FINAL VALIDATION REPORT

EMPREITEIRA PAJOAN LTDA.

ALTO-TIETE LANDFILL GAS CAPTURE PROJECT

Report No: BRS-020 /2006 – 06/09

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Client: **Empreiteira Pajoan Ltda.**	Client ref.: **Mr. José Augusto Cardoso Filho**

Summary/Opinion:
Empreiteira Pajoan Ltda. has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: "Alto-Tiete landfill gas capture project", with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords), and the relevant decisions by CDM Executive Board.

The project intends to reduce GHG emissions by capturing and flaring landfill gas from the landfill Alto Tiete and convert it into less harmful CO_2.

A risk based approach has been followed to perform this validation. In the course of the draft validation 12 Corrective Action Requests (CARs) and 10 Clarification Requests (CRs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The validation team is convinced that project is in line with all relevant host country criteria (Brazil) and all relevant UNFCCC requirements for CDM. Nevertheless the LoA´s of both parties are pending
- The Brazilian DNA will only issue the host country approval on the basis of this positive validation opinion by the validator of the project. Thus the LoA could not be considered at the present validation stage.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 1,657,885 t CO_{2e} is most likely to be achieved within the first 7 y crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation except the host county approval which will be issued on the basis of this report.

Report No.: BRS–020 /2006-06/09	Subject Group: Environment	
Report title: *Alto-Tiete landfill gas capture project*		
Work carried out by: Maria Carolina Crisci Coelho; Dr. O. Janson-Mundel; R. Winter		
Work verified by: Wolfgang Wielpütz		
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Indexing terms

Climate change
CDM
Validation
Kyoto Protocol

Abbreviations

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CETESB	Environmental and sanitation company of the São Paulo state (Companhia de Tecnologia de Saneamento Ambiental)
CH_4	Methane
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
CR	Clarification Request
DNA	Designated National Authority
EB	CDM Executive Board
EIA	Environmental Impact Assessment
GHG	Greenhouse gas(es)
hPa	Hectopascal
K	Kelvin
kW	Kilowatt
kWh	Kilowatt hour
LFG	Landfill gas
LoA	Letter of Approval
m	Meter
m^3	Cubic metres
MW	Megawatt
Nm^3	Standard cubic metres
PDD	Project Design Document
QC/QA	Quality control/Quality assurance
UNFCCC	United Nations Framework Convention on Climate Change

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1 INTRODUCTION

Empreiteira Pajoan Ltda. has commissioned the JI/CDM Certification Program (CP) of TÜV NORD CERT GmbH to validate the project:

Alto-Tiete landfill gas capture project

with regard to the relevant requirements for Large – Scale CDM project activities.

1.1 Objective

The purpose of this validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of Article 12 of the Kyoto Protocol /KP/ ; the CDM modalities and procedures as agreed in the Marrakech Accords under decision 17/CP.7 /MA/; the annex to the decision; subsequent decisions made by CDM Executive Board,
- other relevant rules, including the host country (Brazil) legislation and sustainability criteria

are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CERs).

1.2 Scope

The validation scope is given as an independent and objective review of the project design, the project's baseline study and monitoring plan (based on AM0011) which are included in the PDD and other relevant supporting documents.

The items covered in the validation are described below:

- **UNFCCC & Host Country Criteria**
  - UNFCCC/Kyoto Protocol requirements, in particular, the requirements of the CDM as set out in decision 17/CP.7 (Marrakech Accords) /MA/, the present annex and relevant decisions by CDM Executive Board
  - Host country requirements / criteria

- **CDM Project Description**
  - Project design
  - Project boundaries
  - Predicted CDM project GHG emissions

- **Project Baseline**
  - Baseline methodology
  - Baseline GHG emissions

- **Monitoring Plan**
  - Monitoring methodologies
  - Indicators/data to be monitored and reported
  - Responsibilities

- **Background investigation and follow up interviews**

- **Global Stakeholder consultation**
  - Publishing the PDD on the TÜV NORD website
  - Review of comments

- **Draft validation reporting with CARs & CRs, if any**

- **Final validation reporting.**

The information included in the PDD and the supporting documents were reviewed against the requirements and criteria mentioned above. The TÜV NORD JI/CDM CP has, based on the recommendations in the Validation and Verification Manual/VVM/, employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs. The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions.

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

1.3 GHG Project Description

1.3.1 Project Scope

The considered GHG project can be classified as a large-scale CDM project in the sector given in Table 1-1 (according to List of Sectoral Scopes of UNFCCC).

Table 1-1: Project Scope

No.	Project Scope
13	Waste handling and disposal

1.3.2 Project Entities

The following parties are involved in the developing of the project:

Project Participant 1: (Hosty country)	Empreiteira Pajoan Ltd Av. Nossa Senhora das Graças nº 599 Jardim Pinheirinho – 08589-140 Itaquaquecetuba – SP Brazil
Contact person:	Mr. José Augusto Cardoso Filho (Director) +55-11-47477000 kishi@pajoan.com.br
Project Participant 2: (ANNEX I)	BGC International One America Square London EC3N 2LS United Kingdom
Contact Person:	Mr. Steve Drummond (Managing Director) +44 207 894 7054 sdrummond@co2e.com
Project Consultant:	Ecológica Assessoria Rua Dr. Bacelar nº 231 conjunto 31 – Edifício Cleveland 04026000 – São Paulo – SP Brazil
Contact Person:	Mr. Divaldo Costa Rezende +55-11-50833252 divaldo@ecologica.ws

1.3.3 Project location

The project site is located at the municipality of Itaquaquecetuba, northeast of São Paulo state, in the Alto-Tiete region.
The waste disposition area is of 500,000 m^2 from a total surface of 884,000 m^2, including 2,319 m^2 of constructed areas.

1.3.4 Technical project description

The project activity involves the installation of a gas collection and flaring system (enclosed flares) through a network of pipes connected to the wellheads at the already existing cells and at the new cells in parallel to the waste disposal.

The gas collection system will be composed by vertical progressive drains to extract gas. The drains are equipped with gas sensors (sampling points) to monitor the landfill gas flux and quality in order to analyse the trace gases.

This project activity is expected to reduce CO_2 emissions over the chosen 07-year "renewable crediting period" of **1,657,889 tCO_{2e}** starting at January 2007 and lasting until December 2013.

2 VALIDATION TEAM

- The Validation Team was led by Mr. Rainer Winter. Mr. Winter works at TÜV NORD CERT GmbH as ISO 9001/ISO 14001 Auditor and environmental verifier for EMAS. He is also an approved emission verifier within the European Emission Trading Scheme. Mr. Winter is an authorized JI/CDM assessor and is in charge of the JI/CDM Certification Program of TÜV NORD CERT GmbH. For this validation he was assisted by:
- Maria Carolina Crisci Coelho, BRTÜV-Brazil (TÜV NORD Brazil), Mrs. Coelho is ISO 14001 Auditor and Product Manager for CDM Services for BRTÜV. She is an appointed assessor for JI/CDM certification program of TÜV NORD CERT GmbH.
- Dr. Ortrun Janson-Mundel, TÜV NORD CERT GmbH. Dr. Janson Mundel is ISO 9001/ISO 14001 Auditor. She is an appointed expert for JI/CDM certification program of TÜV NORD CERT GmbH.

The validation report is verified by:

- Mr. Wolfgang Wielpütz. He is ISO 9001 and 14001 Auditor, environmental verifier for EMAS and DEHST-appointed verifier in the framework of EU-ETS. He is appointed JI/CDM assessor. Mr. Wielpütz is the head of the department: "Integrated management systems, environmental and occupational safety" and the deputy chief of TÜV NORD CERT GmbH.

3 METHODOLOGY

The validation of the project was carried out from March to June '06. The validation consisted of the following three phases:

- A desk review of the PDD (incl. annexes) and supporting documents with the use of a customised validation protocol according to the Validation and Verification Manual;
- Background investigation and follow-up interviews with personnel of the project proponent, the consultant, legal authorities and other stakeholders;
- Reporting of validation findings taking into account the public comments received on TÜV NORD website.

The report includes Corrective Action Requests and Clarification Requests (CAR and CR) identified in the course of this validation.

A **Corrective Action Request** is established if

- mistakes have been made in assumptions or the project documentation which directly will influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions cannot be verified and certified.

A **Clarification Request** is issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

After resolution of these CARs and CRs by the project proponent the validator issues this final validation report and opinion.

3.1 Validation Protocol

In order to ensure consideration of all relevant assessment criteria, a validation protocol was used. The protocol shows, in a transparent manner, criteria and requirements, means of verification and the results from pre-validating the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of three tables: Table 1 (Mandatory Requirements); Table 2 (Requirement Checklist); and Table 3 (Resolution of Corrective Action and Clarification Request) as described in Figure 1.

The completed validation protocol is enclosed in Annex to this report identifying 12 Corrective Action Requests and 10 Clarification Requests.

Validation Protocol Table 1: Mandatory Requirements			
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**), or a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.*	*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). **Clarification** is used when the validation team has identified a need for further clarification.*

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	***Ref. to checklist question in table 2***	***Summary of project owner response***	***Validation 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 Client or other 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

3.2 Review of Documents

The PDD submitted by Empreiteira Pajoan Ltda. in March 2006 and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

The documents that were considered during the validation process are given in chapter 7 of this report. They are listed as follows:

- Documents provided by the project proponent (Table 7-1)
- Background investigation and assessment documents (Table 7-2)
- Websites used (Table 7-3).

In order to ensure the transparency of the decision making process, the reference codes listed in tables 7-1 to 7-3 are used in the validation protocol and – as far applicable – in the report itself.

3.3 Follow-up Interviews

On 2006-04-13 and on 2006-05-04, the TÜV NORD JI/CDM CP performed on-site visits.

During these visits, as well as earlier and after, interviews with the project proponent, the consultant, project stakeholders and with local authorities were carried out to confirm selected information and to resolve issues identified in the document review.

The main topics of the interviews are summarised in Table 3-1.

Table 3-1 Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives	- Environmental Policy - General aspects of the project - Project boundary - Technical details of the project realisation - Approval procedures and status - Quality and Environmental Management System - Involved personnel and responsibilities - Monitoring and measurement equipment - Baseline study assumptions - Environmental impacts - Socio economic impacts on the local population - Details of emissions reduction calculation

Interviewed Persons / Entities	Interview topics
	- Operational data - License, operation & maintenance authority and responsibility - QA/QC procedure - Monitoring and measurement control of GHG - Legal aspects of the project
Consultant	- Editorial aspects of PDD - Project boundary - Content of PDD - Procedural aspects - Details of emissions reduction calculation - Additionality of the project
State authorities	- Legal aspects of the project

3.4 Resolution of Clarification and Corrective Action Requests

In order to remedy any mistakes, problems or any other outstanding issues which needed to be clarified for positive conclusion on the project design, CARs and CRs were raised. These requests can be resolved or "closed out" by the project proponent by providing the corresponding response in the column 3 of the table three as meant in Figure 1 and submission of revised PDD and supporting documents.

In this validation report 12 CARs and 10 CRs are raised.

The CARs / CRs are documented in Annex and addressed in Chapter 4.

3.5 Public Stakeholder Comments

The PDD was made publicly available through TÜV NORD JI/CDM CP website www.global-warming.de. Comments on the PDD were invited within 30 days, i.e. 13 March 2006 to 12 April 2006.

No comments were received. In case comments would have been received, they would have also been made publicly available on this website.

3.6 Finalising the report

The draft validation report was submitted to the client. After

- resolving the CR & CAR raised,
- reviewing the revised and resubmitted project documentation /PDD2/ and
- outstanding concerns

TÜV NORD JI/CDM CP issues this final validation report and opinion.

4 VALIDATION FINDINGS

In the following paragraphs the findings from the desk review of the draft PDD, visits, interviews and supporting documents are summarised. This also includes the corresponding corrective action taken by the client and its final assessment.

This chapter also includes a brief discussion of important issues where considered necessary for the project assessment. For a more detailed assessment of single aspects within these categories pl. also refer to the validation checklist as presented in the annex.

The results are summarised in table 4-1:

Table 4-1: Summary of CAR and CR issued

Validation topic [1)]	No. of CAR	No. of CR
Project design (A1-A2)	3	1
Participation requirements (A3)	0	0
Baseline and additionality (B)	3	3
Crediting Period (C)	0	0
Monitoring plan (D)	2	3
Calculation of GHG emissions (E)	2	2
Environmental impacts (F)	1	1
Comments of local stakeholders (G)	1	0
SUM	**12**	**10**

[1)] The letters in brackets refer to the validation protocol

4.1 Participation Requirements

Brazil as a non Annex-I party and United Kingdom as an Annex-I party meet all relevant participation requirements. At the time of the completion of the validation both LoAs are pending. Although the approval of the Parties involved is required for registration the validation has to be carried out without the approval of both, because for the Brazilian DNA a positive validation opinion is a prerequisite for the host government approval and thus the LoA could not be considered at the present validation stage.

Possible changes of the project documentation due to the approval process will be addressed in a revision of the final validation report.

4.2 Project design

The objective of the project is to reduce GHG emissions by capturing landfill gas and combusting it in a flare and thus convert the methane in the landfill gas into less harmful carbon dioxide.

According to sustainable development various social, economic and environmental benefits will be achieved. The landfill gas capture project is supposed to have positive effects in the region such as improvement of waste handling and waste management, reducing the risks of toxic effects on the local community, watercourse pollution and other nuisances; creation of jobs will strengthen social responsibility and afforestation programs.

The project activity contains improved technology compared to Brazilian state of the art technology, because it is common practice in Brazil to operate sanitary landfills without landfill gas treatment or only with safety venting and burning.

In the draft PDD the amount of estimated emission reductions were calculated incorrect because in table A.4.4.1 the year 2013 was not considered within this calculation. A corresponding CAR was raised and successfully closed.

Corrective Action Request A1:	
CAR	In table A.4.4.1 the emission reductions of 2013 are missing. Thus the total estimated emission reduction calculations (and corresponding tables) have to be revised.
CA:	The year of 2013 is already included, we took off 2006 and the emission's values are revised. We took of the year of 2006 because of the delay in the project.
Conclusion:	The modified PDD addresses this issue in a correct manner. As the starting date of crediting period was changed to 2007-01-01, all years were considered in the emission reduction calculation. CAR is closed.

According to the guidelines for completing CDM-PDD the PDD has to be duly filled and no modifications of the template are allowed. These criteria were not completely met. Thus corresponding CARs were raised and successfully closed.

Corrective Action Request A2:	
CAR	In annex 1 only project participants should be listed.
CA:	The project participants are listed. We include an annex 5 for a contact to Ecologica.
Conclusion:	The annex 1 of the revised PDD now contains only the Project participants. CAR is closed.

Corrective Action Request A3:	
CAR	The headlines in the annex should not be removed.
CA:	We included all the headlines in the annexes.
Conclusion:	The headlines of the annexes were correctly included. CAR is closed

The projects system boundaries were clearly described in the project design. However the geographical boundaries are not transparently given. Therefore a CR were raised and successfully resolved.

Clarification Request A1:	
CR	The project's spatial boundaries should be clarified.
CA:	We included more information about the spatial boundaries.
Conclusion:	It was made clear that the old landfill is not included in the project activity. CR resolved.

4.3 Baseline and Additionality

This project activity applies the approved methodology AM0011 "Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario".

As

- the LFG is used for flaring
- the baseline is the atmospheric release of the LFG
- there are no legal requirements for landfill gas capture and combustion

the applicability criteria of AM0011 are met for this project activity.

According to AM0011 the baseline scenario is the release of the landfill gas to the atmosphere - within the project boundaries. Thus also the remaining fugitive emissions, which are not flared in the project activity, have to be considered as on-site baseline emissions. A CAR regarding the project boundary definition was raised and successfully closed.

Corrective Action Request B2:	
CAR	In section B.4. (as well as in subsequent parts of the PDD) it should be clarified if the remaining fugitive emissions of the landfill (after implementation of the project activity) are to be considered as project emissions.
CA:	It was included in table 5 a line for fugitive emissions on-site and the percentage of fugitive emissions.
Conclusion:	It can be assessed that the remaining fugitive methane emissions are now sufficiently addressed in the revised PDD. Corresponding corrections and clarifications have been included in the PDD.

As the methodology allows for direct emission reduction monitoring these fugitive emissions are only to be considered within the ex ante baseline emissions calculation.

The baseline emissions were calculated (ex ante) on the basis of a first order kinetic model as stipulated in AM0011. All parameters and values used for the calculation are selected in a transparent and comprehensive manner.

The validation team has calculated the baseline emissions using an own calculation tool. Apart from minor deviations as addressed in the corresponding sections the results of the presented calculation could be confirmed.

According to the baseline methodology AM0011 no leakage has to be considered.

To justify that off-site emissions due to the total amount of electricity delivered by the grid is small and thus negligible the project developer has chosen a conservative approach on the basis of diesel extraction pump. Though the calculation had to be revised it could be justified, that off-site emissions don´t have to be considered.

Corrective Action Request B3:	
CAR	The calculation of the off-site emissions due to additional electricity consumption (section B.4.) is based on wrong dimensions of the applied emission factor. Thus the reasoning based on the calculated values has to be revised.
CA:	We change the emission factor to 0.1%. The value is revised.
Conclusion:	Now the energy related carbon emission factor of diesel shows the correct value and dimension. The corresponding calculation of the off site emissions due to the additional electricity consumption was revised correctly. CAR is closed.

Nevertheless the project developer has decided to monitor the electricity consumption and to consider the corresponding (conservatively estimated) emissions.

Furthermore the leachate evaporation was mentioned in the baseline scenario. During site visit evidence was provided that leachate evaporation was only tested in the past and is neither operated nor planned in future. A corresponding CR was raised and successfully resolved.

Clarification Request B2:	
CR	The leachate evaporation should not be considered as part of the baseline or the project activity as it was only tested on site several years ago and is not planned in future.
CA:	We took of the part of the leachate. In the baseline and in the project activity.
Conclusion:	OK, CR is resolved

In the annex 3 of the PDD some figures to visualize the methane emissions and the emission reductions were given. These figures show wrong titles, ordinates and graphs. Thus a CR was raised.

Clarification Request B3:	
CR	The figures 2 and 3 (in annex 3) show inconsistencies regarding the title and the ordinates.
CA:	The figures have been removed
Conclusion:	OK, CR is resolved

AM0011 establishes some special requirements for the justification of the additionality of the project. These requirements contain a 4-step approach for the justification of the additionality. Contrary to this 4-step approach the PDD justifies the additionality with the “Tool for the demonstration and assessment of additionality” as given by the UNFCCC. Therefore a corresponding CAR was raised and successfully closed.

Corrective Action Request B1:	
CAR	The justification of the additionality does not follow the requirements of the applied methodology AM0011.
CA:	After a discussion, it was determined that the procedure for the justification of the additionality could be made that way, because all additionality criteria that were given in the Tool for the demonstration and assessment of additionality meet also the requirements of AM0011.
Conclusion:	The information about the 2 mandatory steps (step 1 legal requirements and step 2 alternatives) were sufficiently given in the PDD in step 1 (Identification of alternatives to the project activity consistent with current laws and regulations) and in sub-step 1a (Define alternatives to the project activity) and 1b (Enforcement of applicable laws and regulations). As the baseline alternatives are economically more attractive than the project activity, step 3 of AM0011 is not applicable. Furthermore the step 4 has to be considered by the DOE. CAR is closed

The additionality justification sub-step 1a consists of four different alternatives of the project activity. Under Alternative 2 an alternative was given in which the project will be implemented without any revenues from carbon credits. As a result of this alternative it was stated that the project won't generate any revenues but only costs. As this alternative is the project activity itself, it can be assessed that this option is no real alternative to the project activity. Therefore a corresponding CR was raised.

Clarification Request B1:	
CR	Alternative 2 (see page 8) of the draft PDD is not an alternative to the project activity.
CA:	We follow the additionality tools.
Conclusion:	Alternative 2 is considered as the project activity itself – regardless of the consideration of carbon credits. Other real alternatives have been presented.

In the conclusion to CAR B1 it was clearly stated that the arguments given in the additionality justification in the PDD also meet the requirements of AM0011. Though the additionality justification in the PDD follows the "Tool for demonstration and assessment of additionality", the assessment on the additionality in this report follows the scheme of AM0011.

The arguments to justify the additionality were summarised in table 4-2. This table also includes the assessment of the validation team.

Table 4-2: Additionality assessment

Step[1)]	Argument PP	Assessment of the validation team	
1	The Brazilian Association for Waste treatment, Recycling and Management (ABETRE) states that no legislation will/may be prescribed in the future obliging LFG flaring within the next 10 years in Brazil. Therefore there are no current specific regulations governing LFG flaring and it is not expected to have any regulation within the near future.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not decisive ☒ Argument justified / significant	☒ step passed ☐ step not passed ☐ not applicable
2	There is no economically attractive scenario that involves recovery of landfill gas.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not decisive ☒ Argument justified / significant	☒ step passed ☐ step not passed ☐ not applicable

Step[1)]	Argument PP	Assessment of the validation team	
3	**-**	As the scenario without recovery (the present situation) is the least cost option, step 3 of AM0011 is not applicable.	☐ step passed ☐ step not passed ☒ not applicable
4	**-**	Step 4 (Extra check on credibility of the baseline) as carried out by the validator. Has confirmed the chosen baseline scenario. For details see below.	☒ step passed ☐ step not passed ☐ not applicable
Assessment of the validation team		☒ **project is additional** ☐ **project is not additional**	

1) acc. to AM0011

As stipulated by AM0011 the validator has to carry out an extra check on the credibility of the baseline. This check was carried out during both side visits and afterwards by desk review. The questions / criteria to be assessed are summarized in the following table 4-3:

Table 4-3: Extra check on the baseline scenario (acc. to AM0011)

No.	Criterion	Comment	Assessment
1	Is the baseline realistic from a financing perspective?	The baseline is the present scenario, thus no financing is involved.	☒ Baseline confirmed ☐ Baseline not justified
2	Would there be sufficient local support for the baseline scenario?	When the landfill became operational the residents were involved in a cooperative. It is not likely that the baseline would be affected from the local population	☒ Baseline confirmed ☐ Baseline not justified
3	Would other physical obstructions (fuels, skills, techniques) impede baseline scenario from ever being realized?	The baseline is the present scenario.	☒ Baseline confirmed ☐ Baseline not justified
4	Would legislation or other obligations (if enforced) influence the scenario?	From the present view, it is not likely that the legislation will force the operator to capture the LFG. Nevertheless it is necessary to monitor the corresponding legislation progress.	☒ Baseline confirmed ☐ Baseline not justified

Thus the validation team arrived at the opinion that the project activity can be assessed to be additional and is not a BAU case.

4.4 Crediting Period

Acc. to the draft PDD/PDD1/ the intended first crediting period of the project was Jan 2006 to August 2013 (renewable). Because of the delay of the project implementation that became obvious since the draft edition of the PDD, the project developer has changed the crediting period in the revised PDD/PDD2/ to 1st January 2007 – 31st December 2013.

4.5 Monitoring Plan

The project applies the approved methodology AM0011: "Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario". The applicability criteria are met.

Acc. to AM0011 the applicability criterion regarding the non-existence of regulations for capturing LFG has to be monitored. The PDD addresses this in a correct way.

This methodology stipulates that monitoring shall consist of:

Metering the landfill gas amount used for flaring, the methane content of the landfill gas and the fraction of methane that will be emitted uncombusted.

The project developer intends to monitor the combustion efficiency on a semi-annual basis, as stipulated on page 7 of the methodology – and not on a quarterly basis as described on page 6 of the methodology.

The monitoring also encompasses the monitoring of boundary conditions, such as temperature and pressure of the gas.

Details of monitoring, including the ex post calculation equation, are presented in Annex 4 of the PDD.

According to the monitoring plan of the PDD the requirements of AM0011are fulfilled. Nevertheless some mistakes in the monitoring plan were detected which mainly refer to wrong monitoring values and dimensions, usage of other Parameters in the calculations as given in the corresponding tables and inconsistencies within the PDD. Therefore the following CARs and CRs were raised.

Corrective Action Request D1:	
CAR	The monitoring plan as described in section D.2.2.1 does not completely match with the annex 4 (see esp. equation 6)
CA:	We include in the table the KWh that is mentioned in the equation 6.
Conclusion:	Thus, also the off-site emissions will be accounted for. They will be estimated in a conservative way, considering the IPCC (output-) emission factor of diesel sets. CAR is closed.

Corrective Action Request D2:	
CAR	The density value given in table 9 is not used in the subsequent calculations.
CA:	We change the value for the right density used in the subsequent calculations.
Conclusion:	The density of methane given in Table 9 is correct as this value is related to the standard reference conditions (273.15 K and 1013 hPa) and was used for the subsequent calculations. CAR is closed.

Clarification Request D1:	
CR	Contradictory information regarding the recording frequency of parameter D.2.2.1.3 is given in table D.2.2.1 and section D3.
CA:	After discussion we changed the frequency of parameter in the table and in section D3, for a semi-annually monitoring.
Conclusion:	OK, CAR is closed.

Clarification Request D2:	
CR	A wrong comment is included in table D.2.2.1 regarding the parameter D.2.2.1.8
CA:	The comment was modified and is correct now.
Conclusion:	CR is resolved. (the parameter is addressed now as D.2.2.1.7)

Clarification Request D3:	
CR	The density value in table 16 should show more significant digits (as the density value(s) given in section D2 of the PDD). Furthermore the given unit should be adjusted in order to comply with equation 6.
CA:	We change the density to 0.0007168 tons/Nm3
Conclusion:	The changes are correct and comply with equation 6 of the annex 4. CR is resolved.

4.6 Calculation of GHG Emissions and emission reductions

Project emissions

The CO_2 emissions from the conversion of methane into carbon dioxide are not to be considered as project emissions, due to their origin of renewable source.

As discussed above the offsite – emissions are negligible and are not considered for ex-ante calculation. Nevertheless the monitoring plan provides for calculation of offsite emissions.

Leakage emissions are not to be considered acc. to AM0011.

The remaining methane emissions which were not captured and flared are considered in the final PDD as project emissions for ex ante calculation.

Also the amount of unburnt methane due to the fact that the flaring efficiency is lower than 100 % is considered in the ex ante calculation.

Ex ante emission reduction calculation

As project emissions are derived from the baseline emissions, details regarding assumptions, calculations, CARs and CRs have been addressed in section 4.3

All procedures for calculating emission reductions are well documented in the sections D and E as well as in the annexes of the PDD.

Ex post emission reduction calculation

The ex post calculation methodology allows for direct measurement of emission reductions. Monitoring, applied values and equations are described in section D and annex 4 of the PDD.

The applied formulae are adequate and allow for conservative monitoring of emission reductions.

Acc. to the ex ante calculation in the final PDD/PDD2/ the project is expected to reduce emissions of 1,657,885 tCO_{2e} the first 7 year crediting period.

Nevertheless some mistakes in the GHG emission calculation were detected during the validation. Therefore the corresponding CARs were raised.

Corrective Action Request E1:	
CAR	In sections E1 – E3 the remaining fugitive emissions are not accounted for (see also CAR B2).
CA:	We wrote down remaining fugitive emissions.
Conclusion:	The fugitive emissions are addressed and considered for ex ante calculation. CAR is closed.

Corrective Action Request E2:	
CAR	Table 10 needs to be revised due to several (minor) mistakes as a) the crediting period is not completely considered, i.e. begin and end, b) the LFG flared is not part of the baseline c) the time resolution applied does not completely match equation 3
CA:	The table had been revised; we change the values and corrected the mistakes described. We include the year of 2013 and excluded 2006.
Conclusion:	The presented values could be confirmed, CAR is closed

Furthermore some minor mistakes were detected. These mistake refer to

- wrong legends in the figure 1 which shows the whole methane emissions from the landfill and the methane captured and flared and correspondingly the

remaining amount of methane which will not be captured and emitted diffusely and

- the choice of the extraction efficiency value for the year 2006 which is not sufficiently justified.

Corresponding CRs were raised.

Clarification Request E1:	
CR	The legend in figure 1 does not match.
CA:	The legend is changed. And the lines had been corrected.
Conclusion:	Figure 1 is correspondingly corrected. CR is resolved

Clarification Request E2:	
CR	The choice of the extraction efficiency value for the year 2006 is not justified in the PDD.
CA:	We took off the year of 2006 from our project.
Conclusion:	CR is resolved.

4.7 Environmental Impacts

The project activity will improve the environmental situation compared to the baseline scenario. No significant environmental impacts will be entailed by the project activity.

Additional emissions due to the combustion process were addressed. In case of normal flare operation these emissions are of negligible importance.

However during validation one CAR and one CR had to be raised. All additional information provided was assessed to be sufficient. Thus both could be closed / resolved.

Corrective Action Request F1:	
CAR	The response/approval of the CETESB regarding the environmental license is still pending.
CA:	The corresponding letter of the CETESB dt. 2006-06-02 was received by the project participant and handed over to the validation team.
Conclusion:	No project specific approval of the CETESB is necessary. CAR is closed.

Clarification Request F1:	
CR	The discussion of the environmental impacts is incorrect regarding the emissions of Hg and PCDD/F.
CA:	The part that refers about the emissions had been taken off of the text.
Conclusion:	OK, CR is resolved.

4.8 Comments by Local Stakeholders

Acc. to the requirements of the Brazilian DNA the Stakeholder involvement process has to be performed by means of letters submitted to a specific group of stakeholders. At the time of the pre-validation this process was not finalised. Therefore the following CAR was raised.

Corrective Action Request G1:	
CAR	The stakeholder involvement procedure was not finalized when the PDD was issued. Therefore the results of this procedure have to be addressed in the final version of the PDD.
CA:	No comments were made by the stakeholders. We wrote in section G2.
Conclusion:	Information is sufficient. CAR is closed

5 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the validation of CDM projects, TÜV NORD JI/CDM CP published the draft PDD on its website www.global-warming.de on 13 March 2006 and invited comments within 30 days, until 12 April 2006. by parties, stakeholders and UNFCCC accredited non-governmental organisations. No comments were received in this period.

6 VALIDATION OPINION

Empreiteira Pajoan Ltda. has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: "Alto-Tiete landfill gas capture project", with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords), and the relevant decisions by CDM Executive Board.

The project intends to reduce GHG emissions by capturing and flaring landfill gas from the landfill Alto Tiete and convert it into less harmful CO_2.

A risk based approach has been followed to perform this validation. In the course of the draft validation 12 Corrective Action Requests (CARs) and 10 Clarification Requests (CRs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The validation team is convinced that project is in line with all relevant host country criteria (Brazil) and all relevant UNFCCC requirements for CDM. Nevertheless the LoA´s of both parties are pending
- The Brazilian DNA will only issue the host country approval on the basis of this positive validation opinion by the validator of the project. Thus the LoA could not be considered at the present validation stage.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 1,657,885 t CO_{2e} is most likely to be achieved within the first 7 y (renewable) crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation except the host county approval which will be issued on the basis of this report.

Essen, 2006-06-05

Rainer Winter

TÜV NORD JI/CDM Certification Program

7 REFERENCES

Table 5-1: Documents provided by the project proponent

Reference	Document
/VA/	Voucher annotation of letter by local stakeholders
/IL/	Installation Licence (CETESB) - #000.671 (11th Dec'00)
/LS/	Model letter to stakeholders (13th April'06 – letter to Geosciences Institute)
/MR/	Monitoring Reports: XLIX dt 2006-01 / L dt 2006-02 / water analysis dt 2005-09
/OL/	Operation Licence (CETESB) - #26000941 (10th April'06)
/PDD1/	Project Design Document "Alto-Tiete landfill gas capture project" (hosted for public comments during 04 Mar'06 to 12 April'06).
/PDD2/	Final Project Design Document "Alto-Tiete landfill gas capture project"
/TP/	Technical Project – Descriptive Petition (maps dt 2006-02)

Table 5-2: Background investigation and assessment documents

Reference	Document
/AM0011/	AM0011: "Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario" (Version 2 dt. 2005-09-30)
/CPM/	TÜVNORD JI / CDM CP Quality Management System (incl. CP procedures and forms)
/GPDD/	UNFCCC: Guidelines for completing the project design document (CDM-PDD) and the proposed new methodology: baseline (CDM-NMB) and the proposed new methodology: monitoring (CDM-NMM) – version 4
/IPCC-GP/	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000
/KP/	Kyoto Protocol (1997)

Reference	Document
/MA/	Decision 17/CP. 7 (Marrakesh – Accords)
/RES.1/	Resolution #1 of Inter-Ministerial Commission of Global Change (2003) – Brazil
/VVM/	IETA, PCF Validation and Verification Manual (V.4)

Table 5-3: Websites used

Reference	Link	Organisation
/abetre/	http://www.abetre.org.br	Brazilian association for waste treatment, recycling and management
/cetesb/	http://www.cetesb.sp.gov.br	Environmental and sanitation company of the São Paulo state
/dna-br/	http://www.mct.gov.br/clima	Ministry of Science and Technology (Brazil)
/sabesp/	http://www.sabesp.com.br	São Paulo state sanitation company
/unfccc/	http://cdm.unfccc.int	UNFCCC

Table 5-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function
/IM01/ /IM02/	V	☒ Mr. ☐ Ms.	Roberto Kishi	Empreiteira Pajoan Ltd., Arq. – Technical-Operator
/IM01/ /IM06/	V	☒ Mr. ☐ Ms.	Francisco J. P. de Oliveira	Epal Fral Consultoria Ltd., Engineer – Director
/IM01/ /IM02/	V	☒ Mr. ☐ Ms.	Alejandro Bango	Ecológica Assessoria – Consultant
/IM02/	V	☒ Mr. ☐ Ms.	Paulo Zanardi	Ecológica Assessoria – Consultant
/IM03/ /IM05/	T	☒ Mr. ☐ Ms.	Cristiano Kengi	CETESB – Expert/Engineer
/IM04/	T	☐ Mr. ☒ Ms.	Josilene Ferrer	CETESB – Expert

[1] Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

Validation Protocol

ANNEX : 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	The Annex I party is the UK. The project participant from the UK is the company BGC International.
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	LoAs are pending	Table 2, Section A.3 As per opinion of the validation team the projects contributes to the sustainable development of Brazil. Nevertheless the Brazilian DNA hasn´t confirmed the sustainable development contribution yet, as a positive validation is a prerequisite for the Brazilian DNA to issue the LoA, in which the contribution to sustainable development will be addres-sed. In accordance with the CDM M&P at the time of making the PDD public at the stage of validation a Party involved may or may not have provided its approval. At the time of

REQUIREMENT	Reference	CONCLUSION	Cross Reference / Comment
			requesting registration the approval of the Parties involved is required. Possible changes of the project documentation due to the approval process will be addressed in a revision of the final validation report.
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.4.1

REQUIREMENT	Reference	CONCLUSION	Cross Reference / Comment
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, Marrakech Accords, CDM Modalities §40a	LoAs are pending	In accordance with the CDM M&P at the time of making the PDD public at the stage of validation a Party involved may or may not have provided its approval. At the time of requesting registration the approval of the Parties involved is required. At the time of the completion of the validation both LoA´s are pending. For the Brazilian DNA a positive validation opinion is a prerequisite for the host government approval and thus the LoA could not be considered at the present validation stage. Possible changes of the project documentation due to the approval process will be addressed in a revision of the final validation report.
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.1 to E.4.
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM	Kyoto Protocol Art.	OK	Table 2, Section B.2.

REQUIREMENT	Reference	CONCLUSION	Cross Reference / Comment
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	12.5c, Marrakech Accords, CDM Modalities §43		
7. Potential public funding for the project from Parties in Annex I is not a diversion of official development assistance	Marrakech Accords	OK	No public funding is involved
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Accords, CDM Modalities §29	OK	The Brazilian DNA assigned for CDM is the "Global Climate Change International Commission" and the UK DNA is the "Department for Environment, Food and Rural Affairs" (DEFRA)
9. The host country is a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §30	OK	Yes, Brazil, the host country, has ratified the Kyoto Protocol on 23 August 2002 The UK has ratified the Kyoto Protocol on 31 May 2002
10. Comments by local stakeholders are 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
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, has been 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	Marrakech Accords, CDM Modalities §37c	OK	It is not necessary to carry out an environmental impact assessment. Instead of an EIA a corresponding letter, incl. an

REQUIREMENT	Reference	CONCLUSION	Cross Reference / Comment
by the Host Party has been carried out.			environmental assessment done by the owner of the landfill was sent to the CETESB for approval
12. Baseline and monitoring methodology is previously approved by the CDM Methodology Panel	Marrakech Accords, CDM Modalities §37e	OK	Yes. The baseline and monitoring methodology is AM0011 "Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario".
13. Provisions for monitoring, verification and reporting are 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
14. Parties, stakeholders and UNFCCC accredited NGOs 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 made available for public commenting on the UNFCCC website with a linkage to TÜVNORD website: www.global-warming.de from 2006-03-13 to 2006-04-12.
15. 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
16. 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	OK	Table 2, Section B.2
17. The project design document is in conformance with the	Marrakech Accords,	OK	The PDD is in conformance

REQUIREMENT	Reference	CONCLUSION	Cross Reference / Comment
UNFCCC CDM-PDD format	CDM Modalities, Appendix B, EB Decisions		with version 02 of the CDM-PDD.

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?	/PDD1/ (A.4.1) /IM01/ /IM02/	DR, I	The project´s spatial boundaries should be clarified.	CR A1	OK
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/PDD1/ (B.4) /IM01/ /IM02/	DR, I	See comment above.	CR A1	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?	/PDD1/ (A.4.3)	DR, I	Yes, the gas extractor and flaring system employs environmentally safe	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	/IM01/ /IM02/		and sound technology though the project design engineering is not yet finalized.		
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?	/PDD1/ (A.4.3) /IM01/ /IM02/ /IM04/	DR, I	Common practice in Brazil is sanitary landfill without landfill gas treatment or only safety venting and burning. Infrastructure for extraction and combustion of LFG will be implemented.	OK	
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/PDD1/ (A.2.) /IM01/ /IM02/	DR, I	It is unlikely that the technology used can be substituted by other more efficient technology. An energy utilization with e.g. CHPs is economically not viable under current conditions in Brazil.	OK	
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	/PDD1/ (D.4 - 2)	DR	The project activity will require only minimal additional training for operation of the flare and operation and maintenance of the LFG drainage system.	OK	
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/PDD1/ /IM01/ (D.4 – 3)	DR, I	Yes. According to D.4-3, the landfill operator will train the technical team and will use quality control and quality assessment procedures.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
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?	/PDD1/ (A.4.4) /RES 1/ /IL/ /OL/ /IM01/ /IM02/ /IM03/ /IM05/	DR, I	The response/approval of the CETESB regarding the environmental license is still pending.	CAR F1	OK
A.3.2. Is the project in line with host-country specific CDM requirements?	/PDD1/ (A.2) /RES 1/	DR	The project follows the Resolution 1 of the Brazilian Inter-ministerial Committee for Climate Change. Nevertheless the Brazilian DNA will finally decide whether the project is in line with the host country criteria - considering the results of this validation report.	OK	
A.3.3. Is the project in line with sustainable development policies of the host country?	/RES. 1/	DR	The project is in line with current sustainable development priorities in Brazil.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Nevertheless the Brazilian DNA will finally decide whether the project is in line with the sustainable development policies - considering the results of this validation report.		
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/PDD1/ (A.2) Section F	DR	Yes, improving the waste handling and waste management, reducing the risks of toxic effects on the local community, freatic layers, watercourse pollution and odor nuisances; creation of jobs in different fields will strengthen social responsibility programs, such as environmental education, construction of spot facilities, afforestation activities and reforestation with native species.	OK	
A.3.5. Has the PDD form been duly filled?	/PDD1/ (annex)	DR	In annex 1 only project participants should be listed. The headlines in the annex should not be removed.	CAR A2 CAR A3	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?	/PDD1/ (B.1.) /AM0011/	DR	Yes. The project applies the approved baseline methodology AM0011: "Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario".	OK	
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/PDD1/ (B.1.1)	DR	Yes, all applicability criteria are met.	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?	/PDD1/ (B.2.)	DR, I	The justification of the additionality does not follow the requirements of the applied methodology AM0011.	CAR B1	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	/IM02/		Alternative 2 (see page 8) of the draft PDD is not an alternative to the project activity. The figures 2 and 3 (in annex 3) show inconsistencies regarding the title and the ordinates.	CR B1 CR B3	
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/PDD1/ (B.4, E.4) /IM02/	DR, I	In section B4 (as well as in subsequent parts of the PDD) it should be clarified that the remaining fugitive emissions of the landfill (after implementation of the project activity) are to be considered as project emissions. The calculation of the off-site emissions due to additional electricity consumption (section B.4) is based on wrong dimensions of the applied emission factor. Thus the reasoning based on the calculated values has to be revised. The leachate evaporation should not be considered as part of the baseline or the project activity as it was only tested on site several years ago and is not planned in future.	CAR B2 CAR B3 CR B2	OK
B.2.3. Has the baseline been established on a	/PDD1/	DR, I	Yes.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
project-specific basis?	(E.4)				
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/PDD1/	DR	Yes.	OK	
B.2.5. Is the baseline determination compatible with the available data?	/PDD1/ (Annex 3)	DR	Yes.	OK	
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	/PDD1/ (B.3) /AM0011/	DR	See comments above. The continuation of the present situation is the most likely scenario.	CAR B1 CR B1	OK
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario (e.g. through demonstrating investment barriers, technology barriers, barriers to prevailing practices, and/or other barriers or through quantitative evidence that the project would otherwise not be implemented)?	/PDD1/ (B.3)	DR	Yes it is shown that the project is additional mainly due to the fact that the project activity is not regulated by Brazilian legislation and that the project activity does not generate any benefits except from the CDM incentives. Nevertheless the project developer has chosen the "Tool for the demonstration and assessment of additionality" instead of the 4-step approach as stipulated in the AM0011.	CAR B1	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Furthermore the described alternative 2 is not an alternative to the project activity.	CR B1	
B.2.8. Have the major risks to the baseline been identified?	/PDD/ (B.4)	DR /IM01/	In section B4 (as well as in subsequent parts of the PDD) it should be clarified that the remaining fugitive emissions of the landfill (after implementation of the project activity) are to be considered as project emissions. The baseline might be influenced by a change of the Brazilian legislation. The validation team has arrived at the conclusion (by means of on-site visit and additional document review) that it is not likely that active venting of LFG will become mandatory in Brazil within the first crediting period. Nevertheless this assumption should be verified during monitoring. Apart from this all relevant influences to the baseline scenario have been addressed.	CAR B2	OK
B.2.9. Is all literature and sources clearly referenced?	/PDD1/	DR	Yes.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
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?	/PDD1/ (C.1.1, C.1.2)	DR	Yes, the starting date of the project activity is scheduled at 2006-09-01 and the expected operational lifetime is 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)?	/PDD1/ (C.2.1.2.)	DR	Yes. The chosen crediting period is the renewable crediting period of 7 years.	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?	/PDD1/ (D.1.)	DR	The selected monitoring methodology is in line with previously the approved monitoring methodology AM0011.	OK	
D.1.2. Is the monitoring methodology	/PDD1/	DR	All applicability criteria of AM0011 are	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
applicable for this project and is the appropriateness justified?	(D.2)		met. All necessary information to justify the appropriateness is presented in the PDD and the supporting documents.		
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/PDD1/ (Sec D.) (Annex 4)	DR	In general the monitoring methodology reflects good monitoring and reporting practices but the monitoring plan offers a few inaccuracies which are listed below. The monitoring plan as described in section D.2.2.1 does not completely match with annex 4 (see esp. equation 6). The density value given in table 9 is not used in the subsequent calculations. Contradictory information regarding the recording frequency of parameter D.2.2.1.3 is given in table D.2.2.1 and section D3. A wrong comment is included in table D.2.2.1 regarding the parameter D.2.2.1.8. The density value in table 16 should show more significant digits (as the density value(s) given in section D2 of	 CAR D1 CAR D2 CR D1 CR D2 CR D3	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			the PDD). Furthermore the given unit should be adjusted in order to comply with equation 6.		
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/PDD1/ (D.2.)	DR	Yes. The project developer justifies the applicability of the monitoring methodology in a satisfactory manner.	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?	/PDD1/ (Section D) (Annex 4)	DR	Within the project boundaries emissions originate only from the portion of LFG which is not flared, i.e. the remaining fugitive emissions. As this part of the emissions is also part of the baseline a monitoring of these emissions is neither possible nor necessary. The CO_2 emissions from flaring are not to be considered as they origin from renewable carbon sources.	OK	
D.2.2. Are the choices of project GHG indicators reasonable?	/PDD1/ (Section D) (Annex 4)	DR	Not applicable (see D.2.1)	OK	
D.2.3. Will it be possible to monitor / measure	/PDD1/	DR	Not applicable (see D.2.1)	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
the specified project GHG indicators?	Section D (Annex 4)				
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	/PDD1/ Section D (Annex 4)	DR	Not applicable (see D.2.1)	OK	
D.2.5. Will the indicators enable comparison of project data and performance over time?	/PDD1/ Section D.	DR	Not applicable (see D.2.1)	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 collection and archiving of all relevant data necessary for determining leakage?	/PDD1/ /AM 0011/	DR	Due to AM0011 no leakage has to be considered.	OK	
D.3.2. Have relevant indicators for GHG leakage been included?	/PDD1/ /AM 0011/	DR	Due to AM0011 no leakage has to be considered.	OK	
D.3.3. Will it be possible to monitor the specified GHG leakage indicators?	/PDD1/ /AM 0011/	DR	Due to AM0011 no leakage has to be considered.	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	/PDD1/	DR	In this case the emission reductions	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	(D.2.1.3.)		can be calculated directly as the non-fugitive part of the baseline emissions, i.e. the flared part of the LFG. All relevant parameters to estimate this part of the baseline and thus the emission reductions will be collected and archived electronically inter alia through flow meters and sensors. Nevertheless the CARs and CRs as addressed in section D.1.3 are to be considered.		
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/PDD1/ (D.2.1.3)	DR	Yes, all relevant indicators are taken into account.	OK	
D.4.3. Will it be possible to monitor the specified baseline indicators?	/PDD1/	DR	Yes, the amount of flared LFG can be monitored continuously.	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 environmental, social and economic impacts?	/PDD1/ /AM0011 /Res. 1/	DR	AM0011 and Resolution 1 do not require the monitoring of social or environmental indicators.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	/PDD1/ /IM01/ /MR/	DR, I	Not applicable (see D.5.1)	OK	
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	/PDD1/	DR	Not applicable (see D.5.1)	OK	
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/PDD1/ /LOA-H/	DR	The validation team agrees that the project activity contributes to sustainable development in Brazil. Nevertheless the Brazilian DNA hasn't confirmed the sustainable development contribution in a Letter of Approval until now, hence the positive validation opinion of the validator is prerequisite for issuance of the Letter of Approval.	(OK)	
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?	/PDD1/ (D.4) /IM01/	DR, I	Yes, the technical operator of Empreiteira Pajoan Ltda, Roberto Kishi, is responsible for the project management.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/PDD1/ (D.4) /IM01/	DR, I	The landfill operation company and project participant, Empreiteira Pajoan Ltda, is responsible for the monitoring, the measurement, the registration and and the reporting. The project developer, Ecológica Assessoria Ltd. will monitor the variables at the project site when possible, if not it will be carried out by a certified laboratory (on a quarterly basis).	OK	
D.6.3. Are procedures identified for training of monitoring personnel?	/PDD1/ (D.4) /IM01/	DR, I	The landfill operator will be responsible for training of the monitoring and operation staff with the help of the equipment manufactures.	OK	
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/PDD1/ (Annex 4) /IM01/	DR, I	A procedure will be prepared by the project developer with the necessary technical and safety procedures for normal operation and the emergency measures for the project operation.	OK	
D.6.5. Are procedures identified for calibration of monitoring equipment?	/PDD1/ (D.3, D.4, Annex 4) /IM01/	DR, I	Yes, the project owner will implement the necessary QC/QA procedures which will assure that the equipment will be tested, checked and duly maintained.	OK	
D.6.6. Are procedures identified for	/PDD1/	DR, I	see D.6.5	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
maintenance of monitoring equipment and installations?	(D.3, D.4, Annex 4)				
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/PDD1/ (D.3, D.4, Annex 4) /IM01/	DR, I	see D.6.5	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)	/PDD1/ D.4. /IM01/	DR, I	see D.6.5	OK	
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/PDD1/ (Annex 4) /IM01/	DR, I	see D.6.5	OK	
D.6.10. Are procedures identified for review of reported results/data?	/PDD1/ (Annex 4) /IM01/	DR, I	see D.6.5	OK	
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/PDD1/ (Annex 4) /IM01/	DR, I I	see D.6.5	OK	
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	/PDD1/ (Annex 4) /IM01/	DR, I	see D.6.5	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/PDD/ (Annex 4) /IM01/	DR, I	Yes. In case of non-conformities, further actions will be implemented, i.e., problem analysis and corrective actions.	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?	/PDD/ (Section E)		In sections E1 – E3 the remaining fugitive emissions are not accounted for (see also CAR B2). The indirect emissions caused by electricity consumption out of the grid are negligible. This was demonstrated by a worst case scenario calculating the emissions from a corresponding Diesel operated extraction pump. The emission calculation proves that these emissions don´t have to be	CAR E1	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			considered.		
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	/PDD1/ (Section E)	DR	See comment on E.1.1.	CAR E1	OK
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	/PDD1/ (Section E)	DR	Table 10 needs to be revised due to several (minor) mistakes as a) the crediting period is not completely considered, i.e. begin and end, b) the LFG flared is not part of the baseline c) the time resolution applied does not completely match equation 3 The project emissions are the remaining fugitive emissions which are also part of the baseline emissions. The extraction efficiency was estimated in a transparent and comprehensive way.	CAR E2	OK
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	/PDD1/ (Section D.)	DR	See comment on E.1.3.	CAR E2	OK
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	/PDD1/ (Section E) /AM0011/	DR	According to AM0011, only methane is considered. Changes in emissions of other gases were considered to be not significant.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
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?	/PDD1/ (E.2) /AM0011/	DR	According to AM0011 no increase in emissions outside the project boundary – leakage is expected as a result of the project activity. The emissions resulting from energy use to operate the equipment was considered not significant.	OK	
E.2.2. Have these leakage effects been properly accounted for in calculations?	/PDD1/ (E.2.) /AM0011/	DR	See comment on E.2.1.	OK	
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	/PDD1/ (E.2.) /AM0011/	DR	See comment on E.2.1.	OK	
E.2.4. Are the calculations documented in a complete and transparent manner?	/PDD1/ (E.2.) /AM0011/	DR	See comment on E.2.1.	OK	
E.2.5. Have conservative assumptions been used when calculating leakage?	/PDD1/	DR	See comment on E.2.1.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	(E.2.)				
E.2.6. Are uncertainties in the leakage estimates properly addressed?	/PDD1/ (E.2.) /AM0011/	DR	See comment on E.2.1.	OK	
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?	/PDD1/ (E.1-3)	DR	The baseline emissions were calculated on the basis of a first order kinetic model as stipulated in AM0011. All parameters and values used for the calculation are selected in a transparent and comprehensive manner. The validation team has calculated the baseline emissions using an own calculation tool. Apart from minor deviations as addressed in the corresponding sections the results of the presented calculation could be confirmed. The legend in figure 1 does not match.	CR E1	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			The choice of the extraction efficiency value for the year 2006 is not justified in the PDD.	CR E2	
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/PDD1/ (E.4.)	DR	The baseline boundary is the project boundary as defined in section B.4 of the PDD. All sources of emissions are accounted for.	OK	
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/PDD1/ (E.4. Annex 3)	DR	See comment on E.3.1	CR E1 CR E2	OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/PDD1/ (E.4. Annex 3)	DR	Yes, as far as applicable. The stipulated 1st order kinetic calculation model was used.	OK	
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/PDD1/	DR	Uncertainties are only addressed in connection with the monitoring of the emission reduction calculation parameters. The validation team has focussed on the appropriate selection of calculation parameters and arrived at the conclusion that all selected	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			parameters are most likely to be achieved in the project situation. Nevertheless as the project emission reductions are calculated ex post possible uncertainties of the baseline do not affect the emission reductions generated by this project activity.		
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	/PDD1/	DR	Yes.	OK	
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?	/PDD1/ (E.1-4)	DR	Yes, about 70 % of the baseline emissions are likely to be reduced. In table A.4.4.1 the emission reductions of 2013 are missing. Thus the total estimated emission reduction calculations (and corresponding tables) have to be revised. Table 10 needs to be revised due to several (minor) mistakes as a) the crediting period is not completely considered, i.e. begin and end, b) the	 CAR A1 CAR E2	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			LFG flared is not part of the baseline c) the time resolution applied does not completely match equation 3		
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?	/PDD1/ (Section F)	DR	The discussion of the environmental impacts is incorrect regarding the emissions of Hg and PCDD/F.	CR F1	OK
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/PDD1/ (F.1) /IM02/ /IM03/ /IM05/	DR, I	The response/approval of the CETESB regarding the environmental license is still pending.	CAR F1	OK
F.1.3. Will the project create any adverse environmental effects?	/PDD1/ (Section F) /IM01/	DR, I	No, all environmental aspects are positive.	OK	
F.1.4. Are transboundary environmental impacts considered in the analysis?	/PDD1/ (F.2) /IM01/	DR, I	No significant negative impacts applicable.	OK	
F.1.5. Have identified environmental impacts been addressed in the project design?	/PDD1/	DR, I	Yes.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	(Section F) /IM01/				
F.1.6. Does the project comply with environmental legislation in the host country?	/PDD1/ /IM01/ /IM03/ /IM05/ /LI/ /LO/	DR, I	The environmental license of landfill is available. The response/approval of the CETESB regarding the environmental license is still pending. Nevertheless acc. to the validators experience it is not foreseeable or likely that the approval for the project will not be granted in due time.	CAR F1	OK
G. Comments by Local Stakeholder *Validation of the local stakeholder consultation process.*					
G.1.1. Have relevant stakeholders been consulted?	/PDD1/ (Section G) /IM01/ /LS/	DR I	Yes. NGO's forum, local attorneys and prosecutor agencies, municipality chamber, state and local environmental authorities were contacted.	OK	
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/PDD1/ (Section G.) /IM01/ /LS/	DR I	The Brazilian DNA requires consultation of specific stakeholders by means of letters. Evidence was provided to the validation team that letters were sent and received by local stakeholders per DNA procedure.	CR G1	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
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?	/PDD1/ (Section G) /Res.1/ /IM01/ /LS/	DR I	See comment on G.1.2		OK
G.1.4. Is a summary of the stakeholder comments received provided?	/PDD1/ (Section G) /IM01/	DR I	The stakeholder involvement procedure was not finalized when the PDD was drafted. Therefore the results of this procedure have to be addressed in the final version of the PDD.	CAR G1	OK
G.1.5. Has due account been taken of any stakeholder comments received?	/PDD1/ (Section G) /IM01/	DR I	See comment on G.1.4	CAR G1	OK

Table 3: Resolution of Corrective Action and Clarification Requests

Draft report clarification requests and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR A1 In table A.4.4.1 the emission reductions of 2013 are missing. Thus the total estimated emission reduction calculations (and corresponding tables) have to be revised.	E.4.1.	The year of 2013 is already included, we took off 2006 and the emission's values are revised. We took of the year of 2006 because of the delay in the project.	The modified PDD addresses this issue in a correct manner. As the starting date of crediting period was changed to 2007-01-01, all years were considered in the emission reduction calculation. CAR is closed.
CAR A2 In annex 1 only project participants should be listed.	A.3.5.	The project participants are listed. We include an annex 5 for a contact to Ecologica.	The annex 1 of the revised PDD now contains only the Project participants. CAR is closed.
CAR A3 The headlines in the annex should not be removed.	A.3.5.	We included all the headlines in the annexes.	The headlines of the annexes were correctly included. CAR is closed
CAR B1 The justification of the additionality does not follow the requirements of the applied methodology AM0011.	B.2.1., B.2.6., B.2.7.	After a discussion, it was determined that the procedure for the justification of the additionality could be made that way, because all additionality criteria that were given in the Tool for the demonstration and assessment of additionality meet also the requirements of AM0011.	The information about the 2 mandatory steps (step 1 legal requirements and step 2 alternatives) were sufficiently given in the PDD in step 1 (Identification of alternatives to the project activity consistent with current laws and regulations) and in sub-step 1a (Define alternatives to the project activity) and 1b (Enforcement of applicable laws and regulations). As the baseline alternatives are economically more attractive than the

Draft report clarification requests and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			project activity, step 3 of AM0011 is not applicable. Furthermore the step 4 has to be considered by the DOE. CAR is closed
CAR B2 In section B.4. (as well as in subsequent parts of the PDD) it should be clarified that the remaining fugitive emissions of the landfill (after implementation of the project activity) are to be considered as project emissions.	B.2.2., B.2.8.	It was included in table 5 a line for fugitive emissions on-site and the percentage of fugitive emissions.	It can be assessed that the remaining fugitive methane emissions are now sufficiently addressed in the revised PDD. Corresponding corrections and clarifications have been included in the PDD.
CAR B3 The calculation of the off-site emissions due to additional electricity consumption (section B.4.) is based on wrong dimensions of the applied emission factor. Thus the reasoning based on the calculated values has to be revised.	B.2.2.	We change the emission factor to 0.1%. The value is revised.	Now the energy related carbon emission factor of diesel shows the correct value and dimension. The corresponding calculation of the off site emissions due to the additional electricity consumption was revised correctly. CAR is closed.
CAR D1 The monitoring plan as described in section D.2.2.1 does not completely match with the annex 4 (see esp. equation 6)	D.1.3.	We include in the table the KWh that is mentioned in the equation 6.	Thus, also the off-site emissions will be accounted for. They will be estimated in a conservative way, considering the IPCC (output-) emission factor of diesel sets. CAR is closed.
CAR D2	D.1.3.	We change the value for the right density	The density of methane given in Table 9

Draft report clarification requests and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
The density value given in table 9 is not used in the subsequent calculations.		used in the subsequent calculations.	is correct as this value is related to the standard reference conditions (273.15 K and 1013 hPa) and was used for the subsequent calculations. CAR is closed.
CAR E1 In sections E1 – E3 the remaining fugitive emissions are not accounted for (see also CAR B2).	E.1.1., E.1.2.	We wrote down remaining fugitive emissions.	The fugitive emissions are addressed and considered for ex ante calculation. CAR is closed.
CAR E2 Table 10 needs to be revised due to several (minor) mistakes as a) the crediting period is not completely considered, i.e. begin and end, b) the LFG flared is not part of the baseline c) the time resolution applied does not completely match equation 3	E.1.3., E.1.4., E.4.1.	The table had been revised; we change the values and corrected the mistakes described. We include the year of 2013 and excluded 2006.	The presented values could be confirmed, CAR is closed
CAR F1 The response/approval of the CETESB regarding the environmental license is still pending.	A.3.1., F.1.2., F.1.6.	The corresponding letter of the CETESB dt. 2006-06-02 was received by the project participant and handed over to the validation team.	No project specific approval of the CETESB is necessary. CAR is closed.
CAR G1 The stakeholder involvement procedure was not finalized when the PDD was issued. Therefore the	G.1.4., G.1.5.	No comments were made by the stakeholders. We wrote in section G2.	Information is sufficient. CAR is closed

Draft report clarification requests and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
results of this procedure have to be addressed in the final version of the PDD.			
CR A1 The project´s spatial boundaries should be clarified.	A.1.1., A.1.2.	We included more information about the spatial boundaries.	It was made clear that the old landfill is not included in the project activity. CR resolved.
CR B1 Alternative 2 (see page 8) of the draft PDD is not an alternative to the project activity.	B.2.1., B.2.6., B.2.7.	We follow the additionality tools.	Alternative 2 is considered as the project activity itself – regardless of the consideration of carbon credits. Other real alternatives have been presented.
CR B2 The leachate evaporation should not be considered as part of the baseline or the project activity as it was only tested on site several years ago and in not planned in future.	B.2.2.	We took of the part of the leachate. In the baseline and in the project activity.	OK, CR is resolved
CR B3 The figures 2 and 3 (in annex 3) show inconsistencies regarding the title and the ordinates.	B.2.1.	The figures have been removed	OK, CR is resolved

Draft report clarification requests and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CR D1 Contradictory information regarding the recording frequency of parameter D.2.2.1.3 is given in table D.2.2.1 and section D3.	D.1.3.	After discussion we changed the frequency of parameter in the table and in section D3, for a semi-annually monitoring.	OK, CAR is closed.
CR D2 A wrong comment is included in table D.2.2.1 regarding the parameter D.2.2.1.8	D.1.3.	The comment was modified and is correct now.	CR is resolved. (the parameter is addressed now as D.2.2.1.7)
CR D3 The density value in table 16 should show more significant digits (as the density value(s) given in section D2 of the PDD). Furthermore the given unit should be adjusted in order to comply with equation 6.	D.1.3	We change the density to 0.0007168 tons/Nm3	The changes are correct and comply with equation 6 of the annex 4. CR is resolved.
CR E1 The legend in figure 1 does not match.	E.3.1., E.3.3.	The legend is changed. And the lines had been corrected.	Figure 1 is correspondingly corrected. CR is resolved
CR E2 The choice of the extraction efficiency value for the year 2006 is not justified in the PDD.	E.3.1., E.3.3.	We took off the year of 2006 from our project.	CR is resolved.

Draft report clarification requests and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CR F1 The discussion of the environmental impacts is incorrect regarding the emissions of Hg and PCDD/F.	F.1.1.	The part that refers about the emissions had been taken off of the text.	OK, CR is resolved.