraction*". Page 32 of the PD states "*The estimated annual emission reductions are calculated considering 6 MW of electricity and 20 TPH of steam extraction.*" This is also stated on page 3 of the MR version 4 (section 1.1, second paragraph). The PP is requested to clarify the inconsistency observed.
3. On page 11 of MR version 4, parameters EF_D and NCV_{Diesel}: the links for these parameters are not working, please clarify.
4. In addition to the above points few editorial mistakes are observed in the MR. The PP is requested to correct the following points (Please note these are minor issues which would not normally be raised but as other changes are required to the MR, these are being raised)
   a. Page 8, shutdown table: "December" is not in capitals, unlike the other months.
   b. Page 34, section 3.3: the 4th para is indented and has an extra full stop within it.
   c. Page 36, parameter nBL,cogen: at the end of the text, there is a full stop far away from the text.
   d. Page 39, leakage table doesn't indicate what year is being monitored

ER

5. Tab "ER Sheet": table doesn't indicate the year being monitored, please clarify
6. Tab "project emission", Cell C23; PE total for Jan 2012 does not match cell I33. Please clarify
7. Tab "leakage detail": table from row 92 owards, doesn't indicate the year being monitored, please clarify

Thus CAR #7 is open

Project Participant Response: **Date:** 29/07/2014

MR

1. The diagram had an error and has been revised. The metering system is now consistent.
2. The MR is revised to mention 20 TPH of steam extraction. However, after extraction from the turbine the steam is fed into the processes via Desuperheating System (DSH) where water from deareater is added into the steam which increases the quantity of steam up to 24 TPH. The same is mentioned in section 1.1 of the MR.
3. The links are checked and now working in the revised MR.
4. The replies to the questions are as follows;
   a. Page 8, shutdown table: "December" is not in capitals, unlike the other months. – MR is revised
   b. Page 34, section 3.3: the 4th para is indented and has an extra full stop within it. – MR is revised
   c. Page 36, parameter nBL,cogen: at the end of the text, there is a full stop far away from the text. – MR is revised
   d. Page 39, leakage table doesn't indicate what year is being monitored – MR is revised to mention the year as 2012.

ER

1. Tab “ER Sheet”: table doesn’t indicate the year being monitored, please clarify – ER sheet revised
2. Tab “project emission”, Cell C23; PE total for Jan 2012 does not match cell I33. Please clarify – ER sheet revised to be consistent
3. Tab “leakage detail”: table from row 92 onwards, doesn’t indicate the year being monitored, please clarify – ER sheet revised.

Documentation Provided as Evidence by Project Participant:
Revised MR Version 5 dated 29/07/2014, Revised ER sheet version 5 dated 29/07/2014 submitted with MR.
Information Verified by Lead Assessor:
Revised MR Version 5 dated 29/07/2014, Revised ER sheet version 5 dated 29/07/2014 submitted with MR.

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 04/08/2014

MR

1. On page 8 of MR version 5, the diagram is corrected in line with the previous verification. Hence accepted.
2. On page 36 of MR version 5, section 4.1 the text has been corrected appropriately. Hence accepted.
3. On page 11 of MR version 4, parameters EF_D and NCV_{Diesel}: the link is corrected and is working. Hence accepted.
4. The editorial corrections are made appropriately hence accepted.
    e. Page 8, shutdown table: “December” is made in capitals in line with other months.
    f. Page 34, section 3.3: the 4th paragraph is corrected appropriately.
    g. Page 36, parameter nBL,cogen: is corrected appropriately.
    h. Page 39, leakage table indicates year appropriately.

ER

5. Tab “ER Sheet”: table indicates year appropriately. Hence accepted.
6. Tab “project emission”, Cell C23 and cell I33 made consistent. Hence accepted.
7. Tab “leakage detail”: table from row 92 onwards indicates the year being monitored appropriately. Hence accepted.

Thus CAR #7 is closed

Acceptance and Close out by Lead Assessor:	**Date:** 04/08/2014

APPENDIX 4: TEAM MEMBERS STATEMENTS OF COMPETENCY

Statement of Competence

Name: Vijaybhai Shankarbhai Patel

Status

-	Lead Assessor	x	-	Expert	
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)
Technical Area(s*):*

2. Energy Distribution
Technical Area(s*):*

3. Energy Demand
Technical Area(s*):*

4. Manufacturing
Technical Area(s*):*

5. Chemical Industry
Technical Area(s*):*

6. Construction
Technical Area(s*):*

7. Transport
Technical Area(s*):*

8. Mining/Mineral Production
Technical Area(s*):*

9. Metal Production
Technical Area(s*):*

10. Fugitive Emissions from Fuels (solid, oil and gas)
Technical Area(s*):*

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Technical Area(s*):*

12. Solvent Use
Technical Area(s*):*

13. Waste Handling and Disposal
Technical Area(s*):*

14. Afforestation and Reforestation
Technical Area(s*):*

15. Agriculture
Technical Area(s*):*

Approved Member of Staff by: Siddharth Yadav Date: 23/01/2014

Statement of Competence

Name: Sauvik Banerjee

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	**x**
Technical Area(s): TA 1.1 Thermal energy generation from fossil fuels and biomass including thermal electricity from solar	
2. Energy Distribution	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	
Technical Area(s):	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 02/08/2013

Statement of Competence

Name: Ramkrishna Patil

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) **x**

Technical Area(s): *TA 1.2 Energy generation from renewable energy sources*

2. Energy Distribution **x**

Technical Area(s*): TA 2.1 Electricity distribution*
TA 2.2 Heat distribution

3. Energy Demand **x**

Technical Area(s*): TA 3.1 Energy Demand*

4. Manufacturing

Technical Area(s*):*

5. Chemical Industry

Technical Area(s*):*

6. Construction

Technical Area(s*):*

7. Transport

Technical Area(s*):*

8. Mining/Mineral Production

Technical Area(s*):*

9. Metal Production

Technical Area(s*):*

10. Fugitive Emissions from Fuels (solid, oil and gas)

Technical Area(s*):*

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride

Technical Area(s*):*

12. Solvent Use

Technical Area(s*):*

13. Waste Handling and Disposal

Technical Area(s*):*

14. Afforestation and Reforestation

Technical Area(s*):*

15. Agriculture

Technical Area(s*):*

Approved Member of Staff by: Siddharth Yadav Date: 02/07/2012

Statement of Competence

Name: Shivaji Chakraborty

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	**x**
Technical Area(s): *TA 1.1 Thermal energy generation from fossil fuels and biomass including thermal electricity from solar* *TA 1.2 Energy generation from renewable energy sources*	
2. Energy Distribution	**x**
Technical Area(s): *TA 2.1 Electricity distribution* *TA 2.2 Heat distribution*	
3. Energy Demand	**x**
Technical Area(s): *TA 3.1 Energy Demand*	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	
Technical Area(s):	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 19/09/2012