



## Validation opinion

### Revision of the monitoring plan

|                                                                                                                       |                                                                                                                                                                                                                                                                                                                                      |                   |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Title of project activity:                                                                                            |                                                                                                                                                                                                                                                                                                                                      |                   |
| “Forced Methane extraction from organic wastewater at Mandya district, Karnataka by M/s Sri Chamundeswari Sugars Ltd” |                                                                                                                                                                                                                                                                                                                                      |                   |
| CDM reference number:                                                                                                 |                                                                                                                                                                                                                                                                                                                                      | DNV project No.:  |
| 1088                                                                                                                  |                                                                                                                                                                                                                                                                                                                                      | 46082055          |
| Type of revision:                                                                                                     | <input type="checkbox"/> Proposed revision only includes the request by the CDM EB<br><input type="checkbox"/> Proposed revision includes not only the request by the CDM EB but also additional revisions proposed by the PP/DOE<br><input checked="" type="checkbox"/> Proposed Revision includes revisions proposed by the PP/DOE |                   |
| Date                                                                                                                  | Work carried out by:                                                                                                                                                                                                                                                                                                                 | Work verified by: |
| 18 June 2010                                                                                                          | R.S. Nikesh                                                                                                                                                                                                                                                                                                                          | C Kumaraswamy     |

## 1 Requirement of the Monitoring Plan in the registered PDD

The Monitoring Plan of the registered PDD stipulates the following parameters to be monitored, apart from other parameters:

- a. Temperature, and
- b. Pressure of the biogas for estimation of density of methane

## 2 Proposed revision to the Monitoring Plan

- a. The monitoring of temperature and pressure of biogas has been removed from the registered PDD.
- b. As per the requirement of the applied methodology AMS-III.H, version 04, the quantity of biogas fuelled or flared shall be monitored ex-post, using continuous flow meters. However the monitoring plan of the registered PDD does not address this requirement. Hence, the parameters quantity of biogas flared and quantity of biogas sent to boiler have been included in the revised monitoring plan.
- c. Using the appropriate formula for calculations of Baseline emission and using default values of 1.0 ( as per clarification SSC\_324 ) for combustion efficiency and 0.5 ( as per Tool to determine project emissions from flaring gases containing methane ) for flare efficiency for emission reduction calculations.
- d. As per the requirement of the applied methodology AMS-III.H, version 04, the temperature of flare need to be monitored. However the monitoring plan of the registered PDD does not address this requirement. Hence, this parameter ‘temperature of the flare’ has now been included in the revised monitoring plan.

- e. The grid emission factor of 0.86 tCO<sub>2</sub>e/MWh used for project emissions calculation has been fixed ex ante for the entire crediting period

### 3 Assessment of the request to the revision of the monitoring plan

DNV confirms that, the biogas flow meters installed by the project proponent has built-in temperature and pressure transmitters and offers on-line pressure, temperature and compressibility correction factor. Thus, the flow meter gives the flow in Nm<sup>3</sup>/hr. Since the biogas flow meter has a provision to monitor the normalized flow of gas there is no requirement to monitor the temperature and pressure of gas separately, as this correction has already been taken care in the flow meters installed. Hence, the project proponent requests the following change and thereby the revision to the monitoring plan:

1. Do away with the monitoring of the temperature and pressure of the biogas, and
2. For the density of methane, a default value of 0.0007168 tons/m<sup>3</sup> (at standard temperature and pressure - 0 degree Celsius and 1,013 bar) as stipulated in ACM 0001 to be used in the emission reduction calculations.

The above is deemed reasonable and acceptable to DNV.

The monitoring of biogas at use age points i.e; at boiler and flared is accepted as per the requirement of the methodology. The formula mentioned in the annex 4 of the registered PDD for baseline calculations does not take into account the default values of combustion and flare efficiency for calculations. DNV confirms that, revised formula considered for the biogas sent to boiler and flared with corresponding default values of efficiencies is accepted as per the methodology AMS III.H.

DNV confirms that, the biogas is flared in an open flare. The installation of thermo couple for continuously monitoring the flare temperature is accepted as per the methodology. When the flare is monitored, a default value of 50% will be used for emission reduction calculations as per the "Tool to determine project emissions from flaring gases containing methane" and in an hour if the flame is not detected for more than 20 minutes during that hour 0% flare efficiency would be considered.

It is also confirmed that the proposed requests are in accordance with the approved methodology AMS-III.H, version 04 applicable to the project activity while ensuring the conservativeness of the emission reductions calculation.

The registered PDD monitoring plan does not have clarity on the grid emission factor used for project emissions calculation ( Ex post or Ex ante). Hence, it has been clarified that the grid emission factor will be fixed ex ante for the fixed crediting period in the proposed revision of monitoring plan

The revised PDD incorporating the above changes requested is also enclosed.

#### **4 Validation opinion**

The start date of the fixed crediting period for the project activity is from 27 July 2007 to 26 July 2017. A revision to the monitoring plan is proposed for the entire crediting period. The proposed revision of the monitoring plan ensures completeness in the monitoring and verification process and is in accordance with the approved monitoring methodology AMS III H applicable to the project activity.

DNV hence recommends the approval of the revised monitoring plan submitted by the project proponent to arrive at the emissions reductions.

Yours faithfully

for DET NORSKE VERITAS CERTIFICATION AS



*Approver*

*Climate Change Services*

Det Norske Veritas Certification AS