VALIDATION REPORT

"ESTRE'S PAULÍNIA LANDFILL GAS PROJECT (EPLGP)" IN BRAZIL

REPORT NO. 2005-0105

REVISION NO. 03

DET NORSKE VERITAS

VALIDATION REPORT

Date of first issue: 2005-01-05	Project No.: 28624550 (12)
Approved by: Einar Telnes Technical Director	Organisational unit: DNV Certification, International Climate Change Services
Client: ESTRE – Empresa de Saneamento e Tratamento de Resíduos Ltda.	Client ref.: Alex Schlosser

DET NORSKE VERITAS AS

DNV Certification

Veritasveien 1,
1322 HØVIK, Norway
Tel: +47 67 57 99 00
Fax: +47 67 57 99 11
http://www.dnv.com
Org. No: NO 945 748 931 MVA

Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "ESTRE's Paulínia Landfill Gas Project (EPLGP)" (hereafter called "the project") in Brazil, on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, criteria the CDM modalities and the subsequent decisions by the CDM Executive Board.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan, ii) follow-up interviews with project stakeholders and iii) the resolution of outstanding issues and the issuance of the final validation report and opinion. This validation report summarizes the findings of the validation.

In summary, the "ESTRE's Paulínia Landfill Gas Project (EPLGP)" as described in the revised PDD of April 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology AM0003. Hence, DNV will request the registration of the "ESTRE's Paulínia Landfill Gas Project (EPLGP)" as CDM project activity. Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil, including confirmation that the project assists in achieving sustainable development.

Report No.: 2005-0105	Subject Group: Environment	
Report title: "ESTRE's Paulínia Landfill Gas Project (EPLGP)" in Brazil		
Work carried out by: Alexandre Ribeiro Valle, Luis Filipe Tavares		
Work verified by: Michael Lehmann		
Date of this revision: 2005-07-11	Rev. No.: 03	Number of pages: 1

Indexing terms

Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism	Service Area Verification Market Sector Process Industry

☒ No distribution without permission from the client or responsible organisational unit

☐ free distribution within DNV after 3 years

☐ Strictly confidential

☐ Unrestricted distribution

Table of Content *Page*

Abbreviations

ANEEL	Agência Nacional de Energia Elétrica (Brazilian Electricity Regulatory Agency)
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CETESB	Environmental Sao Paulo State Agency
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
EPLGP	ESTRE's Paulínia Landfill Gas Project
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LFG	Landfill Gas
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
ONS	Operador Nacional do Sistema Elétrico (National Electric System Operator)
PDD	Project Design Document
S-SE-CO	South-Southeast-Midwest (one of two regional grids in Brazil)
UNFCCC	United Nations Framework Convention for Climate Change

1 INTRODUCTION

Empresa de Saneamento e Tratamento de Resíduos Ltda. (ESTRE) and Econergy Brasil have commissioned Det Norske Veritas Certification Ltd. (DNV) to validate the "ESTRE's Paulínia Landfill Gas Project (EPLGP)" in Paulínia Municipality; São Paulo State, Brazil.

This report summarises the findings of the validation of the project, performed on the basis of UNFCCC and host Party criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consisted of the following personnel:

Mr Alexandre Ribeiro Valle	DNV Belo Horizonte	Team leader, CDM auditor
Mrs Susanne Haefeli	DNV Oslo	CDM auditor
Mr Luis Filipe Tavares	DNV Rio de Janeiro	Waste management sector expert
Mr Michael Lehmann	DNV Oslo	Technical reviewer

1.1 Validation Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against Kyoto Protocol criteria for the CDM, the CDM rules and modalities as agreed in the Marrakech Accords and relevant decisions by the CDM Executive Board. The validation team has employed, based on the recommendations in the Validation and Verification Manual /6/ a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

1.3 "ESTRE's Paulínia Landfill Gas Project"

The ESTRE Paulínia landfill started operation in May 2000. The landfill area is 705 000 m^2 and the capacity is 6.5 million tons of waste. At present the landfill gas is collected only through a passive system, with no systematic and monitored flaring of methane.

The aim of the "ESTRE's Paulínia Landfill Gas Project" is to enhance the already operational passive venting system, in order to increase the efficiency in collecting the gas and to flare it systematically, continuously monitoring the operation. The project's core idea is to avoid methane emissions from the landfill managed by ESTRE in the Paulínia municipality. Emission

reductions are claimed from the landfill gas captured by an active gas recovery system installed on the landfill, and burnt by a flare.

The estimated amount of GHG emission reductions from the project is 1 487 775 tCO_2e during the first crediting period (7 years), resulting in estimated average annual emission reductions of 212 539 tCO_2e.

2 METHODOLOGY

The validation consisted of the following three phases:

I a desk review of the project design and the baseline and monitoring methodology;
II follow-up interviews with project stakeholders;
III the resolution of outstanding issues and the issuance of the final validation report and opinion.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /6/. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.

The completed validation protocol for the "ESTRE's Paulínia Landfill Gas Project (EPLGP)" is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of validation criteria or where a risk to the fulfilment of project objectives is identified. *Corrective Action Requests* (CAR) are issued, where:

i) mistakes have been made with a direct influence on project results;
ii) CDM or host Party requirements have not been met; or
iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term *Clarification* may be used where additional information is needed to fully clarify an issue.

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
Requirement	***Reference***	***Conclusion***	***Cross reference***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements or a request for **Clarification (CL)** where further clarifications are needed.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.*

Validation Protocol Table 2: Requirement Checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	*Gives reference to documents where the answer to the checklist question or item is found.*	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below).A request for **Clarification (CL)** is used when the validation team has identified a need for further clarification.*

Validation Protocol Table 3: Resolution of Corrective Action Requests and Requests for Clarification			
Draft report corrective action requests and requests for clarifications	***Ref. to Table 2***	***Summary of project participants' response***	***Final conclusion***
If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	*Reference to the checklist question number in Table 2 where the Corrective Action Request or Clarification Request is explained.*	*The responses given by the project participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1 Validation protocol tables

2.1 Review of Documents

The PDD /1/submitted by ESTRE and Econergy in August 2004 was reviewed by DNV. After initial validation findings were identified and communicated to ESTRE and Econergy, a revised version of the PDD /2/ was submitted in December 2004 addressing DNV's initial validation findings. This version of the PDD was published by DNV for stakeholder comments. Eventually, a final revised version of the PDD /3/ was submitted in April 2005 and was reviewed by DNV.

Other documents, such as the Environmental Impact Assessment, the Environmental Licences and licence requirements, were reviewed during the site visit in order to assure the accuracy of relevant information.

2.2 Follow-up Interviews

On 7 December 2004 DNV performed interviews with Econergy and ESTRE during a site visit at the ESTRE Landfill at Paulínia, São Paulo State, to confirm and to resolve issues identified during the document review.

The main topics of the interviews were:

- Management System
  - authority and responsibilities
  - training
  - maintenance
  - monitoring, measurement and calibration of monitoring equipment
  - emergency preparedness
  - records maintenance
  - internal audits
  - corrective actions
- Environmental or social benefits created by the GHG emission reduction project
- Environmental aspect control
- Environmental licenses.

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve any outstanding issues which needed to be clarified for DNV's positive conclusion on the project design.

The initial validation has identified 2 *Corrective Action Requests* and 6 requests for *Clarification.* These *Corrective Action Requests* and requests for *Clarification* were discussed during the site visit on 7 December 2004. In order to respond to these requests, ESTRE and Econergy submitted a revised version of the PDD /3/. The revised PDD and responses provided by ESTRE and Econergy addressed the *Corrective Action Request* and request for *Clarification* to DNV's satisfaction. To guarantee the transparency of the validation process, the concerns raised and responses given are documented in more detail in Table 3 of the validation protocol in Appendix A.

3 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The validation findings relate to the project design as documented and described in the PDD of April 2005 /3/

3.1 Participation Requirements

The project participant is ESTRE (Empresa de Saneamento e Tratamento de Resíduos). The host Party Brazil meets all relevant participation requirements. No Annex I Party is yet identified.

3.2 Project Design

The aim of the project is to enhance the already operational passive venting system in order to increase the efficiency of gas collection and flare it systematically, and continuously monitoring the operations. For this purpose, an active recovery system as well as a flare facility will be installed in the landfill. This comprises connecting well heads through pipes, which are connected to a blower, where the gas is sent to the flare.

The technology employed at the Paulínia landfill comprises the following components:

- A high-density polyethylene membrane impermeable layer,
- Leachate drainage system using high-density polyethylene pipes,
- Landfill gas passive collection system,
- Rain water drainage system,
- Solid waste admission control,
- Enclosed sites,
- Green belt,
- Revegetation practices,
- Fauna, flora, surface and underground water monitoring, and
- Liquid and gas effluents monitoring.

The project has several positive impacts towards sustainable development:

- it is reducing methane emissions that would enhance climate change;
- it is minimizing the risk that any explosions happen in the site;
- the project applies technology that is not yet widely applied in Brazil, resulting in a technology transfer;
- specialized operators will be needed for project operation, resulting in employment and capacity-building.

The project complies with the Brazilian policy for sustainable development.

The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.

The expected operational lifetime of the ESTRE's Paulínia Landfill Gas Project (EPLGP) is 21 years and the project applies for a renewable crediting period of 7 years starting on 01 January 2006.

3.3 Project Baseline and Additionality

The project applies the approved baseline methodology AM0003 – "*Simplified Financial Analysis for Landfill Gas Capture Projects*" /7/. This methodology is applicable to project activities that reduce greenhouse gas emissions through landfill gas capture and destruction of the methane by flaring and/or generation of electricity. In the case of ESTRE's Paulínia Landfill Gas Project, such destruction will occur through flaring only.

In accordance with AM0003, the additionality of ESTRE's Paulínia Landfill Gas Project is demonstrated through the following four steps:

1. There is no legislation in Brazil obliging landfills to flare the collected gas. Under non-CDM conditions, ESTRE would not make the necessary investments to increase collection efficiency and flare the gas systematically under continuously monitoring, since there would be no financial benefit from such an investment.
2. The project IRR is zero, since no sort of income is expected from installing the infra-structure for actively collecting the gas and flaring it. The project will go ahead if, and only if, there are CERs revenues in place.
3. The project is not attractive from the investors' standpoint. The project is therefore not economically attractive and the continuation of today's situation is the most likely baseline scenario.
4. The possible future legislation that requires landfills to quantify and flare a certain amount of the gas produced is not likely to happen in the near term when considering the waste disposition situation in Brazil. Today only about 14 % of the total waste generated is destined to sanitary landfill. A major environmental problem related to domestic waste in Brazil is the lack of waste disposal in sanitary landfills.

Considering that currently landfill gas is only collected by a passive system and occasionally burnt and that no future legislation requiring landfill gas collection and flaring is expected, the selected default effectiveness adjustment factor of 20%, i.e. assuming that 20% of the landfill gas recovered and flared in the project would also be recovered and flared in the baseline scenario, is appropriate. This effectiveness adjustment factor will need to be reviewed upon renewal of the crediting period.

3.4 Monitoring Plan

The ESTRE's Paulínia Landfill Gas Project correctly applies the approved monitoring methodology AM0003 – "*Simplified Financial Analysis for Landfill Gas Capture Projects*" /8/.

Details of the data to be collected, the frequency of data recording, its certainty, and format and storage location are described. The recording frequency of the data seems appropriate for the project. Algorithms and formulae used have also been clearly established.

The Quality Control and Quality Assurance datasheet identifies several monitoring routines, including auditing, corrective actions and data review procedures. It must also be noted that ESTRE has ISO 14001 certification.

3.5 Calculation of GHG Emissions

Emission reductions are directly monitored and calculated, using the approach of AM0003.

The calculation assures conservativeness by using an Effectiveness Adjustment Factor of 20% and an 80 % landfill gas collection efficiency. The presented emission reductions are consistent and reliable.

3.6 Leakage

Leakage effects that need to be considered according to AM0003 are potential GHG emissions from electricity consumption (kWh) that will be used to operate the landfill gas collection equipment.

Leakage will be determined through monitoring the consumption of electricity and an electricity emission coefficient. The selected emission coefficient is 0.274 tCO_2e/MWh. This emission coefficient for grid electricity is the average of the adjusted operating margin and the build margin calculated in accordance with AM00015 based on information provided by the Brazilian Electricity Agency (ANEEL) and National Electricity System Operator (ONS) on electricity generation in the S-SE-CO grid in the years 2001-2003. The emission coefficient calculations were transparently presented in a spreadsheet submitted to DNV and verified by DNV.

The flaring facility is estimated to need around 3,000 MWh/year. This results in an estimated leakage of 822 $tCO2_e$/year.

3.7 Environmental Impacts

ESTRE´s landfill has an Environmental Licence which was issued after the project's Environmental Impact Assessment was evaluated by the Environmental Agency.

The environmental Licences and the fulfilment of conditional clauses have been verified during the site visit.

We observed that the project has not yet obtained a licence for flaring landfill gas and that such a licence must be applied for when the project is implemented. Given that the flaring of landfill gas has little adverse environmental impacts, it is likely that the licence will be obtained when the project is implemented. The first period verification of the project must verify that this licence was eventually obtained.

3.8 Comments by Local Stakeholders

Local stakeholders were invited to comment on the project in accordance with the requirements of Resolution 1 of the Brazilian DNA. Comments by local stakeholders, such as the Municipal Government, the state and municipal agencies, the Brazilian forum of NGOs, neighbouring communities and the office of the attorney general, were invited. The letters sent to the local stakeholders /5/ were verified during site visit. No comments were received until the end of the consultation period.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

DNV Certification published the PDD of December 2004 on the DNV Climate Change web site (http://www.dnv.com/certification/ClimateChange) and stakeholders were through the UNFCCC CDM web site invited to provide comments within a 30 days period from 24 December 2004 to 23 January 2005. No comments were received.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV Certification) has performed a validation of the "ESTRE's Paulínia Landfill Gas Project" at Paulinia, São Paulo State, Brazil (hereafter called "the project"). The validation was performed on the basis of UNFCCC criteria for CDM project activities and relevant Brazilian criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project participant is ESTRE. The host Party Brazil meets all relevant participation requirements. No Annex I Party is yet identified.

The project proposes to collect and combust or flare landfill gas (LFG) captured at the ESTRE Paulinia Landfill. By flaring LFG, the project results in the reduction of CH_4 emissions that is real, measurable and gives long-term benefits and that is additional to what would have occurred in the absence of the project. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.

The project is not expected to have considerable environmental impacts. ESTRE´s landfill has an Environmental Licence. The Environmental License for LFG recovery and flaring has not yet been obtained. Given that the flaring of landfill gas has little adverse or no different environmental impacts, it is likely that the licence will be obtained when the project is implemented. The first period verification of the project must verify that this licence was eventually obtained.

The project applies the approved baseline and monitoring methodology AM0003, i.e. "Simplified financial analysis for landfill gas capture projects". The baseline methodology has been applied correctly and the assumptions made for the selected baseline scenario are sound. It is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions attributable to the project are additional to any that would occur in the absence of the project activity.

The monitoring plan sufficiently specifies the monitoring requirements of the main project indicators.

Local stakeholder comments were invited according to the Brazilian DNA Resolution 1 and Parties, stakeholders and NGOs were invited to comment on the validation requirements. No comments have been received.

In summary, it is DNV's opinion that the "ESTRE's Paulínia Landfill Gas Project (EPLGP)" as described in the revised and resubmitted project design document of April 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology for AM0003 CDM project activities. Hence, DNV will request the registration of the "ESTRE's Paulínia Landfill Gas Project (EPLGP)" as CDM project activity.

Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil, including confirmation that the project assists in achieving sustainable development.

REFERENCES

Documents provided by the project participants that relate directly to the project:

/1/ Econergy: *Project Design Document for the "ESTRE's Paulínia Landfill Gas Project (EPLGP)"*. August 2004.

/2/ Econergy: *Project Design Document for the "ESTRE's Paulínia Landfill Gas Project (EPLGP)"*. December 2004.

/3/ Econergy: *Project Design Document for the "ESTRE's Paulínia Landfill Gas Project (EPLGP)"*. April 2005.

/4/ ESTRE: *Environment Management System (ISO 14001) procedures, documents and records*.

/5/ Letters for local stakeholders

Background documents related to the design and/or methodologies employed in the design or other reference documents:

/6/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/7/ Approved Baseline Methodology AM0003: *Simplified Financial Analysis for Landfill Gas Capture Projects.* Version 01 of 12 January 2004.

/8/ Approved Monitoring Methodology AM0003: *Simplified Financial Analysis for Landfill Gas Capture Projects* Version 01 of 12 January 2004.

Persons interviewed during the validation, or persons contributed with other information that are not included in the documents listed above:

/9/ Alex Schlosser (ESTRE)

/10/ Helvécio Borges Guimarães (Econergy)

- o0o -

APPENDIX A

CDM VALIDATION PROTOCOL

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities

REQUIREMENT	Reference	Conclusion	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	OK	Table 2, Section E.4. No Annex I party has yet been identified
2. The projec shall assist non-Annex I Parties in achieving sustainable development and the project shall have obtained confirmation by the host country that the project assists in achieving sustainable development	Kyoto Protocol Art. 12.2, Marrakesh Accords, CDM Modalities §40a	-	Table 2, Section A.3 Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written confirmation by the DNA of Brazil that the project assists in achieving sustainable development.
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	OK	Table 2, Section E.4
4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a	-	Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of the participating Party.
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, Section E
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, Marrakesh Accords, CDM Modalities §43	OK	Table 2, Section B.2
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords	OK	The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.

REQUIREMENT	Reference	Conclusion	Cross Reference / Comment
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Accords, CDM Modalities §29	OK	The Brazilian designated national authority for the CDM is the Comissão Interministerial de Mudança Global do Clima
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §30	OK	Brazil has ratified the Kyoto Protocol on 23 August 2002
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	Not applicable	No participating Annex I Party
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	Not applicable	No participating Annex I Party
12. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	Marrakech Accords, CDM Modalities §37b	OK	Table 2, Section G
13. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	Marrakech Accords, CDM Modalities §37c	Licence for landfill is OK. Licence for LFG recovery and flaring not yet received.	Table 2, Section F *Environmental Licence for LFG recovery and flaring will need to be verified during the first periodic verification.*
14. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel	Marrakech Accords, CDM Modalities §37e	OK	Table 2, Section B.1.1 and D.1.1.
15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	Marrakech Accords, CDM Modalities §37f	OK	Table 2, Section D

REQUIREMENT	Reference	Conclusion	Cross Reference / Comment
16. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	OK	The PDD was published for public comments in the period 24 December 2004 to 23 January 2005 on www.dnv.com/Climatechange and comments were invited via the UNFCCC CDM website. No comments were received.
17. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, CDM Modalities, §45c,d	OK	Table 2, Section B.2
18. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, CDM Modalities, §47	Not Applicable	Table 2, Section B.2
- The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	OK	PDD is in accordance with CDM-PDD (version 02 of 1 July 2004).

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project Activity *The project design is assessed.*					
A.1. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	/1//2/ /3/	DR	The ESTRE's Paulínia Landfill is located in the municipality of Paulínia, around 130 km north of São Paulo city. However, the project's boundaries are not clear because there are several ESTRE's services and landfills mentioned (PDD-A.3.1). Hence it is not possible to identify the activities developed for the Paulínia site.	~~CL 1~~	OK
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/1//2/ /3/	DR	The project system's boundaries are limited to the geographic area of ESTRE site and include a landfill gas capture and flaring system.		OK
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A.2.1. Does the project design engineering reflect current good practices?	/1//2/ /3/	DR	The project design engineering reflects good practice through the use of the top and bottom cover landfill, and a land fill gas recovery and flaring system.		OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1//2/ /3/	DR	Yes, common practice in Brazil is a sanitary landfill without landfill gas treatment and LFG flaring only for safety reasons.		OK
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1//2/ /3/	DR	The project is unlikely to be substituted by other more efficient technologies.		OK
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	/1//2/ /3/	DR	The project will require minimal additional training for project operation and maintenance.		OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
A.3. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	/1//2/ /3/9/ 10	DR I	Licence for landfill is OK. Licence for LFG recovery and flaring - not yet issued.	~~CAR 1~~	OK
A.3.2. Is the project in line with host-country specific CDM requirements?	/5/9/ 10	DR I	The results of the stakeholders' consultation according to Resolution 1 of "Interministerial" Committee for Climate Change" have not been provided.	~~CAR 2~~	OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1//2/ /3/	DR	2004-08-13: The project is in line with current sustainable development priorities in Brazil.		OK
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/1//2/ /3/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	/1//2/ /3/	DR	The project applies the approved baseline methodology		OK
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1//2/ /3/	DR	Yes, the project fulfils the conditions under which AM 0003 / Version 01.		OK
B.2. Baseline Determination *The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.*					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	/1//2/ /3/	DR	Yes, the arguments which are presented demonstrate that the project's establishment is in compliance with the chosen baseline methodology.		OK
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1//2/ /3/	DR	Yes, the baseline considers the Effectiveness Adjustment Factor - EAF of 20 % as established in the baseline methodology AM0003 / Version 01		OK
B.2.3. Has the baseline been established on a project-specific basis?	/1//2/ /3/	DR	Yes, the baseline methodology used has already been approved by the CDM Executive board and is applicable to this project, and results in an applicable		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			baseline.		
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1//2/ /3/	DR	Yes, the baseline methodology comprises the four steps determined in approved methodology - AM 0003, including relevant information review as environment legislation, financial considerations and host country policies.		OK
B.2.5. Is the baseline determination compatible with the available data?	/1//2/ /3/	DR	Yes, but the project proponent has made a mistake in the application of Effectiveness Adjustment Factor (EAF= 20%) in the formula used to estimate the GHG emissions of the baseline (E.4-PDD). See comments in section E.3.		OK
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	/1//2/ /3/	DR	Yes, the chosen baseline is a result of the applied methodology and the selected project baseline presents a clear result of this.		OK
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario (e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project activity or (d) an indication that the project type is not common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?	/1//2/ /3/	DR	Yes, In accordance with AM003, the additionality of ESTRE's Paulínia Landfill Gas Project is demonstrated through the following four steps: 1- There is no legislation in Brazil obliging landfills to flare the collected gas. Under non-CDM conditions, ESTRE would not make the necessary investments to increase collection efficiency and flare the gas systematically under continuously monitoring, since there would be no financial benefit from such an investment. 2- The project IRR is zero, since no sort of		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			income is expected from installing the infra-structure for actively collecting the gas and flaring it. The project will go ahead if, and only if, there are CERs revenues in place. 3- The project is not attractive from the investors' standpoint. The project is therefore not economically attractive and the continuation of today's situation is the most likely baseline scenario. 4- The possible future legislation that requires landfills to quantify and flare a certain amount of the gas produced is not likely to happen in the near term when considering the waste disposition situation in Brazil. Today only about 14 % of the total waste generated is destined to sanitary landfill. A major environmental problem related to domestic waste in Brazil is the lack of waste disposal in sanitary landfills. Given the above barrier it is sufficiently demonstrated that the project would not have been implemented without the prospect to receive revenue from the selling of CERs.		
B.2.8. Have the major risks to the baseline been identified?	/1//2/ /3/9/ 10	DR I	No risks to the baseline was foreseen or explained. This is reasonable.	~~CL 3~~	OK
B.2.9. Is all literature and sources clearly referenced?	/1//2/ /3/	DR	Not all. The source of emission factor (tCO2/KWh) which is necessary to calculate	~~CL 4~~	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			the leakage was not identified.		
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	/1//2/ /3/	DR	Yes, the project start date is 2006-01-01 with an expected operation lifetime of 21 years.		OK
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	/1//2/ /3/	DR	7 years crediting period starting 2006-01-01 has been chosen with the potential for renewal of this twice.		OK
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).*					
D.1. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
D.1.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	/1//2/ /3/	DR	The project applies the approved monitoring methodology called "Simplified financial analysis for landfill gas capture projects" (AM0003 / Version 01).		OK
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/1//2/ /3/	DR	Yes, the GHG emissions reductions will be obtained through direct measurement according to approved monitoring methodology (AM0003 / Version 01).		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1//2/ /3/	DR	The project applies the approved monitoring methodology called "Simplified financial analysis for landfill gas capture projects" (AM0003 / Version 01).		OK
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/1//2/ /3/	DR	Yes.		OK
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1//2/ /3/	DR	The project applies the approved monitoring methodology called "Simplified financial analysis for landfill gas capture projects" (AM0003 / Version 01).		OK
D.2.2. Are the choices of project GHG indicators reasonable?	/1//2/ /3/	DR	Yes		OK
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	/1//2/ /3/	DR	Yes		OK
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	/1//2/ /3/	DR	Yes. However, the flare efficiency has to be checked during the verification period.		OK
D.2.5. Will the indicators enable comparison of project data and performance over time?	/1//2/ /3/	DR	Yes		OK
D.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the	/1//2/	DR	Yes		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
collection and archiving of all relevant data necessary for determining leakage?	/3/				
D.3.2. Have relevant indicators for GHG leakage been included?	/1//2/ /3/	DR	Not all. The emission factor (tCO2/KWh) necessary to calculate the leakage was not identified.	~~CL 4~~	OK
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1//2/ /3/	DR	Yes		OK
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	/1//2/ /3/	DR	Yes		OK
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1//2/ /3/	DR	Not applicable according to the approved methodology AM0003 / Version 01.		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1//2/ /3/	DR	Not applicable according to the approved methodology AM0003 / Version 01.		OK
D.4.3. Will it be possible to monitor the specified baseline indicators?	/1//2/ /3/	DR	Not applicable according to the approved methodology AM0003 / Version 01.		OK
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning	/1//2/	DR	AM0003 and Resolution 1 of the Brazilian DNA do not require the monitoring of social		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
environmental, social and economic impacts?	/3/		or environmental indicators		
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
D.6.3. Are procedures identified for training of monitoring personnel?	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/4/9/ 10	DR I	Although indicated in the PDD this item needs to be verified on site visit.	~~CL 2~~	OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/4/9/ 10	DR I	Although indicated in the PDD this item needs to be verified on site visit.	~~CL 2~~	OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/4/9/ 10	DR I	Although indicated in the PDD this item needs to be verified on site visit. Datasheets were also checked.	~~CL 2~~	OK
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and	/4/9/	DR	Need to be verified on site visit.	~~CL 2~~	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
uncertainties?	10	I			
D.6.10. Are procedures identified for review of reported results/data?	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/4/9/ 10	DR I	Need to be verified on site visit.	~~CL 2~~	OK
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Predicted Project GHG Emissions *The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	/1//2/ /3/	DR	Yes		OK
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	/1//2/ /3/9/ 10	DR I	The introduction of collection efficiency is not considered in this step of calculation.	~~CL 5~~	OK
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	/1//2/ /3/9/	DR I	Yes, but the introduction of collection efficiency (70%) is not considered in this	~~CL 5~~	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	10		step of calculation. The right formula is: $Q_t = \mathbf{(1 - 0,7)} * \sum Q_{t,x}$		
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	/1//2/ /3/	DR	Yes, the GHG estimation was made by first order decay model.		OK
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	/1//2/ /3/	DR	Only methane has been considered.		OK
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1//2/ /3/	DR	Yes.		OK
E.2.2. Have these leakage effects been properly accounted for in calculations?	/1//2/ /3/	DR	Yes, but the emission factor (tCO2/KWh) necessary to calculate the leakage was not identified.	~~CL 4~~	OK
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	/1//2/ /3/	DR	Yes, the project uses the approved methodology AM0003 / Version 01.		OK
E.2.4. Are the calculations documented in a complete and transparent manner?	/1//2/ /3/	DR	Yes, but the emission factor (tCO2/KWh) necessary to calculate the leakage was not identified.	~~CL 4~~	OK
E.2.5. Have conservative assumptions been used when calculating leakage?	/1//2/ /3/	DR	No, because the emission factor (tCO2/KWh) necessary to calculate the leakage was not identified.	~~CL 4~~	OK
E.2.6. Are uncertainties in the leakage estimates properly addressed?	/1//2/ /3/	DR	Yes.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.3. Baseline Emissions *The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.*					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	/1//2/ /3/	DR	Yes.		OK
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1//2/ /3/	DR	Yes.		OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1//2/ /3/	DR	The PDD-E.4 title does not correspond to the CDM PDD template. The formulas are not correct when directly using the Effectiveness Adjustment Factor (EAF= 20%). In fact the right formula will be: $E_b = \mathbf{(1 - 0,2)} * \sum Q_{t,x}$	~~**CL 6**~~	OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/1//2/ /3/	DR	Yes. The formula uses Effectiveness Adjustment Factor (EAF= 20%).		OK
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/1//2/ /3/	DR	Yes.		OK
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	/1//2/ /3/	DR	Yes.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	/1//2/ /3/	DR	Yes, but the table that shows the estimations is not clear, and applies incorrect baseline emissions (see E.3.3).	~~CL 6~~	OK
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1//2/ /3/9/ 10	DR I	For landfill activities they have environmental licence emitted according to an environmental impacts analysis. The ESTRE Paulínia environmental licence permits only class 2 and 3 waste disposal but the PDD section A.3.1 also mentions class 1 waste disposal. (see comments in A.1.1) For LFG recovery and flaring the project proponent has not carried out the necessary process to identify environmental impacts and to obtain the environmental licence.	~~CAR 1~~	OK
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1//2/ /3/9/ 10	DR I	Yes, the Brazilian and São Paulo State environmental legislation requires the impact assessment in order to issue the licences. See comments in F.1.1	~~CAR 1~~	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
F.1.3. Will the project create any adverse environmental effects?	/1//2/ /3/9/ 10	DR I	Not foreseen, but it will be verified when EIA will be done.	~~CAR 1~~	OK
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1//2/ /3/9/ 10	DR I	Not foreseen, it will be verified when EIA will be done.	~~CAR 1~~	OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/1//2/ /3/9/ 10	DR I	Not foreseen, it will be verified when EIA will be done.	~~CAR 1~~	OK
F.1.6. Does the project comply with environmental legislation in the host country?	/1//2/ /3/9/ 10	DR I	Not yet.	~~CAR 1~~	OK
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					
G.1.1. Have relevant stakeholders been consulted?	/5/9/ 10	DR I	It is foreseen the invitation of the stakeholders' comments according to Brazilian DNA Resolution #1, however no letters were send until now.	~~CAR 2~~	OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/5/9/ 10	DR I	See G.1.1	~~CAR 2~~	OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/5/9/ 10	DR I	See G.1.1	~~CAR 2~~	OK
G.1.4. Is a summary of the stakeholder comments received provided?	/5/9/	DR	See G.1.1	~~CAR 2~~	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	10	I			
G.1.5. Has due account been taken of any stakeholder comments received?	/5/9/ 10	DR I	See G.1.1	~~CAR 2~~	OK

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to table 2	Summary of project owner response	Validation team conclusion
CAR 1 The proponent does not carry out the necessary process to identify environmental impacts and to obtain the environmental licence For LFG recovery and flaring.	**A.3.1** **F.1.1 to F.1.6**	As it is stated in the PDD, the project will only be implemented if carbon revenues can be made real. Moreover, the environmental agency of the state of São Paulo – CETESB – will not let the project be implemented and put in operation if there is no environmental assessment in place for issuance of the environmental licenses (previous, installation and working). Therefore, after the project is registered it will apply for environmental licensing as is required in the state of São Paulo, and subsequently carry out any studies on environmental impacts.	OK. Given that the flaring of landfill gas has little or no different adverse environmental impacts, it is likely that the license will be obtained when the project is implemented The first period verification of the project must verify that this license was eventually obtained.
CAR 2 The stakeholders' consultation according to Resolution 1 of "Interministerial" Committee for Climate Change was not provided.	**A.3.2** **G.1.1 to G.1.5**	Letters have been submitted and the period for response is about to end. Any comments provided, if there are any, will be made available soon.	OK. Letters send according to Brazilian DNA Resolution 1. No responses were received.

Draft report clarifications and corrective action requests by validation team	Ref. to table 2	Summary of project owner response	Validation team conclusion
CL 1 The project's boundaries are not clear because there are several ESTRE's services and landfills mentioned (PDD-A.3.1). Hence it is not possible to identify the activities developed for the Paulínia site.	A.1.1	In item A.4, project location is clearly defined as Paulínia municipality. Moreover, in item A.2, the PDD clearly states: "The project's core idea is to avoid methane emissions from the landfill managed by ESTRE in Paulínia municipality".	OK. The revised PDD clarifies the system boundaries.
CL 2 Authorities and responsibilities, procedures for monitoring and reporting, including QA/QC procedures remain to be clarified.	A.2.5 A.3.4 D6 (D.6.1 to D.6.13)	These will be clarified during the site visit.	OK. All points were verified during site visit and could be evidenced the quality control trough ISO 14001 certification.
CL 3 No risk to the baseline was foreseen or explained (eg: contract conditions to assure waste supply during project time life).	B.2.8	Please check changes in section A2 of the PDD.	OK. This point was discussed during sit visit, and new PDD section A2 is clear about baseline risks.
CL 4 The source of emission factor (tCO2/KWh) necessary to calculate the leakage was not identified.	B.2.9 D.3.2 E.2.2 E.2.4 E.2.5	This has been updated in the PDD. Please check section E2 in the PDD.	OK. In the revised PDD the emission factor and a source of emission factor are clearly identified.
CL 5 The introduction of collection efficiency (70%) is not considered in this step of calculation. The right formula is: $Qt = (1 - 0,7) * \sum Qt,x$	E.1.2 E.1.3	Please check section E5 of the PDD.	New PDD is clear about introduction of collection efficiency.

Draft report clarifications and corrective action requests by validation team	Ref. to table 2	Summary of project owner response	Validation team conclusion
CL 6 The formula for GHG baseline calculations is not correct when using directly the Effectiveness Adjustment Factor (EAF= 20%). In fact the right formula will be: $Eb = (1 - 0,2) * \sum Qt,x$ The table that shows the estimations of GHG emissions in the baseline scenario is not clear, and applies incorrect baseline emissions.	E.3.3 E.4.1	This will be adjusted along the adaptation to the new PDD version (v.2). Regarding the baseline, please check section E4 of the PDD.	OK. In the revised PDD the formula is correct.

- o0o -