Monitoring report form
(Version 04.0)

Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form" at the end of this form.

MONITORING REPORT	
Title of the project activity	Biogas Plant at United Plantations Berhad, UIE Palm Oil Mill
Reference number of the project activity	3622
Version number of the monitoring report	01
Completion date of the monitoring report	27/03/2015
Registration date of the project activity	26/01/2011
Monitoring period number and duration of this monitoring period	Monitoring period 02; 01/08/2013 – 31/12/2014 (518 days)
Project participant(s)	a) United Plantations Berhad b) Ministry of Climate and Energy
Host Party(ies)	Malaysia
Sectoral scope and selected methodology(ies), and where applicable, applied standardized baseline(s)	Sectoral scope 13: Waste handling and disposal. AMS-III.H.: Methane recovery in wastewater treatment --- Version 13.0
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	20,274 tCO_{2e}
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	19,776 tCO_{2e}
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period up to 31 December 2012(if applicable)	N/A
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period from 1 January 2013 onwards (if applicable).	19,776 tCO_{2e}

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

a) The purpose of the project activity

The project activity comprises a closed anaerobic digester system, replacing the open anaerobic lagoons used in baseline scenario for the treatment of POME. Biogas generated in the project activity is captured and utilized in the existing biomass boiler in the palm oil mill as supplementary fuel to biomass waste. Excess biogas is flared in a closed flare during the period of time where it cannot be utilized in the biomass boiler (i.e. whenever the boiler is not in operation). The effluent from the anaerobic digester system will be routed to the existing aerobic lagoons and finally discharged to soil application via shallow furrows (~ 0.5m depth).

Prior to the implementation of the project activity, the POME (Palm Oil Mill Effluent) from UIE palm oil mill was treated by means of the conventional open pond system comprising a series of cooling/acidification, anaerobic and aerobic lagoons before being discharged to soil application via shallow furrows (~ 0.5m depth). Biogas produced from the open anaerobic lagoons, constituting mainly of methane (CH_4) and carbon dioxide (CO_2), and traces of hydrogen sulfide (H_2S) was emitted to the atmosphere. The palm oil mill's electricity demand is supplied by the grid (TNB), and the mill's own diesel power generation and biomass steam power generation.

b) Brief description of the installed technology and equipment

This project is reducing the methane emissions from anaerobic digestion of POME treatment by avoiding the current wastewater treatment method and instead channelling the POME into biogas plant, which mainly comprises CSTR (Continuous-flow Stirred Tanks Reactors) tanks. Biogas burners are fitted to the existing biomass boiler plant to consume the gas produced by the CSTR tanks. Excess gas, which is not consumed by the biomass boiler plant, will be flared though a closed-flare system.

c) Relevant dates for the project activity

Dates	Activity/Event
01/10/2010	Commissioning and handover of plant
26/01/2011	CDM registration of project activity
25/09/2013	Application for change of crediting period
26/09/2013	Crediting period revised
07/11/2014	CER issuance from 1st monitoring period (25,699 tCO_{2e})

d) Total GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period

The total GHG emission reduction from 01/08/2013 to 31/12/2014 is 19,776 tCO_{2e}.

A.2. Location of project activity

United International Enterprises (M) Sdn Bhd
Huntly Estate, 34900 Pantai Remis
Perak Darul Ridzuan,
Malaysia (host party)

GPS Coordinates: 4°26'53.15"N 100°42'48.17"E

A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Malaysia (host)	Private entity: United Plantations Berhad	No
Denmark	Ministry of Climate and Energy	No

A.4. Reference of applied methodology and standardized baseline

The project is a small scale project activity and falls under the category III.H according to the Appendix B of the Simplified Modalities and Procedures for Small-Scale CDM project activities.

Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project categories; AMS-III.H.: Methane recovery in wastewater treatment --- Version 13.0

Methodological tool; Tool to determine project emissions from flaring gases containing methane --- Version 1.0

A.5. Crediting period of project activity

01/10/2011 – 30/09/2021; 10 years (Fixed)

A.6. Contact information of responsible persons/ entities

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SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

The biogas plant, which main parts constitute the Continuous-flow Stirred Tank Reactors (CSTR), biogas burner (boiler) and closed flare system, started operations in 2011. The plant was fully completed for operations in September 2010. The testing and commissioning was carried out throughout September 2010. The starting date of the crediting period is 01/10/2011, as the plant was not fully commissioned in terms of monitoring instruments until then.

Continuous-flow Stirred Tank Reactors

A closed tank anaerobic digestion technology, based on the continuous flow stirred tank reactor system (CSTR) with sludge return design, is implemented for the palm oil mill effluent (POME) treatment at UIE Palm Oil Mill to replace the existing deep open lagoon system for anaerobic digestion. The CSTR system is equipped with a dual-function complete mixing mechanism, comprising pump-aided circulation and gas-lifting mixing, to maximize the anaerobic digestion efficiency. The complete-mixed system will facilitate long-term continuous operations without

needs of any interruptions for sludge removal. The anaerobic digestion is operating under mesophilic conditions with temperature ranging from 35 - 40℃. The digester system for the proposed project activity is designed with a hydraulic retention time of ~18 days, more than the minimum retention time of 15 days which is commonly recommended based on theoretical requirement.

The CSTR anaerobic digestion design has been proven to be most efficient and appropriate for POME treatment, considering the unique characteristics of POME in terms of its very high levels of BOD and COD in both dissolved and semi-solid forms, concurrent with high Suspended Solids and emulsified oil. The biogas generated is captured in the enclosed anaerobic digester tanks. Tanks equipped with floating roofs allow for a significant volume of buffer storage capacity for biogas. The provision of the buffer storage is essential for the efficient operation of the boiler using biogas for steam generation.
Treated effluent from the anaerobic digester tanks, is discharged to existing aerobic open lagoons for facultative/aerobic treatment after which the effluent is pumped to the plantation for soil application.

Biogas Burner

The biogas captured is utilized for steam generation in the existing biomass waste fired boiler at the mill. The existing biomass fired boiler is fitted with a 1000 Nm3/h biogas burner with automatic control to allow for both biogas and biomass waste firing. The biogas will displace partially some biomass.

Closed-flare system

Excess biogas from the digesters is flared using a closed flare system, where flaring efficiency is 90%, if the flare temperature is more than 500℃, for more than 40 minutes in a given hour and the manufacturer's recommendations for the flare system are met. The calculations are based on ''Tool to determine project emissions from flaring gases containing methane'' (ver. 01).

B.2. Post registration changes

B.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

Not applicable

B.2.2. Corrections

Not applicable

B.2.3. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

Not applicable

B.2.4. Changes to project design of registered project activity

Not applicable

B.2.5. Changes to start date of crediting period

Not applicable

B.2.6. Types of changes specific to afforestation or reforestation project activity

Not applicable

SECTION C. Description of monitoring system

A total number of 20 parameters are registered under the PDD's monitoring plan. The primary data collection method for this project activity is through data logger system, connected to the bio-digester plant (tank farm) and boiler house. In addition, data collected by the technicians (kWh, COD values) is reported in a logbook first, and then transferred to an excel sheet.

The layout below shows the points where these parameters are measured.

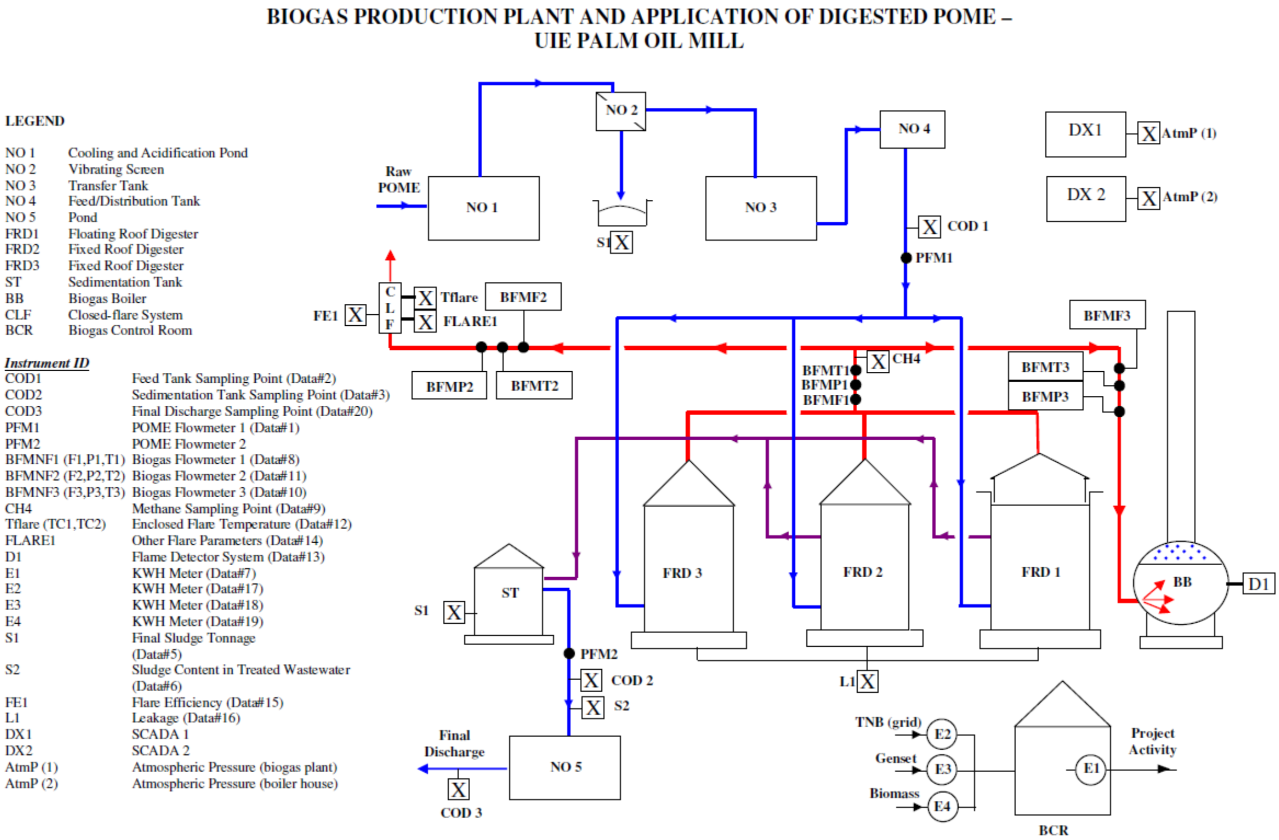

Figure 1: Flowchart of the project with main components and labels for monitoring points.

No	Parameter	Description	ID	Data Logging
1	$Q_{ww,y}$	Flow of waste water from the palm oil mill	PFM1	Manual Logs
2	$COD_{ww,untreated,y}$	Chemical oxygen demand entering the anaerobic treatment system with methane capture in the year y	COD1	External analysis
3	$COD_{ww,treated,\ y}$	Chemical Oxygen Demand of the treated waste water	COD2	External analysis

4	$MCF_{S,PJ,final}$	Methane correction factor of the disposal site that receives the final sludge	-	-
5	$S_{final,PJ,y}$	Amount of final sludge generated by the project wastewater treatment system in the year y (tonnes dry matter).	S1	Manual Logs
6	$S_{PJ,y}$	Amount of dry matter (tonnes dry mass) discharged to aerobic treatment (tonnes/ m^3) in the year y	S2	External analysis
7	$EC_{PJ,y}$	Total amount of electricity consumed by the project activity in the year y	E1	Manual Logs
8	$FV_{digester,h}$	Volumetric flow rate of the residual gas in dry basis at normal conditions NTP (273.15 K, 101.325 kPa) in the hour h	BFMNF1	Daqstation DX2020
9	$fv_{CH4,h}$	Fraction of methane in the biogas	CH4	Daqstation DX2020
10	$FV_{boiler,h}$	Volumetric flow rate of the residual gas combusted in the boiler in dry basis at normal conditions NTP (273.15 K, 101.325 kPa) in the hour h	BFMNF3	Daqstation DX2020
11	$FV_{flare,h}$	Volumetric flow rate of the residual gas flared in dry basis at normal conditions NTP (273.15 K, 101.325 kPa) in the hour h	BFMNF2	Daqstation DX2020
12	T_{Flare}	Temperature in the exhaust gas of the flare	TC	Daqstation DX2020
13	D_{Boiler}	Detection of flame in boiler	D1	Daqstation DX2020
14	$Other_{flare}$	Includes all data and parameters that are required to monitor whether the flare operates within the range of operating conditions according to the manufacturer's specifications	-	-
15	$\eta_{flare,h}$	Efficiency of the enclosed flaring process in the hour h which is based on a measurement of the fraction of time in which gas is combusted	FE1	Calculated
16	**Leakage**	Detection of physical leakage of digester tanks for safety purposes	L1	Gas detector logs
17	$EG_{TNB,y}$	Quantity of electricity supplied to the mill from the grid in the year y	E2	Manual Logs
18	$EG_{genset,y}$	Quantity of electricity generated from the genset in the year y	E3	Manual Logs
19	$EG_{biomass,y}$	Quantity of electricity generated from the biomass boiler in the year y	E4	Manual Logs
20	$COD_{ww,discharge,PJ,y}$	Chemical oxygen demand of the treated wastewater discharged into the sea, river or lake in the project scenario in year y	COD3	Internal Analysis

Calibration interval

The project proponent is applying a calibration frequency or interval based on the national or international guideline, if manufacturer's or calibrator's recommendation is not available. This is to ensure that the calibration exercise is in-line and consistent with established CDM guidelines. This practice is applicable to all monitoring instruments on-site. If the calibration has been delayed, the error found in the delayed calibration period will be compared with the error specified by the manufacturer (maximum permissible error); whichever higher will be applied to the CER Calculations. This is in-line with **EB 52, Annex 60 'Guidelines for Assessing Compliance with the Calibration Frequency Requirements (version 01)'.**

Liquid Flowmeter

Based on US EPA 40 CFR Part 98 – Greenhouse Gas Mandatory Reporting Requirements[1], under subpart II (Industrial Wastewater Treatment), it is stated that flowmeters should be calibrated once in 2 years (biennial) or at the minimum frequency specified by the manufacturer. Since Yokogawa have not specified any frequency for the calibration of their flowmeters (accuracy of +/- 0.35%), the rule of biennial calibration comes into practice for this equipment. Nevertheless, as a more conservative approach, the PDD's requirement of annual calibration is practiced on-site.

Gas Flowmeters, Pressure and Temperature Transmitters

This document describes on how the manufacturer (Emerson) has set a calibration interval of 3 years[2] for an instruments with error rate of 1.4%. The manufacturer referred to the US EPA CFR Part 98, which describes the maximum permissible error for reporting purpose. Since Yokogawa have not specified any frequency for the calibration of their DY100 flowmeters (accuracy of 1.0%), EJA110A and EJX610A pressure transmitters (accuracy of 0.2%), and YTA110 temperature transmitters (accuracy of 0.4%), the same once in 3 years calibration frequency comes into practice for these monitoring instruments.

Electrical (kWh) meters

Sogyo Electrical Engineering, a company primarily dealing installation and calibration of electrical meters, has provided a justification[3] that kWh meters in general has to be calibrated at a minimum interval of once in 2 years. Class 2 kWh meters has an accuracy of +/- 2.5%.

Weighbridge

The weighbridge at UIE mill, which is mainly used to measure quantity of FFB delivered to the mill, is inspected annually by Department of Weights and Measures, Ministry of Domestic Trade, Co-operatives and Consumerism (Jabatan Timbang dan Sukat, Kementerian Perdagangan Dalam Negeri, Koperasi dan Kepenggunaan). The inspection is carried out to certify the weighbridge is in good operating condition, as per the Weights and Measures Act 1972 (Akta Timbang dan Sukat 1972). The E1110 Avery weighbridge indicator has a +/- 0.01% accuracy.

Thermocouple

The document ''Traceability requirements of the temperature measurement'' states that working thermocouples are required to be calibrated at least once in 2 years, but to be controlled against a reference thermocouple on annual basis. Hence, the calibration exercise can be deemed to be carried out annually, which is in-line with the PDD's monitoring plan. N-type thermocouple has an accuracy of +/- 0.75%.

Methane Analyser (Gas analyser)

The document ''Guardian Plus Methane Analyser Calibration'' states that under normal use, the methane analyser shall be calibration at least once in 12 months.

COD equipment

The COD equipments used on-site are the DRB 200 (thermostat) and DR 890 (colorimeter). These equipments have been calibrated on the 22/03/2013 and 22/03/2014. The user manual of these equipments only specifies periodic internal calibration practices and does not specify any external

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[1] Document title: US EPA CFR 40 Part 98_Subpart II

[2] Document title: Emerson - US EPA benchmark

[3] Document title: Sogyo Calibration Validity Confirmation

calibration or service frequency. Instead of periodic internal calibration practices, the project proponent has applied an annual external calibration exercise for the equipments, as recommended by the calibration company (Arachem)[4].

Quality control process

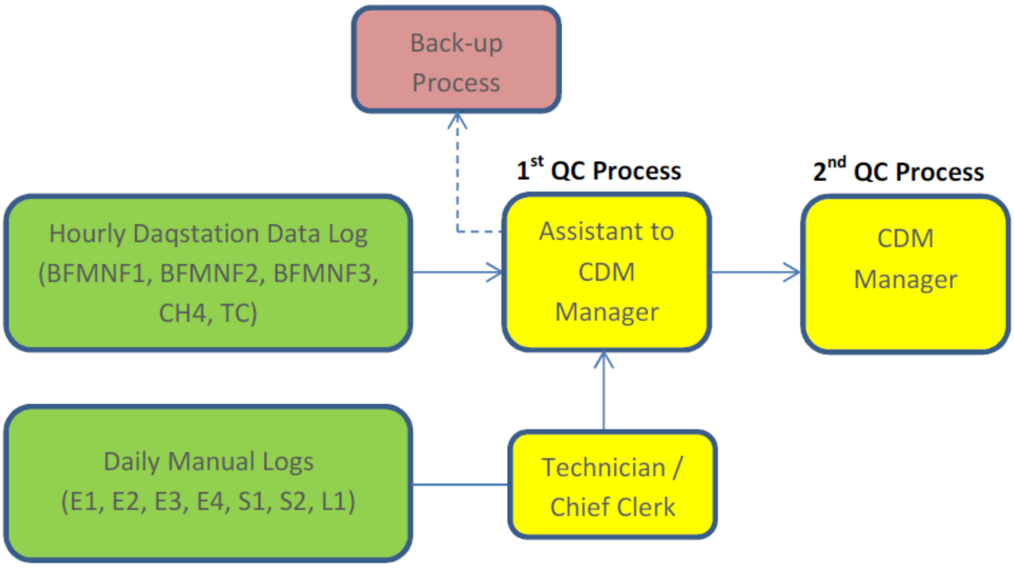

Figure 2: Communication Process on transfer of data on-site.

[4] Document title: DR890 and DRB200 calibration interval

Organization Chart and Roles and Responsibilities

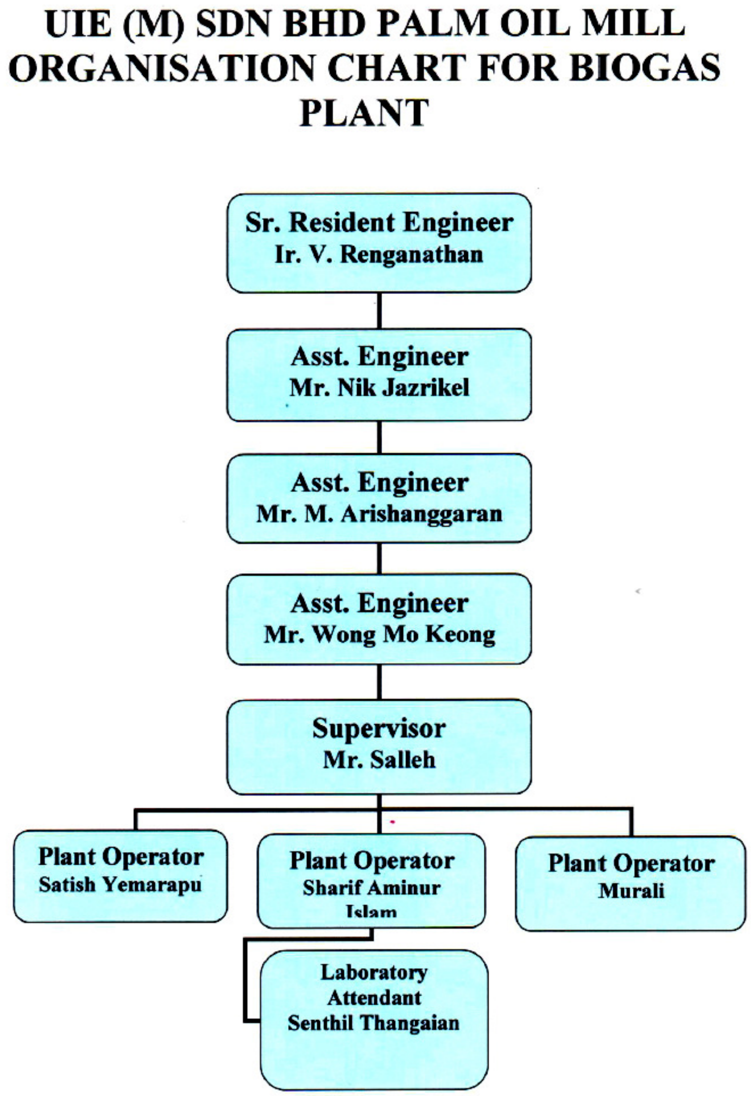

Figure 3: Organization Chart of on-site CDM team

The table below describes the roles and responsibilities of each individual involved in this CDM project, based on the organizational chart above.

Name	**Designation**	**Roles and Responsibilities**
Dato' Carl Bek-Nielsen	Executive Director	CDM Advisor - Corporate
Danish Energy Management	CDM (Monitoring) Consultants	Conduct periodic site visit to project site and assess raw data collection. Review and advice on CER Calculations, Complied by the CDM Manager.

IR. Renganathan	Group Engineer	CDM Manager • Verifies all inputs from monitoring parameters • CER calculation • Liaison with third party CDM consultants • Conducts internal review / audits to cross check CDM data
En. Nik Jazrikel Mr. Arishanggaran Mr. Wong Mo Keong	Assistant Engineer	CDM Assistant • Assist the CDM Manager • Receives inputs from monitoring points • Cross check all CDM data • Compiles all raw data • To ensure the plant's smooth operation
Mr. Ghaneshan	Chief Clerk	Data Entry • Key in raw data received into an excel spreadsheet on daily basis • Ensures timely calibration of CDM instruments
Mr. Salleh	Supervisor	• To oversee plant operation • To ensure all data's are correctly logged
Mr. Sharif Aminur Islam Mr. Satish Yemarapu Mr. Murali	Plant operator	Raw Data Log • Obtains raw data input from the meters installed on daily basis • Plant operation
Mr. Senthil Thangaian	Lab Attendant / Relief Operator	• Relief plant operator • To carry out required POME, effluent analysis

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data / Parameter:	**Anaerobic lagoon treatment system depth**
Unit:	M
Description:	Depth of the anaerobic lagoons
Source of data:	Layout Drawings
Value(s) applied):	3 m
Purpose of data:	For baseline emission calculation
Additional comment:	-

Data / Parameter:	$\mathbf{B_{o,ww}}$
Unit:	kg CH_4 per kg COD
Description:	The rate of conversion of COD to CH_4 within the wastewater
Source of data:	AMS-III.H. ver. 13

Value(s) applied):	0.21 kg CH_4 per kg COD
Purpose of data:	For baseline and project emission calculation
Additional comment:	-

Data / Parameter:	**$MCF_{ww,treatment}$**
Unit:	Fraction
Description:	Methane correction factor for waste water treatment system that will be equipped with methane recovery and combustion
Source of data:	AMS-III.H. ver. 13
Value(s) applied):	0.8
Purpose of data:	For baseline emission calculation
Additional comment:	-

Data / Parameter:	**$MCF_{ww,discharge}$**
Unit:	Fraction
Description:	Methane correction factor based on discharge pathway of the wastewater
Source of data:	AMS-III.H. ver. 13
Value(s) applied):	0
Purpose of data:	For project emission calculation
Additional comment:	-

Data / Parameter:	**GWP_CH_4**
Unit:	tCO_{2e}/tCH_4
Description:	Global Warming Potential of Methane
Source of data:	IPCC and change from GWP of 21 to 25 according to decision 4/CMP7 and para 66, EB69
Value(s) applied):	21 for first commitment period (up to Dec 31st, 2012) 25 for second commitment period starting January 1st, 2013
Purpose of data:	For baseline and project emission calculation
Additional comment:	-

Data / Parameter:	**$EF_{TNB,y}$**
Unit:	t CO_{2e}/MWh
Description:	Grid Emission Factor (Peninsular Malaysia)
Source of data:	PTM, Study on Grid Connected Electricity Baselines in Malaysia (2007)
Value(s) applied):	0.684 t CO_{2e}/MWh
Purpose of data:	For project emission calculation
Additional comment:	-

Data / Parameter:	**$EF_{genset,y}$**
Unit:	t CO_{2e}/MWh
Description:	Diesel Genset Emission Factor
Source of data:	UNFCCC conservative default value.
Value(s) applied):	0.8 t CO_{2e}/MWh
Purpose of data:	For project emission calculation
Additional comment:	-

Data / Parameter:	$EF_{biomass,y}$
Unit:	t CO_{2e}/MWh
Description:	Biomass boiler Emission factor
Source of data:	UNFCCC
Value(s) applied):	0 t CO_{2e}/MWh
Purpose of data:	For project emission calculation
Additional comment:	-

Data / Parameter:	UF_{bl}
Unit:	-
Description:	Model correction factor to account for model uncertainties (0.94)
Source of data:	UNFCCC
Value(s) applied):	0.94
Purpose of data:	For baseline emission calculation
Additional comment:	-

Data / Parameter:	UF_{pj}
Unit:	-
Description:	Model correction factor to account for model uncertainties (1.06)
Source of data:	UNFCCC
Value(s) applied):	1.06
Purpose of data:	For project emission calculation
Additional comment:	-

Data / Parameter:	DOC_F
Unit:	-
Description:	Fraction of degradable organic carbon (DOC) dissimilated to biogas (IPCC default value of 0.5)
Source of data:	UNFCCC
Value(s) applied):	0.5
Purpose of data:	For baseline emission calculation (from sludge)
Additional comment:	-

Data / Parameter:	CFE_{ww}
Unit:	-
Description:	Capture efficiency of the biogas recovery equipment in the wastewater treatment systems (a default value of 0.9 shall be used)
Source of data:	UNFCCC
Value(s) applied):	0.9
Purpose of data:	For project emission calculation
Additional comment:	-

D.2. Data and parameters monitored

Data / Parameter:	$Q_{ww,y}$
Unit:	m^3
Description:	Flow of waste water from the palm oil mill

Measured/ Calculated / Default:	Measured
Source of data:	Manual logsheet
Value(s) of monitored parameter:	171,329 (for BE calculations) 171,648 (for PE calculations)
Monitoring equipment:	Type: Flowmeter Make/Model: Yokogawa/AXF080G Accuracy class: EMC Conformity Standards; EN61326-1 Class A, Table 2 (For use in industrial locations) Serial no: S5K202220 Calibration frequency: Annual Date of initial calibration: 31/05/2013 Date of second calibration: 09/05/2014
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Daily
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period. All data are recorded by a technician and verified by the CDM Manager.
Purpose of data:	For baseline and project emissions calculations.
Additional comment:	The maximum calibration interval is as per 'Calibration Interval' under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise.

Data / Parameter:	**$COD_{ww,untreated,y}$**
Unit:	$kgCOD/m^3$
Description:	Chemical oxygen demand entering the anaerobic treatment system with methane capture in the year y
Measured/ Calculated / Default:	Measured and Calculated
Source of data:	External accredited laboratory certificate of analysis
Value(s) of monitored parameter:	62.575
Monitoring equipment:	Not applicable (analysis is conducted by external accredited laboratory)
Measuring/ Reading/ Recording frequency:	Monthly/Monthly/Monthly
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For baseline emissions calculations.
Additional comment:	The external laboratory is certified under MS ISO/IEC 17025 and SAMM (Sijil Akreditasi Makmal Malaysia); SAMM No: 178

Data / Parameter:	**$COD_{ww,treated,y}$**
Unit:	$kgCOD/m^3$
Description:	Chemical Oxygen Demand of the treated waste water
Measured/ Calculated / Default:	Measured and Calculated

Source of data:	External accredited laboratory certificate of analysis
Value(s) of monitored parameter:	13.601
Monitoring equipment:	Not applicable (analysis is conducted by external accredited laboratory)
Measuring/ Reading/ Recording frequency:	Monthly/Monthly/Monthly
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations.
Additional comment:	The external laboratory is certified under MS ISO/IEC 17025 and SAMM (Sijil Akreditasi Makmal Malaysia); SAMM No: 178

Data / Parameter:	$\mathbf{MCF_{s,PJ,final}}$
Unit:	-
Description:	Methane correction factor of the disposal site that receives the final sludge
Measured/ Calculated / Default:	Default
Source of data:	AMS-III.H. ver. 13
Value(s) of monitored parameter:	0
Monitoring equipment:	Not applicable
Measuring/ Reading/ Recording frequency:	Not applicable
Calculation method (if applicable):	Not applicable
QA/QC procedures:	-
Purpose of data:	For project emissions calculations
Additional comment:	-

Data / Parameter:	$\mathbf{S_{final,PJ,y}}$
Unit:	Tonnes
Description:	Amount of final sludge generated by the project wastewater treatment system in the year y (tonnes dry matter).
Measured/ Calculated / Default:	Measured
Source of data:	Logbook
Value(s) of monitored parameter:	30.528

Monitoring equipment:	Type: Weighbridge weight indicators Make/Model: Avery/E1110 Accuracy class: EN45501:1994 and OIML R76-1:2006 (accuracy Class III for Non-Automatic Weighing Instrument) Serial no: 074550124 Calibration frequency: Annual Date of initial calibration: 29/03/2013 Date of second calibration: 24/03/2014
Measuring/ Reading/ Recording frequency:	Monthly/Monthly/Monthly
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations
Additional comment:	The maximum calibration interval is as per 'Calibration Interval' under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise. Final sludge is only generated at the vibrating screen of the wastewater treatment system. The sludge is used for soil application aerobically. $PE_{s,final,PJ}$ is '0' as $MCF_{s,PJ,final}$ is '0' for this monitoring period.

Data / Parameter:	$\mathbf{S_{PJ,y}}$
Unit:	Tonnes/m^3
Description:	Amount of dry matter (tonnes dry mass) discharged to aerobic treatment (tonnes/ m^3) in the year y.
Measured/ Calculated / Default:	Measured
Source of data:	External accredited laboratory certificate of analysis
Value(s) of monitored parameter:	0.056 (monitoring period average)
Monitoring equipment:	Not applicable
Measuring/ Reading/ Recording frequency:	Monthly/Monthly/Monthly
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations
Additional comment:	Wastewater from the project activity is discharged into aerobic lagoons. $PE_{s,treatment,y}$ is '0' as $MCF_{s,treatment,l}$ is '0' for this monitoring period.

Data / Parameter:	$\mathbf{EC_{PJ,y}}$
Unit:	MWh
Description:	Total amount of electricity consumed by the project activity in the year y.
Measured/ Calculated / Default:	Measured
Source of data:	Logbook
Value(s) of monitored parameter:	4075.113

Monitoring equipment:	Type: Electricity meter Make/Model: Holley TMS/DT862 Accuracy class: Class II of IEC 62053-11 Serial no: 10-05-0946 Calibration frequency: Once in 2 years Date of first calibration: 02/10/2013
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Daily
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations
Additional comment:	The maximum calibration interval is as per ‘Calibration Interval’ under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise. Only 2 readings are used from each kWh meter, to calculate $PE_{power,y;}$ start and end of monitoring period.

Data / Parameter:	$\mathbf{FV_{digester,h}}$
Unit:	Nm^3/h
Description:	Volumetric flow rate of the residual gas in dry basis at normal conditions NTP (273.15 K, 101.325 kPa) in the hour h.
Measured/ Calculated / Default:	Measured
Source of data:	Data logger
Value(s) of monitored parameter:	362 (monitoring period average) (4,491,458 Nm^3)

Monitoring equipment:	Type: Flowmeter Make/Model: Yokogawa/DY100 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: S5L104769 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Pressure Transmitter (Differential) Make/Model: Yokogawa/DY100 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: 91L125154 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Temperature Transmitter Make/Model: Yokogawa/YTA110 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: C2L110793 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Pressure Transmitter (Atmospheric) Make/Model: Yokogawa/EJX610A Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: 91L122101 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Once in 5 minutes
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For baseline emissions calculations.
Additional comment:	Normalised flow rate for the period 01/03/2014 – 13/06/2014 (8.30am) is calculated using the actual flow totalizer records displayed at the flowmeter. The actual flow is calculated conservatively, by assuming the gas T = '0' and gas P = Atm P. The maximum calibration interval is as per 'Calibration Interval' under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise.

Data / Parameter:	**$fv_{CH4,h}$**
Unit:	Fraction
Description:	Fraction of methane in the biogas
Measured/ Calculated / Default:	Measured
Source of data:	Data logger
Value(s) of monitored parameter:	0.573 (monitoring period average; methane content is monitored continuously and multiplied directly with biogas flow, on a 5-minutes interval basis)

Monitoring equipment:	Type: Gas analyser Make/Model: Guardian Plus Methane Analyser/97462 Accuracy class: CE marked (meets conformity to be used within European Economic Area) Serial no: 32809 Calibration frequency: Annual (12 months) Date of initial calibration: 26/05/2013 Date of second calibration: 26/12/2014
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Once in 5 minutes
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For baseline emissions calculations.
Additional comment:	The maximum calibration interval is as per 'Calibration Interval' under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise. The 2.5% maximum permissible error for the Guardian Plus methane analyser (more conservative than the calibration error) has been directly applied to MD_y and $PE_{flare,y}$ value for the months of May 2014 – Dec 2014. This method is considered most conservative.

Data / Parameter:	$FV_{boiler,h}$
Unit:	Nm^3/h
Description:	Volumetric flow rate of the residual gas combusted in the boiler in dry basis at normal conditions NTP (273.15 K, 101.325 kPa) in the hour h
Measured/ Calculated / Default:	Measured
Source of data:	Data logger
Value(s) of monitored parameter:	148 (monitoring period average) (1,832,531 Nm^3)

Monitoring equipment:	Type: Flowmeter Make/Model: Yokogawa/DY100 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: S5L104767 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Pressure Transmitter (Differential) Make/Model: Yokogawa/DY100 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: 91L125158 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Temperature Transmitter Make/Model: Yokogawa/YTA110 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: C2L110792 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Pressure Transmitter (Atmospheric) Make/Model: Yokogawa/EJX610A Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: 91L122098 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Once in 5 minutes
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period. All data are recorded by a technician and verified by the CDM Manager.
Purpose of data:	For baseline emissions calculations.
Additional comment:	The maximum calibration interval is as per 'Calibration Interval' under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise.

Data / Parameter:	$FV_{flare,h}$
Unit:	Nm^3/h
Description:	Volumetric flow rate of the residual gas flared in dry basis at normal conditions NTP (273.15 K, 101.325 kPa) in the hour h
Measured/ Calculated / Default:	Measured
Source of data:	Data logger
Value(s) of monitored parameter:	161 (monitoring period average) (2,592,891 Nm^3)

Monitoring equipment:	Type: Flowmeter Make/Model: Yokogawa/DY100 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: S5L104768 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Pressure Transmitter (Differential) Make/Model: Yokogawa/DY100 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: 91L125155 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Temperature Transmitter Make/Model: Yokogawa/YTA110 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: C2L110790 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Pressure Transmitter (Atmospheric) Make/Model: Yokogawa/EJX610A Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: 91L122101 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Once in 5 minutes
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations.
Additional comment:	Normalised flow rate for the period 01/03/2014 – 13/06/2014 (8.30am) is calculated using the actual flow totalizer records displayed at the flowmeter. The actual flow is calculated conservatively, by assuming the gas T = ‘0’ and gas P = Atm P. The maximum calibration interval is as per ‘Calibration Interval’ under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise.

Data / Parameter:	T_{Flare}
Unit:	℃
Description:	Temperature in the exhaust gas of the flare
Measured/ Calculated / Default:	Measured
Source of data:	Data logger
Value(s) of monitored parameter:	>500 (desired temperature for 90% flaring efficiency)

Monitoring equipment:	Type: Thermocouple Make/Model: Tempsens Instruments/Type-N Accuracy class: ANSI Serial no: 29529,29530 (TC1) 29528 (TC2) Calibration frequency: Annual *TC1* *29529: In use from 01/08/2013 – 14/01/2014* *29530: In use from 14/01/2014 – 31/12/2014* Date of initial calibration: 22/02/2013 (29529), 23/01/2013 (29528), 09/01/2014 (29530) Date of second calibration: 27/02/2014 (29528)
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Once in 5 minutes
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For baseline and project emissions calculations.
Additional comment:	The maximum calibration interval is as per ‘Calibration Interval’ under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise. The 0.75% maximum permissible error for N-type thermocouple (more conservative than the calibration error) has been applied to the monthly CER calculation sheets, under tab ‘Adjusted’, for the months January – February 2014. This method is considered most conservative.

Data / Parameter:	$\mathbf{D_{Boiler}}$
Unit:	On/off
Description:	Detection of flame in boiler.
Measured/ Calculated / Default:	Measured
Source of data:	Data logger
Value(s) of monitored parameter:	1/0 (On/off)
Monitoring equipment:	Type: Thermocouple Make/Model: Tempsens Instruments/Type-N Accuracy class: ANSI Serial no: 43703, 43702 Calibration frequency: Annual Date of initial calibration: 24/12/2012 (43703), 23/01/2013 (43702) Date of second calibration: 03/02/2014 (43703), 26/02/2014 (43702)
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Once in 5 minutes
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For baseline emissions calculations

Additional comment:	The maximum calibration interval is as per ‘Calibration Interval’ under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise. The 0.75% maximum permissible error for N-type thermocouple (more conservative than the calibration error) has been applied to the monthly CER calculation sheets, under tab ‘MDboiler’, for the months December 2013 – February 2014. This method is considered most conservative.

Data / Parameter:	**$Other_{flare}$**
Unit:	-
Description:	Includes all data and parameters that are required to monitor whether the flare operates within the range of operating conditions according to the manufacturer’s specifications.
Measured/ Calculated / Default:	Measured
Source of data:	Data logger
Value(s) of monitored parameter:	-
Monitoring equipment:	Type: Flowmeter Make/Model: Yokogawa/DY100 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: S5L104768 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Pressure Transmitter (Differential) Make/Model: Yokogawa/DY100 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: 91L125155 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Temperature Transmitter Make/Model: Yokogawa/YTA110 Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: C2L110790 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Pressure Transmitter (Atmospheric) Make/Model: Yokogawa/EJX610A Accuracy class: EMC Conformity Standards (EN61326-1 Class A) Serial no: 91L122101 Calibration frequency: Once in 3 years Date of initial calibration: 07/02/2013 Type: Gas analyser Make/Model: Guardian Plus/Methane Analyser Accuracy class: CE marked (meets conformity to be used within European Economic Area) Serial no: 32809 Calibration frequency: Annual (12 months) Date of initial calibration: 26/05/2013 Date of second calibration: 26/12/2014
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Once in 5 minutes

Calculation method (if applicable):	A maximum limit of 1000Nm^3/hr and a minimum limit of 40% methane content are applied to the flare efficiency.
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations.
Additional comment:	The maximum calibration interval is as per 'Calibration Interval' under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise.

Data / Parameter:	$\eta_{flare,h}$
Unit:	Fraction (minutes)
Description:	Efficiency of the enclosed flaring process in the hour h which is based on a measurement of the fraction of time in which gas is combusted.
Measured/ Calculated / Default:	Calculated
Source of data:	Monthly data logger sheets ($PE_{flaring,y}$ calculations)
Value(s) of monitored parameter:	0.9
Monitoring equipment:	Not applicable
Measuring/ Reading/ Recording frequency:	Not applicable (calculated value)
Calculation method (if applicable):	In order to achieve 90% (0.9) flaring efficiency, the below has to be achieved; a) T_{flare} (TC1 and TC2) has to be 500℃ or above (as per ''Tool to determine project emissions from flaring gases containing methane'') but TC1 has to be 720℃ or below (as per flare manufacturer's specifications and ''Tool to determine project emissions from flaring gases containing methane''); b) $FV_{RG,h}$ has to be 850 Nm^3/hr or lower (as per flare manufacturer's specifications)
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations.
Additional comment:	-

Data / Parameter:	**Leakage**
Unit:	-
Description:	Detection of physical leakage of digester tanks for safety purposes.
Measured/ Calculated / Default:	Measured
Source of data:	Manual sheets
Value(s) of monitored parameter:	Not applicable
Monitoring equipment:	Not applicable (manual assessment/soap test)
Measuring/ Reading/ Recording frequency:	Monthly/Monthly/Monthly
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.

Purpose of data:	Not applicable to CER calculations.
Additional comment:	-

Data / Parameter:	**$EG_{TNB,y}$**
Unit:	kWh
Description:	Quantity of electricity supplied to the mill from the grid in the year y.
Measured/ Calculated / Default:	Measured
Source of data:	Logbook
Value(s) of monitored parameter:	23,039,335
Monitoring equipment:	Type: Electricity meter Make/Model: Holley TMS/DT862 Accuracy class: Class II of IEC 62053-11 Serial no: G2000086 Calibration frequency: Once in 2 years Date of initial calibration: 25/03/2012 Date of second calibration: 23/03/2014
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Once in 5 minutes
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations.
Additional comment:	The maximum calibration interval is as per 'Calibration Interval' under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise. Only 2 readings are used from each kWh meter, to calculate $PE_{power,y;}$ start and end of monitoring period.

Data / Parameter:	**$EG_{genset,y}$**
Unit:	kWh
Description:	Quantity of electricity generated from the genset in the year y.
Measured/ Calculated / Default:	Measured
Source of data:	Logbook
Value(s) of monitored parameter:	103,566
Monitoring equipment:	Type: Electricity meter Make/Model: Holley TMS/DT862 Accuracy class: Class II of IEC 62053-11 Serial no: G2000081, G2000084 Calibration frequency: Once in 2 years Date of initial calibration: 25/03/2012 Date of second calibration: 23/03/2014
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Once in 5 minutes
Calculation method (if applicable):	Not applicable

QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations.
Additional comment:	The maximum calibration interval is as per 'Calibration Interval' under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise.

Data / Parameter:	$EG_{biomass,y}$
Unit:	kWh
Description:	Quantity of electricity generated from the biomass boiler in the year y.
Measured/ Calculated / Default:	Measured
Source of data:	Logbook
Value(s) of monitored parameter:	260,422,013
Monitoring equipment:	Type: Electricity meter Make/Model: Holley TMS/DT862 Accuracy class: Class II of IEC 62053-11 Serial no: G2000083, G2000085 Calibration frequency: Once in 2 years Date of initial calibration: 25/03/2012 Date of second calibration: 23/03/2014
Measuring/ Reading/ Recording frequency:	Continuous/Continuous/Monthly
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations.
Additional comment:	The maximum calibration interval is as per 'Calibration Interval' under Section C. If a shorter interval is practiced on-site, then it is purely due to convenience of the project owner, unless stated otherwise.

Data / Parameter:	$COD_{ww,discharge,PJ,y}$
Unit:	$kgCOD/m^3$
Description:	Chemical oxygen demand of the treated wastewater discharged into the sea, river or lake in the project scenario in year y
Measured/ Calculated / Default:	Measured and Calculated
Source of data:	External accredited laboratory certificate of analysis (if unavailable internal laboratory records will be used)
Value(s) of monitored parameter:	3.456

Monitoring equipment:	Type: COD analysis kit Make/Model: HACH DRB200 (Thermostat), HACH DR890 Accuracy class: Class A, FCC Part 15 (Thermostat) Compliance to European CE Mark (Colorimeter; accuracy: +/- 0.005A) Serial no:1005 0C01 59 (Thermostat), 1004 90C7 7601 (Colorimeter) Calibration frequency: Annual Initial Calibration: 22/03/2013 Second Calibration: 22/03/2014
Measuring/ Reading/ Recording frequency:	Monthly/Monthly/Monthly
Calculation method (if applicable):	Not applicable
QA/QC procedures:	Data will be kept electronically in a systematic and transparent manner during the crediting period and two years after the crediting period.
Purpose of data:	For project emissions calculations.
Additional comment:	-

D.3. Implementation of sampling plan

Based on example 10 of EB 69 ANNEX 5; GUIDELINES FOR SAMPLING AND SURVEYS FOR CDM PROJECT ACTIVITIES AND PROGRAMME OF ACTIVITIES, VER 2.0

Based on the above guideline, the sampling activity conducted by the project proponent throughout the monitoring period has been tested, in order to assess if the actual number of samples conducted is above the minimum required. The results are as below:

Parameter	$COD_{ww,untreated,y}$	$COD_{ww,treated,y}$	$COD_{ww,discharge,PJ,y}$
Standard deviation	3278	2770	762
Mean	62575	13601	3456
Min. number of samples (1), ***n***	1	12	14
Actual number of samples	17	17	17
Corresponding t-value (t_{n-1})	6.3138	1.7959	1.7709
Min. number of samples (2), ***n***	11	14	16
Corresponding t-value (t_{n-1})	1.8124	1.7709	1.753
Min. number of samples (3), ***n***	1	14	15
Pass	yes	yes	yes

The number of samples conducted by the project proponent is sufficient and passes the test for minimum samples required for 90/10 confidence level. For the actual calculation, please refer to the sheet 'COD' of the main CER Calculation file.

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

All calculation tables displayed below (for BE, PE and ER) are only for reference and reporting purposes. The actual calculations or formulae should be referred to the main and monthly CER calculation files.

Based on para 16 of AMS-III.H. version 13;

$$BE_y = \{BE_{power,y} + BE_{ww,treatment,y} + BE_{s,treatment,y} + BE_{ww,discharge,y} + BE_{s,final,y}\}$$

Where;

BE_y	Baseline emissions in year y (tCO_{2e})
$BE_{power,y}$	Baseline emissions from electricity or fuel consumption in year *y* (tCO_{2e})
$BE_{ww,treatment,y}$	Baseline emissions of the wastewater treatment systems affected by the project activity in year *y* (tCO_{2e})
$BE_{s,treatment,y}$	Baseline emissions of the sludge treatment systems affected by the project activity in year *y* (tCO_{2e})
$BE_{ww,discharge,y}$	Baseline methane emissions from degradable organic carbon in treated wastewater discharged into sea/river/lake in year *y* (tCO_{2e}).
$BE_{s,final,y}$	Baseline methane emissions from anaerobic decay of the final sludge produced in year *y* (tCO_{2e}).

$$BE_{ww,treatment,y} = \sum_i Q_{ww,i,y} * COD_{removed,i,y} * MCF_{ww,treatment,BL,i} * B_{o,ww} * UF_{BL} * GWP_{CH4}$$

Where;

$Q_{ww,i,y}$	Volume of wastewater treated in baseline wastewater treatment system *i* in year *y* (m^3)
$COD_{removed,i,y}$	Chemical oxygen demand removed by baseline treatment system *i* in year *y* ($tonnes/m^3$), measured as the difference between inflow COD and the outflow COD in system *i*
$MCF_{ww,treatment,BL,i}$	Methane correction factor for baseline wastewater treatment systems *i* (0.8)
i	Index for baseline wastewater treatment system
$B_{o,ww}$	Methane producing capacity of the wastewater (0.21 kg CH_4/kg COD)
UF_{BL}	Model correction factor to account for model uncertainties (0.94)
GWP_{CH4}	Global Warming Potential for methane (21 / 25 – Jan 2013 onwards)

Month	A	B	C	D
	$Q_{ww,i,y}$	$COD_{ww,untreated,y}$	$COD_{removed,y}$	$MCF_{ww,treatment,BL,i}$
	m^3	g/m^3	$tonnes/m^3$	
Aug-13	9427	62575	0.0504	0.8
Sep-13	9135	62575	0.0504	0.8
Oct-13	11002	62575	0.0504	0.8
Nov-13	9799	62575	0.0504	0.8
Dec-13	11164	62575	0.0504	0.8
Jan-14	10245	62575	0.0504	0.8
Feb-14	7600	62575	0.0504	0.8
Mar-14	9227	62575	0.0504	0.8
Apr-14	9551	62575	0.0504	0.8
May-14	8813	62575	0.0504	0.8
Jun-14	8767	62575	0.0504	0.8
Jul-14	8067	62575	0.0504	0.8
Aug-14	9329	62575	0.0504	0.8
Sep-14	9782	62575	0.0504	0.8
Oct-14	11205	62575	0.0504	0.8
Nov-14	10625	62575	0.0504	0.8

Dec-14	17591	65437	0.0527	0.8

Month	G	F	G	H = A x C x D x E x F x G
	$B_{o,ww}$	UF_{BL}	GWP_{CH4}	$BE_{ww,treatment,y}$
	kg CH_4/kg COD	-	-	t CO_{2e}
Aug-13	0.21	0.94	25	1876
Sep-13	0.21	0.94	25	1818
Oct-13	0.21	0.94	25	2189
Nov-13	0.21	0.94	25	1950
Dec-13	0.21	0.94	25	2222
Jan-14	0.21	0.94	25	2039
Feb-14	0.21	0.94	25	1512
Mar-14	0.21	0.94	25	1836
Apr-14	0.21	0.94	25	1901
May-14	0.21	0.94	25	1754
Jun-14	0.21	0.94	25	1745
Jul-14	0.21	0.94	25	1605
Aug-14	0.21	0.94	25	1856
Sep-14	0.21	0.94	25	1947
Oct-14	0.21	0.94	25	2230
Nov-14	0.21	0.94	25	2114
Dec-14	0.21	0.94	25	3501

As per the registered PDD;

$BE_{power,y}$ is ‘0’.

$BE_{s,treatment,y}$ is negligible; sludge is used in aerobic conditions.

$BE_{ww,discharge,y}$ is negligible; treated wastewater is used in aerobic conditions ($MCF_{ww,BL,discharge}$=0).

$BE_{s,final,y}$ is negligible; final sludge produced is used in aerobic conditions.

E.2. Calculation of project emissions or actual net GHG removals by sinks

Based on para 26 of AMS-III.H. version 13;

$$PE_y = \begin{Bmatrix} PE_{power,y} + PE_{ww,treatment,y} + PE_{s,treatment,y} + PE_{ww,discharge,y} + PE_{s,final,y} + \\ PE_{fugitive,y} + PE_{biomass,y} + PE_{flaring,y} \end{Bmatrix}$$

Where;

PE_y	Project activity emissions in the year *y* (tCO_{2e}).
$PE_{power,y}$	Emissions from electricity or fuel consumption in the year *y* (tCO_{2e}).
$PE_{ww,treatment,y}$	Methane emissions from wastewater treatment systems affected by the project activity, and not equipped with biogas recovery, in year *y* (tCO_{2e}).
$PE_{s,treatment,y}$	Methane emissions from sludge treatment systems affected by the project activity, and not equipped with biogas recovery, in year *y* (tCO_{2e}).
$PE_{y,ww,discharge}$	Methane emissions from degradable organic carbon in treated wastewater in year *y* (tCO_{2e}).
$PE_{s,final,y}$	Methane emissions from anaerobic decay of the final sludge produced in year *y* (tCO_{2e}).

$PE_{fugitive,y}$	Methane emissions from biogas release in capture systems in year *y* (tCO_{2e}).
$PE_{flaring,y}$	Methane emissions due to incomplete flaring in year *y* (tCO_{2e}).
$PE_{biomass,y}$	Methane emissions from biomass stored under anaerobic conditions (tCO_{2e}).

$$PE_{power,y} = EC_{PJ,y} * \sum_j \frac{EG_{j,y}}{\sum_j EG_{j,y}} * EF_{j,y}$$

Where;

$PE_{power,y}$	Project emissions from electricity consumption in year y (tCO_{2e})
$EC_{PJ,y}$	Quantity of electricity consumed by the project activity in year y (MWh).
$EG_{i,y}$	Electricity generation by electricity generation source j in year y (MWh)
j	Sources of electricity generation (i.e. TNB (Grid), Diesel Genset & Biomass Boiler)
$EF_{j,y}$	Emission factor for electricity generation source j in year y (tCO_{2e}/MWh)

Where j = {TNB, Genset, Biomass} and $EF_{Biomass}$ = 0, the full form of the equation is reduced to:

$$PE_{power,y} = EC_{PJ,y} * [\ (\frac{EG_{TNB,y}}{EG_{TNB,y} + EG_{Biomass,y} + EG_{Genset,y}}) * EF_{TNB,y}$$

$$+ (\frac{EG_{Genset,y}}{EG_{TNB,y} + EG_{Biomass,y} + EG_{Genset,y}}) * EF_{Genset,y}\ ]$$

Month	A			B		
	$EC_{PJ,y}$			$EG_{TNB,y}$		
	Opening	Closing	kWh	Opening	Closing	kWh
01/08/2013 - 31/12/2014	0175526	241788	4075113	0173103	0285490	23039335

Month	C				
	$EG_{Genset,y}$				
	Opening	Closing	Opening	Closing	kWh
01/08/2013 - 31/12/2014	0002085	0002215	0002089	0002801	103566

Month	D				
	$EG_{Biomass,y}$				
	Opening	Closing	Opening	Closing	kWh
01/08/2013 - 31/12/2014	0837930	0282160	0257920	0347890	260422013

Month	E	F	G = A x (B / (B+C+D) x E) + (C / (B+C+D) x F)
	$EF_{TNB,y}$	$EF_{Genset,y}$	$PE_{power,y}$
	tCO_{2e}/kWh	tCO_{2e}/kWh	tCO_{2e}
01/08/2013 - 31/12/2014	0.000684	0.0008	**227**

$$PE_{fugitive,y} = PE_{fugitive,ww,y} + PE_{fugitive,s,y}$$

$$PE_{fugitive,s,y} = (1 - CFE_s) * MEP_{s,treatment,y} * GWP_{CH4}$$

This is considered '0' as the project does not involve treatment of sludge.

Hence;

$$PE_{fugitive,y} = PE_{fugitive,ww,y}$$

$$PE_{fugitive,ww,y} = (1 - CFE_{ww}) * MEP_{ww,treatment,y} * GWP_{CH4}$$

Where;

CFE_{ww}	Capture efficiency of the biogas recovery equipment in the wastewater treatment systems (0.9)
$MEP_{ww,treatment,y}$	Methane emission potential of wastewater treatment systems equipped with biogas recovery system in year *y* (tonnes)

$$MEP_{ww,treatment,y} = Q_{ww,y} * B_{o,ww} * UF_{PJ} * \sum_k COD_{removed,PJ,k,y} * MCF_{ww,treatment,PJ,k}$$

Where;

$COD_{removed,PJ,k,y}$	The chemical oxygen demand removed by the treatment system *k* of the project activity equipped with biogas recovery in the year *y* ($tonnes/m^3$)
$MCF_{ww,treatment,PJ,k}$	Methane correction factor for the project wastewater treatment system *k* equipped with biogas recovery equipment (MCF values as per table III.H.1)
UF_{PJ}	Model correction factor to account for model uncertainties (1.06)

Month	A	B	C	D	E
	$Q_{ww,i,y}$	$B_{o,ww}$	UF_{PJ}	$COD_{removed,PJ,k,y}$	$MCF_{ww,treatment,PJ,k}$
	m^3	kg CH_4/kg COD		$tonnes/m^3$	
Aug-13	9,746	0.21	1.06	0.0490	0.80
Sep-13	9,135	0.21	1.06	0.0490	0.80
Oct-13	11,002	0.21	1.06	0.0490	0.80
Nov-13	9,799	0.21	1.06	0.0490	0.80
Dec-13	11,164	0.21	1.06	0.0490	0.80
Jan-14	10,245	0.21	1.06	0.0490	0.80
Feb-14	7,600	0.21	1.06	0.0490	0.80
Mar-14	9,227	0.21	1.06	0.0490	0.80

Apr-14	9,551	0.21	1.06	0.0490	0.80
May-14	8,813	0.21	1.06	0.0490	0.80
Jun-14	8,767	0.21	1.06	0.0490	0.80
Jul-14	8,067	0.21	1.06	0.0490	0.80
Aug-14	9,329	0.21	1.06	0.0490	0.80
Sep-14	9,782	0.21	1.06	0.0490	0.80
Oct-14	11,205	0.21	1.06	0.0490	0.80
Nov-14	10,625	0.21	1.06	0.0490	0.80
Dec-14	17,591	0.21	1.06	0.0490	0.80

Month	F = A x B x C x D x E	G	H	I = (1-G) x F x H
	$MEP_{ww,treatment,y}$	CFE_{ww}	GWP_{CH4}	$PE_{fugitive,ww,y}$
	t CH_4		t CO_{2e} / t CH_4	t CO_{2e}
Aug-13	85.00	0.90	25	212.49
Sep-13	79.67	0.90	25	199.17
Oct-13	95.95	0.90	25	239.88
Nov-13	85.46	0.90	25	213.65
Dec-13	97.36	0.90	25	243.41
Jan-14	89.35	0.90	25	223.37
Feb-14	66.28	0.90	25	165.70
Mar-14	80.47	0.90	25	201.18
Apr-14	83.30	0.90	25	208.24
May-14	76.86	0.90	25	192.15
Jun-14	76.46	0.90	25	191.15
Jul-14	70.35	0.90	25	175.89
Aug-14	81.36	0.90	25	203.40
Sep-14	85.31	0.90	25	213.28
Oct-14	97.72	0.90	25	244.30
Nov-14	92.66	0.90	25	231.66
Dec-14	153.42	0.90	25	383.54

$$PE_{ww,treatment,y} = \sum_i Q_{ww,i,y} * COD_{removed,PJ,k,y} * MCF_{ww,treatment,PJ,k} * B_{o,ww} * UF_{PJ} * GWP_{CH4}$$

Where;

$Q_{ww,i,y}$	Volume of wastewater treated in baseline wastewater treatment system i in year y (m^3)
UF_{PJ}	Model correction factor to account for model uncertainties (1.06)
$COD_{removed,PJ,k,y}$	Chemical oxygen demand removed by project wastewater treatment system k in year y (tonnes/m3), measured as the difference between inflow COD and the outflow COD in system k (tonnes/m^3)
$MCF_{ww,treatment,PJ,k}$	Methane correction factor for project wastewater treatment system k (MCF values as per table III.H.1) (fraction)

Month	A	B	C	D	E	F	G = A x B x C x D x E x F / 1000000
	$Q_{ww,i,y}$	$COD_{removed,PJ,k,y}$	$MCF_{ww,treatment,PJ,k}$	$B_{o,ww}$	UF_{PJ}	GWP_{CH4}	$PE_{ww,treatment,y}$

	m^3	g/m^3		kg CH_4/kg COD	-	tCH_4/tCO_{2e}	t CO_{2e}
Aug-13	9,746	10,145	0	0.21	1.06	25	0
Sep-13	9,135	10,145	0	0.21	1.06	25	0
Oct-13	11,002	10,145	0	0.21	1.06	25	0
Nov-13	9,799	10,145	0	0.21	1.06	25	0
Dec-13	11,164	10,145	0	0.21	1.06	25	0
Jan-14	10,245	10,145	0	0.21	1.06	25	0
Feb-14	7,600	10,145	0	0.21	1.06	25	0
Mar-14	9,227	10,145	0	0.21	1.06	25	0
Apr-14	9,551	10,145	0	0.21	1.06	25	0
May-14	8,813	10,145	0	0.21	1.06	25	0
Jun-14	8,767	10,145	0	0.21	1.06	25	0
Jul-14	8,067	10,145	0	0.21	1.06	25	0
Aug-14	9,329	10,145	0	0.21	1.06	25	0
Sep-14	9,782	10,145	0	0.21	1.06	25	0
Oct-14	11,205	10,145	0	0.21	1.06	25	0
Nov-14	10,625	10,145	0	0.21	1.06	25	0
Dec-14	17,591	10,145	0	0.21	1.06	25	0

$$PE_{ww,discharge,y} = Q_{ww,y} * GWP_{CH4} * B_{o,ww} * UF_{PJ} * COD_{ww,discharge,PJ,y} * MCF_{ww,PJ,discharge}$$

Where;

$Q_{ww,y}$	Volume of treated wastewater discharged in year *y* (m^3)
UF_{PJ}	Model correction factor to account for model uncertainties (1.06)
$COD_{ww,discharge,PJ,y}$	Chemical oxygen demand of the treated wastewater discharged into sea, river or lake in the project situation in year *y* (tonnes/m^3)
$MCF_{ww,PJ,discharge}$	Methane correction factor based on discharge pathway in the project situation (e.g., into sea, river or lake) of the wastewater (fraction) (MCF values as per table III.H.1)

Month	A	B	C	D	E	F	G = A x B x C x D x E x F / 1000000
	$Q_{ww,y}$	$COD_{ww,discharge,PJ,y}$	$MCF_{ww,PJ,discharge}$	$B_{o,ww}$	UF_{PJ}	GWP_{CH4}	$PE_{ww,discharge,y}$
	m^3	g/m^3		kg CH_4/kg COD	-	tCH_4/tCO_{2e}	t CO_{2e}
Aug-13	9,746	3,456	0	0.21	1.06	25	0.00
Sep-13	9,135	3,456	0	0.21	1.06	25	0.00
Oct-13	11,002	3,456	0	0.21	1.06	25	0.00
Nov-13	9,799	3,456	0	0.21	1.06	25	0.00
Dec-13	11,164	3,456	0	0.21	1.06	25	0.00
Jan-14	10,245	3,456	0	0.21	1.06	25	0.00
Feb-14	7,600	3,456	0	0.21	1.06	25	0.00
Mar-14	9,227	3,456	0	0.21	1.06	25	0.00
Apr-14	9,551	3,456	0	0.21	1.06	25	0.00
May-14	8,813	3,456	0	0.21	1.06	25	0.00
Jun-14	8,767	3,456	0	0.21	1.06	25	0.00
Jul-14	8,067	3,456	0	0.21	1.06	25	0.00

Aug-14	9,329	3,456	0	0.21	1.06	25	0.00
Sep-14	9,782	3,456	0	0.21	1.06	25	0.00
Oct-14	11,205	3,456	0	0.21	1.06	25	0.00
Nov-14	10,625	3,456	0	0.21	1.06	25	0.00
Dec-14	17,591	3,456	0	0.21	1.06	25	0.00

Ex post project emissions (tCO_{2e}) due to incomplete flaring in year y ( ) for a closed flare with default value is determined as per the "Tool to determine project emissions from flaring gases containing methane".

$$PE_{flare,y} = \sum_{h=1}^{8760} TM_{RG,h} * (1 - \eta_{flare,h}) * \frac{GWP_{CH4}}{1000}$$

Where;

$TM_{RG,h}$ Mass flow rate of methane flared in the hour h (kg/h)

$\eta_{flare,h}$ Flare efficiency in the hour h

GWP_{CH4} Global warming potential of methane valid for the commitment period (tCO_{2e}/tCH_4)

Step 1 - 4

Step 1 – 4 of the tool mentioned above is not required, as $PE_{flare,y}$ is calculated using only $TM_{RG,h}$ ($FV_{RG,h}$ x $fv_{CH4,RG,h}$ x $\rho_{CH4,n}$) , $\eta_{flare,h}$ and GWP_{CH4}. All these parameters are monitored directly.

Step 5

$$TM_{RG,h} = FV_{RG,h} * fv_{CH4,RG,h} * \rho_{CH4,n}$$

Where;

$TM_{RG,h}$ Mass flow rate of methane flared in the hour h (kg/h)

$fv_{CH4,RG,h}$ Volumetric fraction of methane in the residual gas on dry basis in hour h (NB: this corresponds to $fv_{i,RG,h}$ where i refers to methane).

$\rho_{CH4,n}$ Density of methane at normal conditions (0.716)

Step 6

Step 6 is not applicable as methane flaring efficiency, $\eta_{flare,h}$ is fixed at 90% for closed flare (provided manufacturer's requirements are met).

Step 7

$$PE_{flare,y} = \sum_{h=1}^{8760} TM_{RG,h} * (1 - \eta_{flare,h}) * \frac{GWP_{CH4}}{1000}$$

Where;

$PE_{flare,y}$ Project emissions from flaring of the residual gas stream in year y

$TM_{RG,h}$ Mass flow rate of methane flared in the hour h (kg/h)

$\eta_{flare,h}$ Flare efficiency in the hour h

GWP_{CH4} Global warming potential of methane valid for the commitment period (tCO_{2e}/tCH_4)

The below table is a summary of the entire flare calculation, based on the ''Tool to determine project emissions from flaring gases containing methane'' ver. 01. The complete calculation can be referred on the monthly CER calculation files.

Month		*Step 5*	*Step 7*
	$FV_{RG,h}$	$TM_{RG,h}$	$PE_{flare,y}$
	Nm^3	kg/h	tCO_{2e}
Aug-13	93622	41726	186
Sep-13	137329	58869	272
Oct-13	163639	70705	523
Nov-13	163067	70373	329
Dec-13	180225	76614	229
Jan-14	147683	58804	253
Feb-14	130418	55171	175
Mar-14	146822	78843	1971
Apr-14	141689	76087	1902
May-14	142541	76545	1961
Jun-14	142361	65363	1002
Jul-14	147683	58804	259
Aug-14	211959	83194	299
Sep-14	164295	72000	247
Oct-14	144890	57509	194
Nov-14	169592	68638	264
Dec-14	165077	69101	280

As per the registered PDD;

$PE_{ww,treatment,y}$ *is '0', as* $MCF_{ww,treatment,PJ,k}$ *is '0'.*

$PE_{s,treatment,,y}$ *is '0',* $MCF_{s,treatment,l}$ *is '0'.*

$PE_{ww,discharge,y}$ *is '0', as* $MCF_{ww,PJ,discharge}$ *is '0'.*

$PE_{s,final,y}$ *is '0', as* $MCF_{s,PJ,final}$ *is '0'.*

$PE_{biomass,y} = 0$

As per section B.6.1 of the registered PDD, the ex-post emission reductions are determined as the more conservative of two options below;

(i) The amount of biogas recovered and fuelled or flared (MD_y) during the crediting period, that is monitored ex post;

(ii) Ex post calculated baseline, project and leakage emissions based on actual monitored data for the project activity.

The tables under section E.1 and E.2 of this MR provides the ex-post calculated baseline and project emissions, as per option (ii).

$$ER_{y,ex\ post} = \min((BE_{y,ex\ post} - PE_{y,ex\ post} - LE_{y,ex\ post}),$$
$$(MD_y - PE_{power,y} - PE_{biomass,y} - LE_{y,ex\ post}))$$

Where;

$ER_{y,ex\ post}$	Emission reductions achieved by the project activity based on monitored values for year y (tCO_{2e})
$BE_{y,ex\ post}$	Baseline emissions calculated as per BE_y using ex-post monitored values
$PE_{y,ex\ post}$	Project emissions calculated as per PE_y using ex-post monitored values
MD_y	Methane captured, flared ($MD_{flare,y}$) and gainfully used ($MD_{boiler,y}$) by the project activity in the year y (tCO_{2e})

As per option (i);

MD_y is measured using the conditions of the flaring process:

$$MD_y = BG_{burnt,y} * w_{CH4,y} * D_{CH4} * FE * GWP_{CH4}$$

Where;

$BG_{burnt,y}$	Biogas flared and combusted in year y (m^3)
$w_{CH4,y}$	Methane content in the biogas in the year y (mass fraction)
D_{CH4}	Density of methane at the temperature and pressure of the biogas in the year y ($tonnes/m^3$)
FE	Flare efficiency in year y (fraction)

The below table summarizes the value for MD_y, which is an accumulation of $MD_{boiler,y}$ and $MD_{flare,y}$. MDy cannot be calculated directly as methane gas channeled to the flare is considered flared, only if the flare temperature is more than 500°C; recorded as $MD_{flare,y}$. $MD_{boiler,y}$ is the value for methane captured and gainfully used (100% combustion efficiency) in the boiler. The detailed calculations, based on the formula above, can be referred to the monthly emission reductions calculations.

Month	A	B	C = A + B
	$MD_{boiler,y}$	$MD_{flare,y}$	MD_y
	tCO_{2e}	tCO_{2e}	tCO_{2e}
Aug-13	931.60	856.58	1788.18
Sep-13	1085.63	1199.25	2284.88
Oct-13	1322.75	1234.25	2557.00
Nov-13	1319.65	1425.81	2745.46
Dec-13	1360.32	1685.71	3046.03
Jan-14	1165.23	1592.49	2757.72
Feb-14	943.44	1204.23	2147.67
Mar-14	1069.38	0.00	1069.38
Apr-14	1124.85	0.00	1124.85
May-14	939.39	0.00	915.90
Jun-14	966.35	654.97	1580.78
Jul-14	643.16	1213.98	1810.70
Aug-14	47.45	1781.96	1783.68
Sep-14	323.77	1190.61	1476.52
Oct-14	1193.23	1232.41	2365.00
Nov-14	826.38	1389.80	2160.78
Dec-14	1017.56	1310.63	2269.99

Month	A	B	C	D	E = A - B - C - D
	MD_y	$PE_{power,y}$	$PE_{biomass,y}$	$LE_{y,ex\ post}$	$ER_{y,ex\ post}$
	tCO_{2e}	tCO_{2e}	tCO_{2e}	tCO_{2e}	tCO_{2e}
01/08/2013 – 31/12/2014	33,884	227	0	0	33,657

Option (i) of the $ER_{y,ex\ post}$ calculations is less conservative (33,657 tCO_{2e}). Hence, option (ii) calculations, using baseline, project and leakage emissions based on actual monitored data, is reported as the final $ER_{y,ex\ post}$ value under section E.4 and E.5.

E.3. Calculation of leakage

Not applicable. The technology and machinery for the project activity is not transferred from another activity and thus no leakage is considered to take place.

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO_2e)	Project emissions or actual net GHG removals by sinks (t CO_2e)	Leakage (t CO_2e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO_2e)
Total	34,093	14,317	0	19,776

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO_2e)	20,274[5]	19,776

If the PDD ER values are pro-rated accordingly to 17 months (as per sheet 'Comparison' in the main ER file) the PDD value will be 20,274 tCO_{2e}. The total emission reductions achieved by the project activity over the 17 months monitoring period is 19,776 tCO_{2e}. Compared against the pro-rated PDD value, the actual value is lower by 2.46%[6].

[5] The PDD values for years 2013 – 2014 have been pro-rated accordingly.

[6] Refer to sheet 'Comparison' of the ER calculation file for the values.

E.6. Remarks on difference from estimated value in registered PDD

The reason for the decrease of 2.46% compared to the projected emission reductions in the PDD is mainly due to the factor below;

a) Higher project emissions
The project activity was registered with project emissions value of 2,361 tCO_{2e} for the years 2013 and 2014. If these values are pro-rated to 17 months (as per the monitoring period) the value should be 3,345 tCO_{2e}. Nevertheless, the actual project emission for this monitoring period is 14,317 $tCO_{2e;}$ higher by 10,972 $tCO_{2e,}$ which is the main contributor to the decrease in overall emission reductions.

As described above, the difference in emission reductions between the PDD and actual monitored values can be reasonably explained.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO_2e)	-	19,776

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Appendix 1. Contact information of project participants and responsible persons/ entities

Project participant and/or responsible person/ entity	☒ Project participant ☐ Responsible person/ entity for completing the CDM-MR-FORM
Organization name	Danish Energy Agency, Ministry of Climate and Energy
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Document information

Version	Date	Description
04.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from *F-CDM-MR* to *CDM-MR-FORM*; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.

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