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Validation Report

(including Validation Opinion)

ESTRE Ambiental S.A.

**VALIDATION OF THE REVISED MONITORING PLAN OF:
ESTRE's Paulinia Landfill Gas Project (EPLGP)
UNFCCC 0165-CDMP**

Report No. 600500492

10 September 2010

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
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Subject: Validation of a Revised Monitoring Plan	
Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 - 80686 Munich Federal Republic of Germany	TÜV SÜD Contract Partner: TÜV SÜD Industrie Service GmbH Caron Management Service Westendstr. 199 - 80686 Munich Federal Republic of Germany
Client: ESTRE Ambiental S.A. Av. Presidente Juscelino Kubitschek, nº 1.830, torre IV, 4º andar, sala 11, São Paulo Brazil	Project Site(s): Estrada Municipal PLN 190 S/N, Bairro: Parque da Represa ZIP 13140-000, Paulínia, Brazil GPS coordinates (biogas unit): Latitude -22.773506° Longitude -47.196161°
Project Title: ESTRE's Paulinia Landfill Gas Project (EPLGP)	
Applied Methodology / Version: AM0003, version 3	Scope(s): 13 Technical area(s): 13.1
Registered PDD date/version: 04-12-2005 / 2B Registration Date: 03-03-2006 Crediting Period: 14-09-2006 to 13-09-2013 (changed from: 01-05-2006 to 30-04-2013)	Revised Monitoring Plan: Date of issuance: 26-08-2010
Assessment Team Leader: Johann Thaler Assessment Team Members: --- Trainees: ---	Technical Reviewer: Thomas Kleiser Madhuri Nanda Certification Body Responsible: Thomas Kleiser
Summary of the Validation Opinion: ☒ The review of the revised monitoring plan and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. In our opinion, the revised monitoring plan meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the replacement of the previously revised monitoring plan (dated 09-02-2009 and approved on 25-04-2009) by the submitted revision. ☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the replacement of the monitoring plan of registered PDD.	

Abbreviations

ACM	Approved Consolidated Methodology
AM	Approved Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CR	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission reduction
ESTRE	ESTRE Ambiental S.A.
FAR	Forward Action Request
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

Main Documents (referred to in this report)

Methodology	AM0003, version 3
Other used Methodologies/Tools	---
Scope	13
Technical Area	13.1
Registered PDD:	http://cdm.unfccc.int/UserManagement/FileStorage/6I2C4P6SC4MJUKXQC2STV3HKNBQZPF
Previously revised monitoring plan: (dated 09-02-2009 and approved on 25-04-2009)	http://cdm.unfccc.int/UserManagement/FileStorage/2DRU0946JKVZIOXNFH3C7W1BP5MATL
UNFCCC weblink (Project documentation link):	http://cdm.unfccc.int/Projects/DB/DNV-CUK1134989999.25/view

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1 INTRODUCTION

1.1 Objective

The validation objective is an independent assessment by a Third Party (Designated Operational Entity = DOE) of a proposed revision of a monitoring plan against all defined criteria set for the registration under the Clean Development Mechanism (CDM). Validation is required in the context of proposed revisions of a registered CDM activity and will finally result in a conclusion by the executing DOE whether a revised monitoring plan is valid and should be submitted for replacing the previous version. The ultimate decision on the registration of a proposed revision rests at the CDM Executive Board.

The project activity discussed by this validation report is registered as CDM activity N° 0165 with the project title:

ESTRE's Paulinia Landfill Gas Project (EPLGP)

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. The core requirements on revised monitoring plans are given by annex 12 of the report of EB-31 as referred below:

15. The request for revising monitoring plan is made in cases where:

- a. the monitoring plan in the registered CDM project activity document is found not to be consistent with the approved monitoring methodology applied to the registered project activity; or,*
- b. the proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced as a result of the revision;*

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

2 METHODOLOGY

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual, an initiative of Designated and Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy". The composition of an assessment team has to be approved by the Certification Body ensuring that the required skills are covered by the team. The Certification Body TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Ø Assessment Team Leader (ATL)
- Ø Greenhouse Gas Validator/Verifier (GHG-Val/GHG-Ver)
- Ø Greenhouse Gas Validator/Verifier Trainee (GHG-Val-T/GHG-Ver-T)
- Ø Experts (E)

It is required that the technical area(s), sectoral scope(s) and relevant host country experience has to be covered by the assessment team.

The validation team was consisting of the following member:

Name	Qualification	Coverage of sectoral scope	Coverage of technical area	Host country experience
Johann Thaler	ATL/GHG-Val/GHG-Ver	p	p	p

Johann Thaler graduated as Master of environmental Economy at the University of Augsburg. During his study he got first experiences in environmental management systems. His master thesis was about a fuel switch program in Brazil as a CDM project. Based in Brazil he has been working for TÜV SÜD as a GHG auditor on freelance basis since March 2005. He attended and successfully finished a ISO 14001 Environmental Management Internal Auditing Training.

2.2 Review of Documents

The revised Monitoring Plan submitted by the client and additional background documents related to further monitoring aspects were reviewed as initial step of the validation process.

2.3 Follow-up Interviews

According and as a result of the document review, TÜV SÜD discussed with the project participants the revised monitoring plan by Email and telephone conversation during August 2010.

2.4 Internal Quality Control

As final step of a validation, the validation report has to undergo an internal quality control procedure by the Certification Body "climate and energy", i.e. each report has to be approved either by the head of the certification body or his deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

It rests at the decision of TÜV SÜD's Certification Body whether a revised monitoring plan will be submitted for approval by the EB or not.

3 SUMMARY OF FINDINGS

The revised monitoring plan dated 09-02-2009 and validated by TÜEV SÜD (validation report N° 600500224, dated 26/02/2009, revision No. 1) is being revised due to the following reasons:

From 01/03/2010 the amount of landfill gas to flares is monitored by a new gas flow meter expressing LFG volumes in normalized cubic meters. Thus, the parameters "Temperature of the landfill gas" (ID 7) and "Pressure of the landfill gas" (ID 8) are taken out from the monitoring plan (chapters D.2.2.1. and Annex 4) and the data unit of the parameter "Amount of landfill gas to flares" is changed to Nm³ (instead of m³ before). The comment of the parameter "Amount of landfill gas to flares" in the monitoring plan indicates now that "normal cubic meters represent the gas volume in cubic meters at standard conditions (0° C and 1.013 bar). Even though the applied methodology AM0003, version 3 does not explicitly mention that "no separate monitoring of pressure and temperature is necessary when using flow meters that automatically measure temperature and pressure, expressing LFG volumes in normalized cubic meters", the consolidated methodology ACM0001, version 11 as the most recent version at the time of validation indicates the same explicitly.

The validation team received the instruments' manuals of flow meter and measuring computer and a clarifying explanation from BIOTECNOGAS (responsible company for the assembly of the instruments) about the measurement principle of the new gas flow meter and conversion principle of the measuring computer. The validation team verified and can confirm that input signals from the gas flow meter together with the input signals from the pressure transmitter and temperature sensor are sent to the measuring computer, which converts the gas flow to Nm³ and sends it finally to the PLC (Programmable Logic Controller).

The DOE ensures due to its sectoral and local expertise that the change does not compromise the conservativeness in the monitoring and verification process and of the emission reduction calculations.

Further minor changes consist of the following:

- Change of the data unit of parameters "Total amount of electricity used for gas pumping from the grid" (ID 3.1) and "Total amount of electricity used for gas pumping from the diesel fuelled generator" to MWh (instead of kWh). Even though the applied methodology indicates kWh, PPs changed to MWh as measurements and recordings are indeed made in MWh. The change of the data unit has no impact on the emission reduction calculations, once the conversion from MWh to kWh is clearly defined by the factor 1,000 and recordings in MWh are made with 3 decimals.

- Inclusion of the parameters "Total amount of electricity used for gas pumping from the grid" and "Total amount of electricity used for gas pumping from the diesel fuelled generator" have been added in Annex 4. This is just a formal complement as both parameters were already mentioned in the previous monitoring plan in chapter D.2.3.1.

TÜV SÜD considers the revised monitoring plan as acceptable and reasonable. The monitoring plan reflects the reality and is in compliance with AM0003, version 3.

4 VALIDATION OPINION

TÜV SÜD has performed a validation of the revised Monitoring Plan of CDM Project 0165:

ESTRE's Paulinia Landfill Gas Project (EPLGP)

The review of the revised monitoring plan and the subsequent follow-up interviews has provided TÜV SÜD with sufficient evidence to determine the fulfillment of all stated criteria. In our opinion, the revised monitoring plan meets all relevant UNFCCC requirements for the CDM.

It can be confirmed that:

- a. the level of accuracy and completeness in the monitoring and verification process is not reduced as a result of the revision, also can be confirmed that the proposed revision is in accordance to the project activity.
- b. the proposed revision of the monitoring plan is in accordance with the approved monitoring methodology applicable to the project activity. As already mentioned in chapter 3, the applied methodology does not explicitly mention that "no separate monitoring of pressure and temperature is necessary when using flow meters that automatically measure temperature and pressure, expressing LFG volumes in normalized cubic meters", however the consolidated methodology ACM0001, version 11 as the most recent version at the time of validation indicates the same explicitly.
- c. the findings of previous verification reports have been taken into account.

Hence TÜV SÜD recommends the replacement of the previously revised monitoring plan (dated 09-02-2009 and approved on 25-04-2009) by the submitted revision.

Munich, 10-09-2010



Thomas Kleiser
Head of the Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH

Fortaleza, 10-09-2010



Johann Thaler
Assessment Team Leader