Revised Monitoring Plan

Methane Recovery and Power Generation in a Distillery plant

By

GMR Industries Ltd. (GIDL)

CDM Project Number 0505

Implemented by

GMR Industries Limited (sugar division)
Sankili, Regidi, Amadalavalasa Mandal,
Srikakulam District – 532440
Andhra Pradesh, India

Revision: 01st November 2007

1. Introduction

1.1. Title of the project activity

Methane Recovery and Power Generation in a distillery plant

1.2. Introduction

The Monitoring plan defines the parameters to be monitored in order to estimate emission reductions from the registered project activity. How ever based on correction requested by EB-35, project proponent has incorporated revision in the monitoring plan. The same is represented in this revised monitoring plan.

The first monitoring report covers the activity from: 1/10/2006 to 31/03/2007

Starting date of project activity: 01/12/2003
Project Commissioning date: 01/06/2005

1.3. CDM registration details

Date of registration: 29/09/2006

Reference no.: 0505
(http://cdm.unfccc.int/Projects/DB/SGS-UKL1152270393.27/view.html)

PDD Version and date: PDD version 1.3 / Dated 04/09/2006, UNFCCC 00000505

The project has two components and they confirm to following small scale approved baseline methodologies.

a. Type IIIH: Methane recovery in wastewater treatment.
b. Type ID: Grid connected renewable electricity generation.

Approved Monitoring Methodology:
The project has two components and they confirm to following small scale approved monitoring methodologies.

a. Type IIIH: Comprises Methane recovery from spent wash treatment facilities.

Type ID: Comprises renewable energy generation units that displaces electricity based on fossil fuel fired generating stations

1.4. Project activity

This project activity is based at the distillery unit of integrated sugar complex of GMR Industries Ltd. (GIDL - Sugar Division) at Sankili village, Srikakulam District in the State of Andhra Pradesh. The company belongs to GMR group. The distillery has implemented ISO-9001:2000: system.

The sugar division of the GMR Industries Ltd. (GIDL) owns a distillery with a capacity of 40 KLPD. The raw material to the distillery is molasses from the sugar plant. The major products from the distillery are Rectified Spirit (RS), Extra Neutral Alcohol (ENA) and Ethanol. The plant has modern Molecular Sieve Dehydration System. The plant is having zero pollution discharge.

2. Revisions in the Monitoring Plan

A revision to the monitoring plan is proposed to provide clarity on the following correction requested as per Meeting report in EB-35.

(i) Additional information regarding the monitoring biomass residue;

- *The Board further noted that the DOE should submit a request for revision of the monitoring plan prior to the next request for issuance to ensure that the monitoring and the calculation of the baseline emissions are in accordance with the approved methodology applied by the project activity.*

The proponent has thereby revised the monitoring plan incorporating reporting of additional biomass residues used in the project activity for power generation

3. Revised monitoring plan

The project is a small scale CDM project activity and is based on Appendix B (Version No. 07 dated 28 November 2005) of the simplified modalities and procedures for small-scale CDM project activities. The project activity conforms to the following categories-

Project Category	**Criteria**
TYPE IIIH : Methane Recovery in Wastewater Treatment	Comprises Methane recovery from Spent-Wash treatment facilities.
TYPE ID : Grid connected renewable electricity generation	Comprises renewable energy generation units that displaces electricity based on fossil fuel fired generating stations

The data being monitored as a part of project activity are as follows:

ID number	Data Source	Data variable	Data unit	Measured (m), calculated © or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	For how long is archived data to be kept?	Comment
1.1	Plant Data	Flow of Spent-Wash in digester	m3	*m*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	
1.2	Lab test data	Chemical Oxygen Demand of untreated Spent-Wash into the digester	mg/l	*e*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	*Standard "Reflux method" is used for estimation of COD of spent wash following Central Pollution Control Board norms*
1.3	Lab test data	Chemical Oxygen Demand of treated water from digester	mg/l	*e*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	*Standard "Reflux method" is used for estimation of COD of treated water following Central Pollution Control Board*

									norms
1.4	Plant data	Biogas flow into boiler	m3	*m*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	
1.5	Lab test data	%CH4, Volumetric content of Methane in biogas	%	*m*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	*Methane concentration in biogas is measured using "Gas Chromatograph-Thermal Coductivity Detector"*
1.6	Plant data	Pressure of biogas	mm. WC	*m*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	
1.7	Plant data	Temp. of biogas	Deg C	*m*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	
1.8	Plant data	Gross Electricity generated in the power plant	kWh	*m*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	
1.9	Plant data	Auxiliary Electricity Consumption	kWh	*m*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	
1.10	Plant data	Net electricity generation	kWh	*c*	*Daily*	*100%*	*paper*	*Credit period + 2 yrs*	
1.11	Plant data	Quantity of fossil fuel i combusted in boiler	Tonnes	*m*	*Monthly*	*100%*	*paper*	*Credit period + 2 yrs*	
1.12	Lab test data	Calorific value of fossil fuel i combusted	kcal/ kg	*e*	*Monthly*	*100%*	*paper*	*Credit period + 2 yrs*	
1.13	Plant data	Power consumed in equipment in	kWh	*m*	*Daily*	*100%*	*paper*	*Credit period + 2*	

		digester plant						*yrs*	
1.14	Plant data	Quantity of digester solid residues generated	tonnes	*m*	*Monthly*	*100%*	*paper*	*Credit period + 2 yrs*	
1.15	Plant data	Quantity of digester solid residue treated by composting	tonnes	*m*	*Monthly*	*100%*	*paper*	*Credit period + 2 yrs*	*Total quantity generated of solid residues in digester goes to composting plant*
1.16	Plant data/ IPCC default values	Coefficient of emission for fossil fuel i combusted in boiler	tCO2e/ tonne	*c*	*Monthly*	*100%*	*paper*	*Credit period + 2 yrs*	*Based on IPCC default emission factor and NCV of coal used in project activity*
1.17	Plant Data	Quantity of biomass residues combusted in boiler for power and steam generation	Tonnes	*m*	*Monthly*	*100%*	*paper*	*Credit period + 2 yrs*	*From transportation records / purchase invoice copies*

QA/QC Procedures being undertaken for data monitoring

Data *(Indicate table and ID number e.g. 3.-1.; 3.2.)*	Uncertainty level of data (High/Medium/Low)	Explain QA/QC procedures planned for these data, or why such procedures are not necessary.

Table D.3 (ID numbers from 1.1, 1.4, 1.6, 1.7	Low	The data will be collected as part of normal plant level operations. QA/QC requirements consist of cross- checking these with other internal company report.
Table D.3 (ID numbers from 1.2, 1.3	Low	Data are estimated using standard "Reflux method" as per Central Pollution Control Board (CPCB), Government of India norms.
Table D.3 (ID number 1.5	Low	Data is measured using "Gas Chromatograph –Thermal Conductivity Detector" method.
Table D.3 (ID numbers from 1.8- 1.10, 1.11, 1.13	Low	Data is monitored as part of power plant operation and logs are maintained on daily basis; meters are calibrated as per predefined calibration program
Table D.3 (ID number 1.12	Low	Fuel calorific value is lab tested of each stock and a record is maintained to this effect
Table D.3 (ID numbers from 1.14- 1.15	Low	Total solid residues from digester are sent to composting plant. A record for residues generated and sent to compost plant is maintained
Table D.3 (ID numbers 1.16	Low	Data is calculated based on NCV and IPCC default values for emission factor and oxidation factor for fossil fuels

GIDL's is an ISO-9001:2000 certified plant and it has well defined monitoring, calibration and recording procedures. Calibration of instruments is carried out as per predefined calibration plan.

4. Data monitored

The additional parameter i.e. quantity of biomass combusted in the project activity has also been incorporated in revised version of monitoring report in reply to request for review for first issuance request.

Rice husk consumption for power generation was monitored as part of standard procedures of plant, now a part of monitoring plan is:

Rice Husk Consumption	
Month	**Value (tonnes)**
Oct' 06	Nil
Nov' 06	Nil
Dec' 06	149.0
Jan' 07	160.2
Feb' 07	195.0
Mar' 07	330.0
Total	**834.3**