VALIDATION REPORT

Novo Gramacho Energia

Ambiental

Gramacho Landfill Gas Project

SGS Climate Change Programme
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Project Title:	
Gramacho Landfill Gas Project	
Organisation:	**Client:**
SGS United Kingdom Limited	Novo Gramacho Energia Ambiental S.A.
Publication of PDD for Stakeholders Consultation	
Commenting Period:	03-09-2008 to 02-10-2008
First PDD Version and Date:	Version 1, 29/08/2008
Final PDD Version and Date:	Version 3.1, 06/01/2009

Summary:

Novo Gramacho Energia Ambiental S.A.. has commissioned SGS to perform the validation of the project: Gramacho Landfill Gas Project.
Methodologies used: ACM0001 – Consolidated methodology for landfill gas project activities and AM0069 – Biogenic methane use as feedstock and fuel for town gas production

Version and Date: ACM0001- version 9, 02/08/2008; AM0069 – version 1, 02/08/2008.

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The report is based on the findings of document reviews, the stakeholder consultation process and responses from the project participants to the findings raised in this report.

The report and the annexed validation describes a total of 9 findings which include:

- 4 Corrective Action Requests;
- 5 New Information Requests; and

All findings were closed out satisfactorily. SGS's opinion to the CDM project activity recommends to the Executive Board for a request for registration. The baseline and monitoring methodology as mentioned in approved methodology adopted for the proposed project activity and meets the relevant UNFCCC requirements for the CDM and relevant host country criteria.

At time of the validation, no Letter of Approval from the host country had been provided. The Letter of Approval will be signed when the DNA of Brazil receive and analyse the validation report.

Subject:			
CDM Validation			
Validation Team:			
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Authorised Signatory:			
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Abbreviations

ACM	Approved Consolidated Methodology
AM	Approved Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
DNA	Designated National Authority
DOE	Designated Operational Entity
ER	Emissions Reduction
FAR	Forward Action Request
IRR	Internal Rate of Return
NIR	New Information Request
PE	Project emission
PDD	Project design Document
PP	Project Participants
SGS	Société Générale de Surveillance
tCO_2/MWh	Tonnes of CO2 equivalent/ Mega Watt hour (unit)
UNFCCC	United Nations Framework Convention on Climate Change
WACC	Weighted Average Capital Cost

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Annexes:

1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Novo Gramacho Energia Ambiental S.A.. to perform a validation of the project: Gramacho Landfill Gas Project in Brazil.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

SGS reviewed of the project design documentation, using a risk based approach and conducted follow-up interviews.

By the improvement of landfill gas collection and flaring, through the installation of an active recovery system the project activity will result in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project correctly applies methodologies ACM0001 and AM0069 versions 9 and 1. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 5,966,573 t of CO2e over a 7 year crediting period, averaging 852,367 t of CO2e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC.

Signed on Behalf of the Validation Body by Authorized Signatory

Signature:

Name:

Date:

2. Introduction

2.1 Objective

Novo Gramacho Energia Ambiental S.A.. has commissioned SGS to perform the validation of the project: Gramacho Landfill Gas Project with regard to the relevant requirements for CDM project activities. 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 (MP) and the project's compliance with relevant UNFCCC and host country 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 of the quality of the project and its intended generation of Certified Emission Reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has 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 not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

2.3 GHG Project Description

The report summarizes the results of the validation of Gramacho Landfill Gas Project, performed on the basis of UNFCCC criteria. The validation has been performed as a desk review of the project documents presented by Novo Gramacho Ambiental S.A.. A site visit was carried out on 18th and 19th September, 2008 in Novo Gramacho's office, Gramacho landfill and GPC plant, where the details of the project activity were verified on-site. During the site visit, Novo Gramacho director, GPC staff and ARCADIS-Tetraplan consultant were interviewed.

The project activity involves the improvement of landfill gas collection and flaring, through the installation of an active recovery system in Gramacho landfill, located in Duque de Caxias, Rio de Janeiro state, Brazil. The gas collected will be sold to an independent power producer and a Town Gas Producer or will be flared.

Total amount of emission reductions estimated for the first crediting period is 5,966,573tCO_2e.

Baseline Scenario:

In the absence of the project activity the methane from the landfill would have been released to the atmosphere and town gas would be produced using natural gas.

With-project scenario:

The methane will be collected and used in the town gas production, electricity generation or will be flared.

Leakage:

As per methodology ACM0001 version 9 and AM0069 version 1, no leakage was identified for this project.

Environmental and social impacts:

The project is in line with host-country specific CDM requirements. It is expected that the project activity will help Brazil to fulfil its goals of promoting sustainable development. The contributions of the project activity for this were described in the PDD, and comprises, among others: environmental benefits (the methane will not be released to the atmosphere); social/income benefits (special fund will be create aimed train the people who lives nowadays from picking the waste during its disposal in the landfill); contribution to labour capacitating (training engineers and operators to the qualification level required by these new activities).

The environmental aspects of the project were analyzed by the State Environmental Agency (FEEMA) when it issued the license.

2.4 The Names and Roles of the Validation Team Members

Name	Role	Affiliate
Fabian Gonçalves	Lead Assessor	SGS Brazil
Thaís Carvalho	Trainee Local Assessor	SGS Brazil

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

A site visit is usually required to verify assumptions in the baseline.

The site visit was carried out on 18 and 19th September, 2008 in Novo Gramacho's office, Gramacho landfill and GPC plant. The project developers were interviewed by the Lead Assessor and Local Assessor.

The documents and evidences were confirmed on site visit. The results of this local assessment are summarized in Annex 1 to this report.

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	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 (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). New Information Request (NIR) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex 2 to this report

3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR).** A CAR

is issued, where:

I. mistakes have been made with a direct influence on project results;

II. validation protocol 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 verified.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for renewal of crediting period.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex 3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

4. Validation Findings

4.1 Participation Requirements

There is not Annex I Party involved at this time of the project activity.

Brazil is listed as the host Party. Brazil ratified the Kyoto Protocol on 23rd August 2002. (http://unfccc.int/files/essential_background/kyoto_protocol/application/pdf/kpstats.pdf).

At time of the validation, no Letter of Approval from the host country had been provided. The Letter of Approval will be signed when the DNA of Brazil receive and analyse the validation report.

4.2 Project Design

The title "Gramacho Landfill Gas Project" identifies the unique CDM project activity. The description of the project is considered correct and transparent. The information provided is in compliance with the observed during the site visit. The project is not implemented yet (Ref.16). It is forecast to begin the implementation on October 2008.

Brazil is the only Party involved in the project.

The project participants are two entities:

• Companhia Municipal de Limpeza Urbana - COMLURB (Brazilian public entity);

• Novo Gramacho Energia Ambiental (Brazilian Private Entity).

The project is located in Duque de Caxias, Avenida Monte Castelo, 1760, Rio de Janeiro State. The coordinates are: Latitude: 22º45'03" South and Longitude: 43º16'06" West. Address confirmed trough the installation License (Ref.4).

The category is correctly identified: sectoral Scopes 1- Energy Industries, 5 – Chemical Industries and 13 – Waste Handling and Disposal.

The project involves the improvement of landfill gas collection and flaring, through the installation of an active recovery system. The gas collected will be sold to an independent power producer and a Town Gas Producer or will be flared. Also, the gas captured will substitute the use of natural gas in the production of Town Gas. As the IPP is not implemented yet and the contract between GPC and Novo Gramacho is not signed yet, it is requested to the PP to provide for next verification a document assuring that the CERs will be claimed only by Novo Gramacho. FAR 1 was raised.

The technology of capturing landfill gas and flare it applied by the project activity follows the common technology of its sector. The use of the biogas from landfill in the Town gas production is new in the country. The project activity can be considered as first of its kind. The project did not start the implementation. Verified in the chronogram that it is predicted to start the installation of wells in October (Ref.16).

No public funding is being used for the project activity.

The project did not start the implementation as seen during site visit. The forecast starting date of the implementation, wells perforation, is being considered as the starting date of the project activity, 20/10/2008. As the start date of the project is after validation the CDM consideration is not applicable.

4.3 Baseline Selection and Additionality

The project uses two approved methodologies:

- ACM0001 – Consolidated methodology for landfill gas project activities, version 09;
- AM0069 – Biogenic methane use as feedstock and fuel for town gas production, version 01.

These are the most recent versions available.

The applicability of methodology ACM0001 is correctly applied: the baseline scenario is the partial or total atmospheric release of the gas and the project activity includes the capturing of the biogas that will be flared

or sold to two final consumers. However, NIR 1 was raised regarding that the PDD version 1 does not discuss the applicability conditions of the methodology AM0069. Also, evidences shall be provided to confirm the applicability of AM0069. To close out NIR 1, the PP provided the revised PDD (version 2) and evidences related to the applicability of AM0069. See data on local check list (annex 1).

The gases included in the baseline scenario and project scenario is according to the ACM0001 and AM0069. Leakage is not applicable.

Regarding the projects' spatial boundaries, according to the methodology ACM0001, version 9, the project boundary is the site of the project activity where the gas is captured and destroyed/used. The PDD version 1 does not include all the sites where the gas will be destroyed/used. NIR 2 was raised to address this issue. To close out NIR 2, PP provided the revised PDD (version 2), including all the projects boundaries according to the required by the methodologies:

ACM0001:

-Gramacho Landfill

- Brazilian National Grid,

-the independent power producer

AM0069:

-the pipeline supplying the LFG to GPC;

-all auxiliary equipment installed to transport and clean the LFG;

-GPC (Town gas factory).

Considering the identification of baseline scenario in the PDD version 1, section B.4, sub-step 1b, it was not analyzed the compliance with the local/national regulation of all alternatives. NIR 3 was raised. To close out NIR 3, PP analysed the compliance with the local/national regulation of all alternatives to the project, including the alternative LFG use to generate heat, which was not analyzed in PDD version 1.

The potential realistic and credible baseline scenarios presented in the PDD described below.

For the LFG the alternatives presented are:

-project without being registered as CDM project activity;

-continuation of the landfill operation (BAU)

-destruction in flares

-use to generate electricity

-use in boilers to generate heat.

For the town gas production process the alternatives presented are:

-use of fossil fuel as feedstock and fuel

-use of biomass and fossil fuel as feedstock and fuel

-use of biogas, delivered from other sites not included in the project activity

-project without being registered as CDM project activity

The identification of baseline presented in the PDD is conservative. The most plausible baseline scenario for the LFG is the atmospheric release (BAU) and for the town gas production process is the use of natural gas as feedstock and fuel, this mean the continuation of current practice for both cases.

CAR 7 was raised to address that the starting date of the project activity defined in the PDD version 1 is not according to the clarified in the EB 41 *"the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for equipment or construction/operation services required for the project activity. Minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, should not be considered in the determination of the start date as they do not necessarily indicate the commencement of implementation of the project".* CAR 7 was raised. To close out CAR 7, the PP changed the starting date of

the project activity to attend the required by EB 41. The project did not start the implementation as seen during site visit. The forecast starting date of the implementation, wells perforation, is being considered as the starting date of the project activity, 20/10/2008. As the start date of the project is after validation the CDM consideration is not applicable.

For the demonstration additionality, the project uses the "Tool for the demonstration and assessment of additionality" version 5.02. This is the current version.

After closing out NIR 3, all steps were followed correctly.

Step 1:

Sub-step 1a - all alternatives for LFG and Town Gas were presented.

Sub-step 1b - all alternatives for LFG and Town Gas were considered in accordance with mandatory laws and regulations.

Step 2 - applied benchmark analysis, option III:

Regarding the step 2, the Investment analysis was made comparing the IRR of the project. The analysis considers a 15 year according to the contract signed between COMLURB and Novo Gramacho Energia Ambiental, so the cash flow is based on 15 years considering that the landfill closure on 2009.

The internal rate of return (IRR) was compared with Brazilian Federal Treasury Bonds (Benchmark). The benchmark is a low-risk long-term investment indicator from the Federal Treasury. The benchmark of 14.47% was confirmed through Federal Treasury website and is correctly applied in the financial analysis (http://www.tesouro.fazenda.gov.br/tesouro_direto/download/historico/2008/historicoNTNF_2008.xls, see excel work book named 'NTNF 010117' cell C132).

The government bonds are higher than the 7.0% IRR calculated for the project activity. The following assumptions were also verified to confirm that the analysis is consistent. The landfill gas price of sale to GPC is the most relevant revenue of the project, costs, operating costs, VAT, financial expenses, income taxes and loan payments were confirmed during site visit and evidences were provided (Ref.5, 6, 8, 12, 15, 16, 18, 19).

The analysis was recalculated by a financial expert and confirmed that is correct. The assumptions used and spreadsheet with formula were checked by the assessment team. Verified the contract between Gramacho and Comlurb (Ref.5), invoices, spreadsheet with tow gas production data, financial analysis data (Ref.6, 8, 15). The conclusion of the assessment team is that the project can not be considered financial attractive with this result of 7% IRR, lower that the benchmark of 14.47% (Ref.19).

A sensitivity analysis was conducted increasing the landfill gas price (+10%) and reducing the operational costs (-10%), investment costs of gas collection system and compression system (-10%). The parameters used in the sensitivity analysis are considered correct because represents the revenue of the project and related costs that can affect directly the internal rate of return (Ref.19). Through the sensitivity analysis the maximum internal rate of return obtained is 13.3%, still lower than the Benchmark of 14.47%. The assumptions and the spreadsheet calculation were provided, recalculated by the assessment team and were considered correct (Ref.19).

The financial indicator calculated for the project, the IRR is considered correct, as can be seen in the cash flow worksheet (Ref.19). The IRR of 7% per year is lower than the Benchmark of 14.47%. Thus it was confirmed that the project activity is not financially attractive and the CERs revenue will bring additional benefits to the project activity. Also there is not landfill gas project implemented in Brazil without Clean Development Mechanism.This information can be confirmed through the Brazilian DNA website and UNFCCC website where all landfills with system of collection, flaring or other use are CDM project. The is no regulation or obligation for landfills in Brazil to collect the gas and flare (Ref.18). The CER revenue is essential for the project implementation.

Step 3 – applied the barrier analysis:

Regarding the step 3, it was shown that the project activity faces the following barriers:

- Barriers due to prevailing practice:

-Landfill is not common practice in Brazil and there is no law that requires gas collection and destruction (Ref.18). Table 1 from section B.4 shows a search from IBGE (PNSB) evidencing the waste final destination in Brazil.

Also, this is the first project in Brazil, using biogas from a landfill in the production of town gas (also, the first project using AM0069).

The existing landfills operate with passive venting. The DNA has informed that there is no national law which obligates the destruction of methane in landfills. It is possible to conclude that the installation of such systems in a landfill is not a common practice. Landfills which have implemented a complete collection and flaring system were implemented under the CDM. **Erro! Fonte de referência não encontrada.** was the first one to make use of methodology AM0069 for the production of Town Gas using the LFG.

- Technological barriers:

The technology available is imported from others countries. This can be confirmed in the registered projects.

The conclusion of the barrier analysis is that the project activity can be considered first of its kind.

Step 4 – common practice analysis is correctly applied and proved that the project activity is not a common practice scenario. In Brazil all landfill project with a system to capture the gas to flare or to use for other purpose is not carried without the CDM. Also this project is using the methodology AM0069 because of the use of the methane as fuel for town gas production. This project can be considered as first of its kind in the country since there is no other registered project in the UNFCCC website or in validation process in Brazil (confirmed through Brazilian DNA website, www.mct.gov.br).

In Brazil, there is no requirement regarding mandatory LFG capture or destruction. Regarding solid waste final disposal, the *Política Nacional de Resíduos* has been under discussion since 2000, but no further regulation has been put in place. The Policy does not foreseen obligation on landfill gas destruction for GHG reductions or in order to accomplish neither local environmental regulations nor the promotion of organic waste processing.

According with *BEN* (National Energetic Balance), the town gas had always been produced in Brazil in the past mainly from coal sources. In the case of the project activity the company has been using natural gas to produce Town Gas.

The data provided from the latest official statistics on urban solid waste in Brazil, “Pesquisa Nacional de Saneamento Básico 2000”, “IBGE”, and “ABRELPE – Associação Brasileira de Empresas de Limpeza Pública e Resíduos Especiais”, confirms that all landfills with active LFG recovery system are developed as CDM project because there is no legal obligation to destroy the methane.

Since there is no obligation to collect, flare or other use for the landfill gas in Brazil, we can assume that there is no other project implemented without CDM revenue. Only because of this condition the project could be considered additional without further information, but all steps of the Tool was correctly followed.

The project activity is considered additional due to the low internal rate of return (7%, lower than the benchmark of 14.47%, since after sensitivity analysis) and barrier analysis presented.

4.4 Application of Baseline Methodology and Calculation of Emission Factors

The project follows the methodology ACM0001, version 9 and AM0069, version 1 and the related tools:

Tool for the demonstration and assessment of additionality version 05.2; Tool to determine project emissions from flaring gases containing methane, version 01; Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01; Tool for calculation of emission factor for electricity systems, version 01; Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 02; Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, version 04.

CAR 4 was raised to address that the ex ante calculation of emission reduction presented in PDD version 1 was based on estimated data. However, real data, when available, should be used. To close out CAR 4, PDD and spreadsheet with CERs calculation were revised and related evidences were provided to SGS. In addition, CAR 8 was raised to address that the section B.6.3 of PDD version 1 does not present the ex ante

calculation of project emission and leakage. To close out CAR 8, section B.6.3 of the PDD was revised and now presents the ex ante calculation of project emissions. Leakage is not applicable for the project.

All formulas presented in the PDD follows the required by the methodologies.

For both methodologies: ERy = BEy-PEy

$ER_{y\ Project} = ER_{y,\ ACM0001} + ER_{y,\ AM0069}$

With the data provided in the PDD it is possible to reproduce the calculation of emission reduction. A spreadsheet with data and formula was provided during the validation and was found correct. The same procedure used to calculate the estimate emissions reduction will be used during monitoring period considering the real data measured.

Regarding the project emission calculation, according to ACM0001 is from two sources: efficiency of flare emissions and electricity consumption from the grid. According to AM0069: PE is from energy consumption (electricity and fuels). Those are calculated according to the required by the methodologies.

For the emission factor calculation, regarding the vintage data, the tool to calculate the emission factor for an electricity system states “For the dispatch data analysis OM, use the year in which the project activity displaces grid electricity and update the emission factor annually during monitoring”. PDD version 1 does not comply with this requirement therefore, CAR 5 was raised. To close out CAR 5, the PDD was revised and the emission factor presented is according to the requirements of the tool (EF = 0.1841tCO2e/MWh). It will be updated ex post annually. CAR 5 was closed out. Data provided in section B.6.2 were from official sources (ONS). However the data used to calculate the emission factor of the grid is not available. It is not possible to validate.

For the calculation of adjustment factor, it was used the numbers of wells installed, the number of wells which burns some gas, the radius of influence of the wells, the total area from Gramacho landfill, the maximum gas generation ratio estimated and the efficiency of methane destruction in open flares (Ref.9a). This result in an AF=0.38% and a conservative value of 5% was adopted.

Parameters listed in section B.6.2 of the PDD that will remain fixed during the crediting period were verified and considered correct.

4.5 Application of Monitoring Methodology and Monitoring Plan

Data and monitored parameters and parameters available at validation are according to the required by the methodologies.

All data related to the project will be kept for 2 years after the end of the crediting period.

Monitored parameters were verified and considered correct according to the methodologies and tool used.

Not all parameters will be bound to national standards. Parameters are following the methodologies and applicable tools.

The quality control and quality assurance follow the methodology and applicable tolls. The variables described in item B.7.1 will be measured continuously and the readings will be also registered continuously, in a supervisory computer system. In order to assure conservatism, the standard errors of each equipment will be subtracted from the readings. Maintenance and calibration procedures might be developed according with the recommendations from the manufacturers in order to assure the equipment’s lifetime and data credibility. The level of uncertainty is low due to automatic data in the project; data related to the emission factor comes from official source; calibrated meters, according with the recommendations from the manufacturers.

Related to the operational and management structure, as the project is not implemented yet, FAR 2 was open to request the PP to provide before verification the description of authority and responsibility of project management; the authority and responsibility for registration, monitoring, measurement and reporting data; procedures for training of monitoring personnel.

For the monitoring plan, NIR 6 was raised to request more information in the monitoring plan. There was no information about:

- measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality;
- monitoring equipment and respective positioning in order to safeguard a proper installation;
- procedures for maintenance and calibration of monitoring equipment;
- procedures for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation);
- procedures for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems;
- procedures for internal audits of GHG project compliance with operational requirements where applicable;
- procedures for project performance reviews before data is submitted for verification, internally or externally.

To close out NIR 6, PP completed and added more information in the monitoring plan. As the project is not implemented yet, FAR 3 was open to request to the PP to provide before verification the procedures implemented for monitoring data to ensure the delivery of high quality data and compliance with the required by the methodologies ACM0001, version 9 and AM0069, version 1.

4.6 Choice of the Crediting Period

CAR 7 was raised regarding the starting date of the project activity. After closing out CAR 7, the starting date was defined as the date expected to the beginning of the landfills perforation, which is 20/10/2008.

The starting date of the crediting period is 01/07/2009. The crediting period to the project activity is 7 years. The period starts on 1st July 2009 or the date of registration, which occurs later. The expected operational lifetime of the project (15 years after the closure of the landfill) is greater than the first crediting period.

4.7 Environmental Impacts

The environmental impacts were analyzed when the environmental agency (FEEMA) issued the installation license for the flares (Ref.4). This license also includes issues related to the closure of the landfill.

Verified the donation certificate from the area where the landfill is located (Ref.10). The area was donated by INCRA to COMLURB in 1979. The certificate states that area should be used as a landfill within two years after the signature of the certificate.

4.8 Local Stakeholder Comments

The local stakeholder consultation followed the Resolution nº 7, 05 March 2008, from Brazilian DNA. The following entities were invited to comment on project:

- Municipality of Duque de Caxias
- Legislative Chamber of Duque de Caxias
- State Environmental Agency (FEEMA)
- Municipal Environmental Secretariat
- Brazilian NGO Forum
- State Public Attorney
- Federal Public Attorney
- Municipality of Rio de Janeiro
- ACAMJG – Associação dos Catadores de Materiais Recicláveis de Jardim Gramacho

The letters and receipts (AR) were verified (Ref.14). Letters were sent in Portuguese and also, the PDD was made available in local language.

No comments were received.

5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

5.1 Description of How and When the PDD was Made Publicly Available

The Project Design Document for this project was made available on the SGS website http://cdm.unfccc.int/Projects/Validation/DB/IOJKHC9RUXNKFXMF0GW8V7YS4BV4UU/view.html and was open for comments from 03-09-2008 until 02-10-2008. Comments were invited through the UNFCCC CDM homepage

5.2 Compilation of all Comments Received

Comment Number	Date Received	Submitter	Comment
0			

5.3 Explanation of How Comments Have Been Taken into Account

No comments received.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
18/09/2008	Roberto Bueno	GPC: industrial manager	Data related to the methodology AM0069, natural gas invoices, NCV town gas, NCV natural gas.
	Hemylson H. N. Padilha	GPC: operation supervisor	
	Cláudia Lima da C. Mattos	Yukon/GPC: industrial	
18/09/2008 19/09/2008	Eduardo Cardoso Filho	ARCADIS-Tetraplan: Consultant	Validation process and findings. Technical issues, operational issues, investment analysis, Monitoring plan, baseline emission factor, adjustment factor
	Eduardo Levenhagen	Novo Gramacho Energia Ambiental: Director	Financial issues related to the project, environmental and quality management system; environmental impacts, technical issues, plant operation, project implementation, starting date.

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

1	PDD: Gramacho Landfill Gas Project, version 1, 29/08/2008; version 2, 02/10/2008; version 3, 17/11/2008, version 3.1, 06/01/2009.
2a	ACM0001 – Consolidated methodology for landfill gas project activities, version 9
2b	AM0069 – Biogenic methane use as feedstock and fuel for town gas production, version 1
3a	Tool for the demonstration and assessment of additionality, version 05.2
3b	Tool to determine project emissions from flaring gases containing methane, version 01
3c	Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01
3d	Tool for calculation of emission factor for electricity systems, version 01
3e	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 02
3f	Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, version 04

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

4	Installation License, LI nº FE014252, issued by FEEMA
5	Contract between Novo Gramacho and COMLURB, nº 155/2007
6	Natural gas invoice and NVC of natural gas
7	Spreadsheet with historical data from town gas composition (2005, 2006, 2007)
8	Spreadsheet with historical data from town gas production (2005, 2006, 2007)
9a	Map of the landfill
9b	Map of the landfill- weighbridge coordinates
10	Certificate of the donation of the landfill area
11	CD4CDM
12	SCS study
13	EPA study
14	Local Stakeholder consultation (Letters and Receipts)
15	Financial analysis data
16	Implementation chronogram
17	Data for the parameter K (temperature and precipitation)
18	DNA letter and response
19	Cópia de Modelo Conselho_2008.10.13 SGS- IRR calculation and sensitivity analysis
20	CERs Estimatives - Gramacho (v 02) 2008.10.03- CERs Calculation

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A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for Gramacho Landfill Gas Project.

It serves as a "**reality check**" on the project that is completed by a local assessor from SGS Brazil.

Issue	**Findings**	**Source/Means of Verification**	**Further Action / Clarification / Information Required?**
Explain about the captured gas used to produce energy (Independent Power Producer). According to ACM0001 the project boundary is the site of the project activity where the gas is captured and destroyed/used.	NIR 2 was open to address that the PDD version 1 does not include all the sites where the gas will be destroyed/used. To close out NIR 2, PP provided the revised PDD (version 2), including all the projects boundaries according to the required by the methodologies: ACM0001: -Gramacho Landfill; -Brazilian National Grid; -the independent power producer AM0069: -the pipeline supplying the LFG to GPC; -all auxiliary equipment installed to transport and clean the LFG; -GPC (Town gas factory)	Site visit	~~NIR 2~~ Y
Copy of the contract between Novo Gramacho and GPC, and between Novo Gramacho and IPP, to confirm that CER will be claimed only by Novo Gramacho.	The Independent Power Producer is not implemented yet and the contract between Novo Gramacho and GPC is not signed yet. FAR 1 was open to request the PP to provide for verification a document assuring that the CERs will be claimed only by Novo Gramacho.	Site visit	FAR 1

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
How to evidence that Gramacho landfill is the first project in Brazil aimed to displace natural gas consumption directly.	The PP provided a spreadsheet from CD4CDM, with all CDM projects around the world (Ref.11). This is the first project using the methodology AM0069.	Ref.11 UNFCCC website	Y
Check geographic coordinates	Latitude: 22º45'03" South Longitude: 43º16'06" West The coordinates are from the weighbridge localization (Ref.9a, 9b).	Site visit DR Ref.9a, 9b	Y
Check project implementation chronogram.	The implementation chronogram was provided to the auditors. Project implementation is forecast to start on October/2008 (Ref.16).	Ref.16	Y
Check evidences related to the methodology (AM0069) applicability: 1. town gas produced using biogas as feedstock and fuel; 2. biogas as feedstock does not lead to a	1. During site visit and interviews it was observed that GPC uses natural gas as fuel and feedstock to produce town gas. Invoices from natural gas were provided (Ref.6);	Site visit Interview Ref.6 Ref.7 Ref.8 Ref.10	Y

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
change in the quality of the produced town gas; 3. town gas distribution grid is within the host country boundaries; 4. biogas is captured at an existing landfill site which has at least three year record of venting or flaring of biogas that would continue to be vented or flared in the absence of the project activity; 5. town gas factory have at least three year record of using fossil fuel as feedstock for the production of town gas; 6. evidence of the data quantity and quality of town gas produced and quantity and quality of fossil fuel used for the last three years.	2. Through interviews with GPC managers/operators they said that no change in the quality of town gas is expected with the substitution from natural gas to the landfill biogas; 3. The GPC and Gramacho landfill are located in Brazil, Rio de Janeiro state; 4. The area where the landfill is located was donated by INCRA to COMLURB in 1979 (Ref.10). The certificate states that the area should be used as a landfill within two years after the signature of the certificate. So, the landfill is operating for more than three years. 5. The GPC provided invoices from natural gas bought from CEG for the last three years (Ref.6) 6. A spreadsheet with daily amount of town gas produced by GPC from the last three years (Ref.7) and a spreadsheet with the monthly composition of the town gas produced by GPC from the last three years (Ref.8) were provided to SGS.		

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Confirm the 49 wells venting and 15 of them were burning.	A map with the wells from Gramacho landfill was provided to SGS (Ref.9a). Some of them were seen during site visit.	Site visit Ref.9	Y
Check evidence of the data used to calculate the adjustment factor: Formula 3 of the PDD.	For the calculation of adjustment factor, it was used the numbers of wells installed, the number of wells which burns some gas (Ref.9a), the radius of influence of the wells (fixed parameter), the total area from Gramacho landfill, the maximum gas generation ratio estimated (estimated LFG gas collection in 2009-forecasted closure of the landfill-divided by 8760 hours) (Ref.20) and the efficiency of methane destruction in open flares (Tool-Ref.3b). This result in an AF=0.38% and a conservative value of 5% was adopted.	Ref.3b Ref.9 Ref.20	Y
Check the contact with Brazilian DNA regarding information of the host country regulation (AF).	Brazilian DNA was contacted. Answer was sent saying that there is no federal obligation in Brazil that requests methane destruction in Brazilian landfills (Ref.18).	Ref.18	Y
Check on site measurements of fraction of methane in the SWDS gas carried out by SCS Engineers and why another value will be applied instead of default value.	The study from SCS was provided. The results about the methane concentration in the biogas from the wells are around 55-56% (Ref.12, apendice B).	Ref.12	Y
How was defined the collection efficiency of 80%?	The value was defined according to a study published by EPA. This study says that the collection efficiency is about 75 to 85 % (ref.13, page 2-8). An intermediary value was used in the PDD.	Ref.13	Y

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
How was defined the average NCV of the tow gas? Composition of the town gas.	NIR 9 was open to request the PP to provide the reference of the values of NCV of the gases used to calculate the NCV from town gas. To close out NIR 9, the PDD was revised and the reference for the NCV values was included (Gas Engineers Handbook/ SINDE). The reference was checked and values presented in the PDD are correctly applied.	Web link: http://www.gasnet.com.br/novo_gasnatural/combust_completo.asp#comb422 (accessed on 17/10/2008)	~~NIR 9~~ Y

A.2 Annex 2: Validation Protocol

Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

Requirement	Reference	Comments	Conclusion
1. All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	Marrakech Accords, CDM Modalities §30	Brazil is listed as the non-Annex-I Party, has ratified the protocol on 23rd August 2002 and is allowed to participate http://maindb.unfccc.int/public/country.pl?country=BR	Y
2. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	Marrakech Accords, CDM Modalities §29 and §30	There is no Annex I Party in this project.	Y
3. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	There is no letter of approval from DNA Brazil at this phase (just after submission of validation report).	Pending
4. 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	PDD publicly available: 03 Sep 08 - 02 Oct 08. *http://cdm.unfccc.int/Projects/Validation/DB/IOJKHC9RUXNKFXMF0GW8V7YS4BV4UU/view.html*	Y

Requirement	Reference	Comments	Conclusion
5. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	It follows the CDM- PDD template version 03.1.	Y
6. The project participants shall submit a letter on the modalities of communication (MoC) before submitting a request for registration	EB-09 F_CDM_REG form	Letter of MoC is to be provided.	Pending
7. For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?		NA	NA

Table 2 PDD

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity					
A.1. Project Title					
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	A.1	DR	Yes, the title "Gramacho Landfill Gas Project" identifies the unique CDM project activity.	Y	Y
A.1.2. Are there an indication of a revision number and the date of the revision?	A.1	DR	PDD version 3.1, date 06/01/2009	Y	Y
A.1.3. Is this in consistency with the time line of the project's history?	A.2	DR	Yes.	Y	Y
A.2. Description of the Project Activity					
A.2.1. Is the description delivering a transparent overview of the project activities?	A.2	DR	The description of the project is correct and transparent.	Y	Y
A.2.2. Is all information provided in compliance with actual situation or planning?	A.2 Ref.16	DR Site visit	The information provided in section A.2 is in compliance with the observed during the site visit. The project is not implemented yet (Ref.16). It is forecast to begin the implementation on October 2008.	Y	Y
A.2.3. Is all information provided consistent with details provided in further chapters of the PDD?	A.2	DR	The information of the Section A.2 of the PDD is consistent with further chapters.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.3. Project Participants					
A.3.1. Is the table required for the indication of project participants correctly applied?	A.3	DR	Brazil is the only Party involved in the project. The project participants are two entities: • Companhia Municipal de Limpeza Urbana - COMLURB (Brazilian public entity) • Novo Gramacho Energia Ambiental (Brazilian Private Entity)	Y	Y
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	A.3 Annex 1	DR	The description of annex 1 is consistent with the information described in section A.3 of the PDD.	Y	Y
A.4. Technical Description of the Project Activity					
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	A.4.1 Ref.4 Ref.9a Ref.9b	DR Site visit	Yes. The project is located in Duque de Caxias, Avenida Monte Castelo, 1760, Rio de Janeiro State. The coordinates are: Latitude: 22º45'03" South Longitude: 43º16'06" West Address confirmed trough the installation License (Ref.4). The coordinates are from the weighbridge localization (Ref.9a, 9b).	Y	Y
A.4.2. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	A.4.1 Ref.4 Ref.5 Ref.10	DR Site visit	Yes, Novo Gramacho Energia Ambiental S.A. has the installation License (nº FE 014252) to the project activity (Ref.4). Also verified the contract between Novo Gramacho Energia Ambiental S.A. and Companhia Ambiental de Limpeza Urbana (COMLURB) (Ref.5). Verified that the area where the landfill is located was donated by INCRA to the COMLURB (Ref.10).	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.3. Is the category(ies) of the project activity correctly identified?	A.4.2 UNFCCC web site	DR	The category is correctly identified: • Sectoral Scope 1- Energy Industries • Sectoral Scope 5 – Chemical Industries • Sectoral scope 13 – Waste Handling and Disposal	Y	Y
A.4.4. Does the project design engineering reflect current good practices?	A.4.3	DR Site visit	Yes, the project involves the improvement of landfill gas collection and flaring, through the installation of an active recovery system. The gas collected will be sold to an independent power producer and a Town Gas Producer or will be flared.	Y	Y
A.4.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance and is the explanation how the project will reduce greenhouse gas emission transparent and suitable?	A.4.3 Ref.18	DR Site visit	The project aims to reduce GHG by avoiding the free emission of methane. Also, the gas captured will substitute the use of natural gas in the production of Town Gas. As the IPP is not implemented yet and the contract between GPC and Novo Gramacho is not signed yet, it is requested to the PP to provide for next verification a document assuring that the CERs will be claimed only by Novo Gramacho. FAR 1 was raised.	FAR 1	FAR 1
A.4.6. Is all information provided in compliance with actual situation or planning as available by the project participants?	Ref.16	Site visit	Yes, the project did not start the implementation. Verified in the chronogram that it is forecast to start the installation of wells in October (Ref.16).	Y	Y
A.4.7. 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?	A.4.3	DR	The technology of capturing landfill gas and flare it applied by the project activity follows the common technology of its sector. The use of the biogas from landfill in the Town gas production is new in the country. The project activity can be considered as first of its kind.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.8. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	A.4.3	DR	The technology applied in the project it's not likely to be substituted.	Y	Y
A.4.9. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	A.4.3	Site visit	The project is not implanted yet. See NIR 6 below.	See ~~NIR 6~~	Y
A.4.10. Does the project make provisions for meeting training and maintenance needs?	A.4.3		The project is not implemented yet.	Y	Y
A.4.11. Is a schedule available on the implementation of the project and are there any risks for delays?	A.4.3 Ref.16	Site visit	The project did not start the implementation. Verified in the chronogram that it is predicted to start the installation of wells in October (Ref.16)	Y	Y
A.4.12. Is the table required for the indication of projected emission reductions correctly applied?	A.4.4	DR	Yes, the table follows the CDM-PDD template.	Y	Y
A.5. Public Funding					
A.5.1. Does the information on public funding provided conform with the actual situation or planning as presented by the project participants?	A.4.5 Annex 2	DR	No public funding is being used for the project activity.	Y	Y
A.5.2. Is all information provided consist with details provided by further chapters of the PDD (in particular annex 2)?	A.4.5 Annex 2	DR	No public funding is being used for the project activity.	Y	Y
A.5.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	A.4.5 Annex 2	DR	There is no Annex I Party participating of the project activity.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B. Baseline and Monitoring Methodology					
B.1. Choice and Applicability					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	B.1 Ref.2a Ref.2b	DR	The project uses two approved methodologies: • ACM0001 – Consolidated methodology for landfill gas project activities, version 09; • AM0069 – Biogenic methane use as feedstock and fuel for town gas production, version 01. These are the most recent versions available.	Y	Y
B.1.2. Is the baseline methodology the one deemed most applicable for this project?	B.2 Ref.6 Ref.7; Ref.8; Ref.10	DR Site visit intervi ews	The applicability of methodology ACM0001 is correctly applied: the baseline scenario is the partial or total atmospheric release of the gas and the project activity includes the capturing of the biogas that will be flared or sold to two final consumers. However, the PDD version 1 does not discuss the applicability conditions of the methodology AM0069. Evidences shall be provided to confirm the applicability of AM0069.NIR 1 was raised. To close out NIR 1, the PP provided the revised PDD (version 2) and evidences related to the applicability of AM0069. See data on local check list (annex 1).	~~NIR 1~~	Y
B.1.3. Is the choice of the methodology correctly justified by the PDD and is the project in conformance with all applicability criteria of the applied methodology?	B.2	DR	See NIR 1 above.	See ~~NIR 1~~	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.2. Project Boundary					
B.2.1. Are all emission sources and gasses related to the baseline scenario, project scenario and leakage clearly identified and described in a complete manner?	B.3 Ref.2a Ref.2b	DR	Yes, the gases included in the baseline scenario and project scenario is according to the ACM0001 and AM0069. Leakage is not applicable.	Y	Y
B.2.2. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with EB guidance and the underlying methodology?	B.3	DR	Yes, it applies the grid defined by Brazilian DNA to calculate project emissions. The data used to calculate the emission factor of the grid is not available. It is not possible to validate. Waiting for the Brazilian DNA decision about the emission factor data source.	Y	Pending

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.2.3. Are the project's spatial boundaries (geographical) and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	B.3	DR Site visit	According to the methodology ACM0001, version 9, the project boundary is the site of the project activity where the gas is captured and destroyed/used. The PDD version 1 does not include all the sites where the gas will be destroyed/used. NIR 2 was raised. To close out NIR 2, PP provided the revised PDD (version 2), including all the projects boundaries according to the required by the methodologies: ACM0001: -Gramacho Landfill - Brazilian National Grid, -the independent power producer AM0069: -the pipeline supplying the LFG to GPC; -all auxiliary equipment installed to transport and clean the LFG; -GPC (Town gas factory)	~~NIR 2~~	Y
B.3. Identification of the Baseline Scenario					
B.3.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the chosen baseline transparent?	B.4	DR	In PDD version 1, section B.4, sub-step 1b, it was not analyzed the compliance with the local/national regulation of all alternatives. NIR 3 was raised. To close out NIR 3, PP analysed the compliance with the local/national regulation of all alternatives to the project, including the alternative LFG use to generate heat, which was not analyzed in PDD version 1.	~~NIR 3~~	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.3.2. Does the application consider all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations??	B.4	DR	Yes. For the LFG the alternatives presented are: -project without being registered as CDM project activity; -continuation of the landfill operation (BAU) -destruction in flares -use to generate electricity -use in boilers to generate heat. For the town gas production process the alternatives presented are: -use of fossil fuel as feedstock and fuel -use of biomass and fossil fuel as feedstock and fuel -use of biogas, delivered from other sites not included in the project activity - project without being registered as CDM project activity	Y	Y
B.3.3. Is the choice of the baseline compatible with the available data?	B.4	DR	Yes.	Y	Y
B.3.4. Is conservativeness addressed in the way of identifying the baseline?	B.4	DR	Yes, the identification of baseline is conservative. The most plausible baseline scenario for the LFG is the atmospheric release (BAU) and for the town gas production process is the use of natural gas as feedstock and fuel, this mean the continuation of current practice for both cases.	Y	Y
B.3.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	B.4	DR	Yes. See NIR 3 and its closure on section B.3.1 and section B.3.4 above.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4. Additionality					
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as given by the methodology and by following all the required steps?	B.5 Ref.3a	DR	See section B.4.2 below.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	B.5 Ref.3a	DR	The project uses the "Tool for the demonstration and assessment of additionality" version 5.02. This is the current version. See NIR 3 above and its closure, regarding the sub step 1b. All steps were followed correctly. Step 1: Sub-step 1a - all alternatives for LFG and Town Gas were presented. Sub-step 1b - all alternatives for LFG and Town Gas were considered in accordance with mandatory laws and regulations. Step 2 - applied benchmark analysis, option III. See B.4.6 for more detail. Step 3 – applied the barrier analysis. See B.4.7 for more detail. Step 4 – common practice analysis is correctly applied and proved that the project activity is not a common practice scenario. In Brazil all landfill project with a system to capture the gas to flare or to use for other purpose is not carried without the CDM. Also this project is using the methodology AM0069 because of the use of the methane as fuel for town gas production. This project can be considered as first of its kind in the country. Only because of this condition the project could be considered additional without further information, but all steps of the Tool was correctly followed.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.3. Is the discussion on additionality and the evidence provided consistent with the starting date of the project If the project has started before the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	B.5 C.1.1 Ref.3a	DR	See CAR 7 regarding starting date of the project activity. As the starting date is after validation, CDM consideration is not necessary.	See ~~CAR 7~~	Y
B.4.4. Is the discussion on additionality consistent with the identification all potential realistic and credible baseline scenarios B.4.5. Do the identified alternative include technologies and practices that include outputs (e.g) cement or services comparable with the proposed CDM project activity			All steps of the Tool were followed for both methodologies. The additionality discussion is consistent with potential baseline scenarios. Besides the information provided in the financial analysis and barrier analysis, this project can be considered first of its kind.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.6. If an investment analysis has been used, has it been shown that the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?			*The Investment analysis was made comparing the IRR of the project.* *The analysis considers a 15 year according to the contract signed between COMLURB and Novo Gramacho Energia Ambiental, so the cash flow is based on 15 years considering that the landfill closure on 2009.* The internal rate of return (IRR) was compared with Brazilian Federal Treasury Bonds (Benchmark). The benchmark is a low-risk long-term investment indicator from the Federal Treasury. The benchmark of 14.47% was confirmed through Federal Treasury website and is correctly applied in the financial analysis (http://www.tesouro.fazenda.gov.br/tesouro_direto/consulta_titulos/consultatitulos.asp). The government bonds are higher than the 7.0% IRR calculated for the project activity. The following assumptions were also verified to confirm that the analysis is consistent. The analysis was recalculated by a financial expert and confirmed that is correct. The project can not be considered financial attractive with this result of 7%. The landfill gas price of sale to GPC is the most relevant revenue of the project, cots, operating costs, VAT, financial expenses, income taxes and loan payments. A sensitivity analysis was conducted increasing the landfill gas price and reducing the operational costs, costs of gas collection system and compression system. Through the sensitivity analysis the maximum internal rate of return obtained is 13.3%, still lower than the Benchmark of 14.47%.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
Cont.			The assumptions and the spreadsheet calculation were provided and were considered correct. The financial indicator calculated for the project, the IRR is considered correct, as can be seen in the cash flow worksheet. The IRR of 7% per year is lower than the Benchmark of 14.47%. Confirmed that the project activity is not financially attractive. The CER revenue will bring additional benefits to the project activity.	Y	Y
B.4.7. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	B.5	DR	The project activity faces the following barriers: • Barriers due to prevailing practice: -Landfill is not common practice in Brazil and there is no law that requires gas collection and destruction. Table 1 from section B.4 shows a search from IBGE (PNSB) evidencing the waste final destination in Brazil. Also, this is the first project in Brazil, using biogas from a landfill in the production of town gas (also, the first project using AM0069). • Technological barriers: The technology available is imported from others countries. This can be confirmed in the registered projects. The conclusion of the barrier analysis is that the project activity can be considered first of its kind. Only because of this condition the project could be considered additional without further information.	Y	Y
B.4.8. Has it been shown that the project is not common practice?	B.5	DR	Yes. All the projects that collect and flare the biogas in Brazil are developed under CDM. From these projects nearly 23% uses the biogas to generate energy.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.9. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario	B.5	DR	Yes. The baseline scenario is the continuation of current practice: landfill operation without the implementation of the project activity.	Y	Y
B.5. Application of the Baseline Methodology					
B.5.1. Has the approved methodology been applied correctly for determining **baseline emissions**?	B.6.3 Ref.2a Ref.2b Ref.6 Ref.7 Ref.8 Ref.20	DR	The project follows the methodology ACM0001, version 9 and AM0069, version 1. The ex ante calculation of emission reduction presented in PDD version 1 was based on estimated data. However, real data, when available, should be used. CAR 4 was raised. To close out CAR 4, PDD and spreadsheet with CERs calculation were revised and related evidences were provided to SGS.	~~CAR 4~~	Y
B.5.2. Has the approved methodology been applied correctly for determining **project emissions**?	B.6.3	DR	Section B.6.3 of PDD version 1 does not present the ex ante calculation of project emission and leakage. CAR 8 was raised. Section B.6.3 of the PDD was revised and now presents the ex ante calculation of project emissions. Leakage is not applicable for the project. CAR 8 was closed out.	~~CAR 8~~	Y
B.5.3. Has the approved methodology been applied correctly for determining **leakage**?	B.6.3	DR	See CAR 8. Leakage is not applicable.	See ~~CAR 8~~	Y
B.5.4. Where applicable, has the approved methodology been applied correctly for the **direct calculation of emission reductions**	B.6.3 Ref.2a Ref.2b Ref.20	DR	All formulas presented in the PDD follows the required by the methodologies. For both methodologies: ERy = BEy-PEy $ER_{y\ Project} = ER_{y,\ ACM0001} + ER_{y,\ AM0069}$	Y	Y
B.5.5. Have all the methodological choices been explained, have they been properly justified and are they correct	B.6.1 B.6.3 Ref.20	DR	See CAR 4 and CAR 8. For the calculation of adjustment factor, it was used the numbers of wells installed, the number of wells which burns some gas, the radius of	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
			influence of the wells, the total area from Gramacho landfill, the maximum gas generation ratio estimated and the efficiency of methane destruction in open flares. This result in an AF=0.38% and a conservative value of 5% was adopted. The grid emission factor will be calculated ex post, using data provided by Brazilian DNA (See CAR 5 below).		
B.5.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	B.6.1 B.6.3 Ref.20	DR	Yes, conservative value for AF was used. The emissions from the energy consumed in the project activity will be considered in the emission reduction calculation.	Y	Y
B.6. Ex-ante Data and Parameters Used					
B.6.1. Are the data provided in compliance with the methodology?	B.6.2	DR	For the emission factor calculation, regarding the vintage data, the tool to calculate the emission factor for an electricity system states “For the dispatch data analysis OM, use the year in which the project activity displaces grid electricity and update the emission factor annually during monitoring”. PDD version 1 does not comply with this requirement. CAR 5 was raised. To close out CAR 5, the PDD was revised and the emission factor presented is according to the requirements of the tool. It will be updated ex post annually. CAR 5 was closed out. Parameters listed in section B.6.2 of the PDD that will remain fixed during the crediting period were verified and considered correct.	~~CAR 5~~	Y
B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	B.6.2 Ref.17 Ref.18	DR	Yes, data provided in section B.6.2 were from official sources (ONS).	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.6.3. Is the vintage of the baseline data correct?	B.6.2	DR	Yes. Official data from ONS (National System Operator) was used. However the data used to calculate the emission factor of the grid is not available. It is not possible to validate.	Y	Pending
B.7. Calculation of Emissions Reductions					
B.7.1. Has the approved methodology been applied correctly for determining **emission reductions**?	Ref.1 Ref.2a Ref.2b	DR	Yes. Formulas are correctly described in the PDD according to required by the methodologies and tools. Leakage is not applicable. For both methodologies: ERy = BEy-PEy $ER_{y\ Project} = ER_{y,\ ACM0001} + ER_{y,\ AM0069}$	Y	Y
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	Ref.1 Ref.2a Ref.2b Ref.20	DR	The equations are presented in the PDD. With the data provided in the PDD it's possible to reproduce the calculation. A spreadsheet with data and formula was provided during the validation and was found correct.	Y	Y
B.7.3. Have conservative assumptions been used to calculate emission reductions?	B.6.2 B.6.3 Ref.20	DR	Yes, data are from official sources and an adjustment factor was calculated in a conservative manner.	Y	Y
B.7.4. Is the projection based on provable input parameter?	B.6.3 Ref.20	DR	Yes, historical data was used (see CAR 8).	See ~~CAR 8~~	Y
B.7.5. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	B.6.2 B.6.3 Ref.20	DR	Yes, the same procedure to calculate the estimate emissions reduction will be used during monitoring period using the real data measured.	Y	Y
B.7.6. Is the calculation of the emission reduction correct?	B.6.3	DR	Formulas to calculate emissions and emission reductions were checked and were found correct.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.8. Emission Reductions					
B.8.1. Will the project result in fewer GHG emissions than the baseline scenario?	B.6.3	DR	Yes, the methane that would be released to the atmosphere will be destroyed in the project activity.	Y	Y
B.8.2. Is the form/table required for the indication of projected emission reductions correctly applied?	B.6.4	DR	Yes, the table follows the correct format.	Y	Y
B.8.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	C.2.1.1 Ref.16	DR	Yes.	Y	Y
B.9. Monitoring Methodology					
B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameter to be monitored and further information provided by the PDD? Are all parameters and data that is available at validation consistent with the approved methodology	Ref.1 Ref.2a Ref.2b	DR	Data and monitored parameters and parameters available at validation are according to the required by the methodologies. See NIR 6 and FAR 3 regarding the monitoring plan.	~~NIR 6~~	FAR 3
B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?	Ref.1 Ref.2a Ref.2b	DR	See NIR 6 below. FAR 3 was raised.	~~NIR 6~~	FAR 3

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.10. Data and Parameters Monitored					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	B.7.1	DR	All data related to the project will be kept for 2 years after the end of the crediting period. Monitored parameters were verified and considered correct according to the methodologies and tool used: Total amount of landfill gas captured at NTP; Total amount of landfill gas sent to flares at NTP; Total amount of landfill gas sent to GPC at NTP; Total amount of landfill gas sent the end-user IPP at NTP; Methane fraction in the landfill gas; Net amount of electricity generated using LFG; Project emissions from flaring of the residual gas stream; Methane content of the residual gas will be measured; Volumetric fraction of O2 in the exhaust gas of the flare; Concentration of methane in the exhaust gas of the flare; Temperature in the exhaust gas of the flare; Amount of electricity consumed; Average technical transmission and distribution losses; Electricity Baseline Emission Factor; Quantity of town gas produced; Net calorific value of the Town Gas; Annual quantity of biogas used as feedstock; Average net calorific value of biogas used as feedstock; Annual quantity of Natural Gas used as feedstock; Average net calorific value of the Natural Gas used as feedstock; average CO2 emission factor.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	B.7.1 Ref.2a Ref.2b	DR	Yes, data are according to the required by the methodologies.	Y	Y
B.10.3. Will it be possible to determine the specified project GHG indicators?	B.7.1 Ref.2a Ref.2b	DR	Yes, parameters are according to the required by the methodologies.	Y	Y
B.10.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	B.7.1 Ref.2a Ref.2b	DR	The information provided describes properly the implementation of the monitoring plan. Also See FAR 3 regarding the monitoring plan.	Y	Y, See FAR 3
B.10.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	B.7.1 Annex 4 Ref.2a Ref.2b	DR	See FAR 3 regarding the monitoring plan.	Y	See FAR 3
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	B.7.1 Ref.2a Ref.2b	DR	Yes, main data will be collected automatically using calibrated meters.	Y	Y
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	B.6.1 Ref.2a Ref.2b	DR	Yes. According to ACM0001: PE is from two sources: efficiency of flare emissions and electricity consumption from the grid. According to AM0069: PE is from energy consumption (electricity and fuels). Those are calculated according to required by the methodologies.	Y	Y
B.11. Quality Control (QC) and Quality Assurance (QA) Procedures					
B.11.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	Ref.1	DR	Yes. See section B.11.3 below.	Y	Y, See FAR 3

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	Ref.1	DR	Yes, the level of uncertainty is low: -automatic data in the project; -data related to the emission factor comes from official source; -calibrated meters, according with the recommendations from the manufacturers.	Y	Y
B.11.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	Ref.1	DR	Yes. The quality control and quality assurance follow the methodology and applicable tolls. The variables described in item B.7.1 will be measured continuously and the readings will be also registered continuously, in a supervisory computer system. In order to assure conservatism, the standard errors of each equipment will be subtracted from the readings. Maintenance and calibration procedures might be developed according with the recommendations from the manufacturers in order to assure the equipment's lifetime and data credibility. As the project is not implemented, procedures will be available for the verifiers (see FAR 3).	Y	Y, See FAR 3
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	Ref.1	DR	Not all parameters will be bound to national standards. Parameters are following the methodologies and applicable tools.	Y	Y
B.11.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	Ref.1	DR	Yes. All data might be checked by the supervisors and by external consultants before the development of the Monitoring Reports.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.12. Operational and Management Structure					
B.12.1. Is the authority and responsibility of project management clearly described?	B.7.2	DR	The project is not implemented yet. FAR 2 was open to request the PP to provide before verification: • the description of authority and responsibility of project management; • the authority and responsibility for registration, monitoring, measurement and reporting data; • procedures for training of monitoring personnel	Y	FAR 2
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	B.7.2	DR	See FAR 2 above.	Y	FAR 2
B.12.3. Are procedures identified for training of monitoring personnel?	B.7.2	DR	See FAR 2 above.	Y	FAR 2
B.13. Monitoring Plan (Annex 4)					
B.13.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	B.7.2	DR	NIR 6 was raised to request more information in the monitoring plan. There is no information about: • measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality; • monitoring equipment and respective positioning in order to safeguard a proper installation; • procedures for maintenance and calibration of monitoring equipment; • procedures for day-to-day records	~~NIR 6~~	FAR 3

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
			handling (including what records to keep, storage area of records and how to process performance documentation); • procedures for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems; • procedures for internal audits of GHG project compliance with operational requirements where applicable; • procedures for project performance reviews before data is submitted for verification, internally or externally. To close out NIR 6, PP completed and added more information in the monitoring plan. As the project is not implemented yet, FAR 3 was open to request to the PP to provide before verification the procedures implemented for monitoring data to ensure the delivery of high quality data and compliance with the required by the methodologies ACM0001, version 9 and AM0069, version 1.		
B.13.2. Does the monitoring plan completely describes all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	B.7.2	DR	See B.13.1	Y	Y
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	B.7.2	DR	See B.13.1	See ~~NIR 6,~~	Y, see FAR 3

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.13.4. Are procedures identified for calibration of monitoring equipment?	B.7.2	DR	Maintenance and calibration procedures might be developed according with the recommendations from the manufacturers in order to assure the equipment's lifetime and data credibility. Also, see NIR 6 and FAR 3 on See B.13.1	See ~~NIR 6,~~	Y, see FAR 3
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	B.7.2	DR	See section B.13.4 above.	See ~~NIR 6,~~	Y, see FAR 3
B.13.6. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	B.7.2	DR	The project will count with a computer-based system, which will be responsible for the continuous monitoring of all parameters necessary to calculate ERs. Backup will be made. Manual data will also be taken for the main variables. Also, see NIR 6 and FAR 3 on See B.13.1.	See ~~NIR 6,~~	Y, see FAR 3
B.13.7. Are procedures identified for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems??	B.7.2	DR	See section B.13.6 above.	See ~~NIR 6,~~	Y, see FAR 3
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	B.7.2	DR	All data might be checked by the supervisors and by external consultants before the development of the Monitoring Reports. Also, see NIR 6 and FAR 3 on See B.13.1.	~~NIR 6~~,	Y, see FAR 3
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	B.7.2	DR	See section B.13.8 above.	See ~~NIR 6,~~	Y, see FAR 3
B.14. Baseline Details					
B.14.1. Is there any indication of a date when determine the baseline?	C.1.1	DR	Yes, 02/10/2008.	Y	Y
B.14.2. Is this in consistency with the time line of the PDD history?	C.1.1	DR	Yes.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	C.1.1 Annex 3	DR	Yes. Annex 3 provides information about the Brazilian grid.	Y	Y
C. **Duration of the Project / Crediting Period**					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	C.1.1 Ref.5	DR	Starting date of the project activity defined in the PDD version 1 is not according to the clarified in the EB 41 *"the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for equipment or construction/operation services required for the project activity. Minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, should not be considered in the determination of the start date as they do not necessarily indicate the commencement of implementation of the project".* CAR 7 was raised. To close out CAR 7, the PP changed the starting date of the project activity to attend the required by EB 41. The project did not start the implementation as seen during site visit. The forecast starting date of the implementation, wells perforation, is being considered as the starting date of the project activity.	~~CAR 7~~	Y
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	C.2.1	DR	Renewable crediting period (7 years).	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
C.1.3. Does the project's operational lifetime exceed the crediting period	C.1.2	DR	Yes, the expected operational lifetime of the project (15 years after the closure of the landfill) is greater than the first crediting period.	Y	Y
D. Environmental Impacts					
D.1.1. Does the project comply with environmental legislation in the host country?	D.1 Ref.4	DR	The environmental impacts were analyzed when the environmental agency (FEEMA) issued the installation license for the flares (Ref.4). This license also includes issues related to the closure of the landfill. Verified the donation certificate from the area where the landfill is located (Ref.10). The area was donated by INCRA to COMLURB in 1979. The certificate states that area should be used as a landfill within two years after the signature of the certificate.	Y	Y
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	D.1 Ref.4	DR	Yes, See section D.1.1 above.	Y	Y
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	D.1 Ref.4	DR	No the environmental agency does not required an environmental impact assessment. See section D.1.1 above.	Y	Y
D.1.4. Will the project create any adverse environmental effects?	D.1 Ref.4	DR	The project activity will reduce the environmental impact.	Y	Y
D.1.5. Are transboundary environmental impacts considered in the analysis?	D.1 Ref.4	DR	See section D.1.1 above.	Y	Y
D.1.6. Have identified environmental impacts been addressed in the project design?	D.1 Ref.4	DR	Environmental impacts are considered not significant.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
E. Stakeholder Comments					
E.1.1. Have relevant stakeholders been consulted?	E Ref.14	DR	Yes, it followed the required by Brazilian DNA. The following entities were invited to comment on project: • Municipality of Duque de Caxias • Legislative Chamber of Duque de Caxias • State Environmental Agency (FEEMA) • Municipal Environmental Secretariat • Brazilian NGO Forum • State Public Attorney • Federal Public Attorney • Municipality of Rio de Janeiro • ACAMJG – Associação dos Catadores de Materiais Recicláveis de Jardim Gramacho	Y	Y
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	E Ref.14	DR	Yes, verified the letters and AR. Letters were sent in Portuguese and also, the PDD was made available in local language.	Y	Y
E.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?	E Ref.14	DR	Yes, it followed the Resolution nº 7, 05 March 2008, from Brazilian DNA.	Y	Y
E.1.4. Is the undertaken stakeholder process described in a complete and transparent manner?	E	DR	Yes.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
E.1.5. Is a summary of the stakeholder comments received provided?	E	DR	No comments were received.	Y	Y
E.1.6. Has due account been taken of any stakeholder comments received?	E		NA	Y	Y

References

Reference ID	Title / Description	Comments
1	PDD: Gramacho Landfill Gas Project, version 1, 29/08/2008; version 2, 02/10/2008, version 3, 17/11/2008, version 3.1, 06/01/2009.	PDD: Gramacho Landfill Gas Project, version 1, 29/08/2008; version 2, 02/10/2008, version 3, 17/11/2008, version 3.1, 06/01/2009.
2a	ACM0001 – Consolidated methodology for landfill gas project activities, version 9	ACM0001 – Consolidated methodology for landfill gas project activities, version 9
2b	AM0069 – Biogenic methane use as feedstock and fuel for town gas production, version 1	AM0069 – Biogenic methane use as feedstock and fuel for town gas production, version 1
3a	Tool for the demonstration and assessment of additionality, version 05.2	Tool for the demonstration and assessment of additionality, version 05.2
3b	Tool to determine project emissions from flaring gases containing methane, version 01	Tool to determine project emissions from flaring gases containing methane, version 01
3c	Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01	Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01
3d	Tool for calculation of emission factor for electricity systems, version 01	Tool for calculation of emission factor for electricity systems, version 01
3e	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 02	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 02
3f	Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, version 04	Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, version 04
4	Installation License, LI nº FE014252, issued by FEEMA	Installation License, LI nº FE014252, issued by

		FEEMA
5	Contract between Novo Gramacho and COMLURB, nº 155/2007	Contract between Novo Gramacho and COMLURB, nº 155/2007
6	Natural gas invoice and NVC of natural gas	Natural gas invoice and NVC of natural gas
7	Spreadsheet with historical data from town gas composition (2005, 2006, 2007)	Data from GPC
8	Spreadsheet with historical data from town gas production (2005, 2006, 2007)	Data from GPC
9a	Map of the landfill	Map of the landfill
9b	Map of the landfill- weighbridge coordinates	Map of the landfill- weighbridge coordinates
10	Certificate of the donation of the landfill area	Donation of the area by INCRA to COMLURB
11	CD4CDM	List of projects
12	SCS study	Methane content of Gramacho
13	EPA study	Efficiency LFG collection
14	Local Stakeholder consultation (Letters and Receipts)	Local Stakeholder consultation (Letters and Receipts)
15	Financial analysis data	
16	Implementation chronogram	Implementation chronogram
17	Data for the parameter K (temperature and precipitation)	Data for the parameter K (temperature and precipitation)
18	DNA letter and response	DNA letter and response
19	Cópia de Modelo Conselho_2008.10.13 SGS- IRR calculation and sensitivity analysis	IRR calculation and sensitivity analysis
20	CERs Estimatives - Gramacho (v 02) 2008.10.03- CERs Calculation	CERs Estimatives

A.3 Annex 3: Overview of Findings

Findings Overview

Findings from validation of Gramacho Landfill Gas Project.
Each Table below represents a finding from the validation assessment. The findings are numbered consecutively, approximately in the order that they have been identified.
Description of Table:

Type	Findings are either New Information Requests (NIR) or Corrective Action Requests (CAR). CARs are items that must be addressed before a project can receive a recommendation for registration. NIRs may lead to the raising of CARs. Observations are included at the end and may or may not be addressed. They are primarily to act as signposts for the verifying DOE.
Issue	Details the content of the finding
Ref	Refers to the item number in the Validation Protocol
Response	Please insert response to finding, starting with the date of entry.

Rows for comments and further response will be appended to the table until the Findings has been addressed to the satisfaction of the Lead Assessor.
Please Note: This is an open list and more findings may be added as validation progresses.

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	1	Type:	NIR	Issue:	Applicability AM0069	Ref.:	B.1.2
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
The PDD version 1 does not discuss the applicability conditions of the methodology AM0069. Evidences shall be provided to confirm the applicability of AM0069.							
Project Participant Response:					Date: 25/09/2008		
The applicability conditions of the methodology were included in the PDD.							
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
Information Provided: Revised PDD and related documents to evidence the applicability of the methodology AM0069. Information Verified: Description of methodology AM0069 applicability, invoices from natural gas, town gas composition and production, evidence that the landfill is operating more than three years.					Verified Document Reference: Ref.1 PDD version 2; Ref.6 Ref.7; Ref.8; Ref.10		
Reasoning for not acceptance or acceptance and close out: As the description of applicability of the methodology AM0069 and end evidences related were provided in PDD version 2, NIR 1 was closed out.							

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	2	Type:	NIR	Issue:	Project boundaries	Ref.:	B.2.3
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
According to the methodology ACM0001, version 9 the project boundary is the site of the project activity where the gas is captured and destroyed/used. The PDD version 1 does not include all the sites where the gas will be destroyed/used. Project boundary should consider Gramacho landfill, GPC, electricity imported from the grid and independent power producer, if applicable.							
Project Participant Response:					Date: 23/09/2008		
The boundaries of the project were corrected to include the IPP.							

Acceptance and Close out by Lead Assessor: Fabian Gonçalves	Date: 06/10/2008
Information Provided: Revised PDD Information Verified: Project boundaries described in the revised PDD	Verified Document Reference: Ref.1 PDD version 2
Reasoning for not acceptance or acceptance and close out: The revised PDD includes all the projects boundaries according to the required by the methodologies. NIR 2 was closed out.	

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	3	Type:	NIR	Issue:	Sub step 1b-additionality tool	Ref.:	B.3.1
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
In PDD version 1, section B.4, sub-step 1b, it was not analyzed the compliance with the local/national regulation of all alternatives.							
Project Participant Response:					Date: 23/09/2008		
The alternative missing, use of LFG to generate heat, was incorporated in the PDD.							
Acceptance and Close out by Lead Assessor: Fabian Gonçalves					Date: 06/10/2008		
Information Provided: Revised PDD. Information Verified: Sub step 1b.					Verified Document Reference: Ref.1 PDD version 2		
Reasoning for not acceptance or acceptance and close out: As the PP analysed the compliance with the local/national regulation of all alternatives to the project, NIR 3 was closed out.							

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	4	Type:	CAR	Issue:	Ex ante calculation of emission reductions	Ref.:	B.5
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
The ex ante calculation of emission reduction presented in PDD version 1 was based on estimated data. However, real data, when available, should be used.							
Project Participant Response:					Date: 01/10/2008		
Real data was collected and evidenced to the DOE. *Ex-ante* calculation was updated in the PDD.							
Acceptance and Close out by Lead Assessor: Fabian Gonçalves					Date: 06/10/2008		
Information Provided: Revised PDD, invoices from natural gas and its NCV, spreadsheet with town gas composition and amount produced for the last three years, revised spreadsheet with CERs calculation. Information Verified: Ex ante calculation of emission reduction and supported evidences.					Verified Document Reference: Ref.1 PDD version 2; Ref.6 Ref.7 Ref.8 Ref.21		
Reasoning for not acceptance or acceptance and close out: PDD was revised using data available. CAR 4 was closed out.							

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	5	Type:	CAR	Issue:	Data and parameters available at validation	Ref.:	B.6

Lead Assessor Comment: Fabian Gonçalves	Date: 22/09/2008
For the emission factor calculation, regarding the vintage data, the tool to calculate the emission factor for an electricity system states “For the dispatch data analysis OM, use the year in which the project activity displaces grid electricity and update the emission factor annually during monitoring”. PDD version 1 does not comply with this requirement.	
Project Participant Response:	Date: 23/09/2008
The PDD was corrected – information that EF_{OM} will be updated yearly was included in lines “description of measurement methods and procedures to be applied”.	
Acceptance and Close out by Lead Assessor:	Date: 06/10/2008
Information Provided: Revised PDD Information Verified: Table for emission factor	Verified Document Reference: Ref.1 PDD version 2
Reasoning for not acceptance or acceptance and close out: The emission factor presented in the revised PDD is according to the requirements of the tool. It will be updated ex post. CAR 5 was closed out.	

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	6	Type:	NIR	Issue:	Monitoring Plan	Ref.:	B.13
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
Monitoring should be more detailed. There is no information about: • measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality; • monitoring equipment and respective positioning in order to safeguard a proper installation; • procedures for maintenance and calibration of monitoring equipment; • procedures for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation); • procedures for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems; • procedures for internal audits of GHG project compliance with operational requirements where applicable; • procedures for project performance reviews before data is submitted for verification, internally or externally.							
Project Participant Response:					Date: **02/10/2008**		
Proper explanation was included in Annex 4 – Monitoring Information. However, as the project was not implemented by the time of the validation, an idea of the monitoring was presented – it does not mean that all information presented will be indeed implemented.							
Acceptance and Close out by Lead Assessor: Fabian Gonçalves					Date: 06/10/2008		
Information Provided: Revised PDD Information Verified: Monitoring plan.					Verified Document Reference: Ref.1 PDD version 2		

Reasoning for not acceptance or acceptance and close out: As the project is not implemented yet, some additional information about the monitoring was added in the revised PDD. NIR 6 was closed out and FAR 3 was open (see below).

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	7	Type:	CAR	Issue:	Starting date of the project activity	Ref.:	C.1.1
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
Starting date of the project activity defined in the PDD version 1 is not according to the clarified in the EB 41 *"the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for equipment or construction/operation services required for the project activity. Minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, should not be considered in the determination of the start date as they do not necessarily indicate the commencement of implementation of the project".*							
Project Participant Response:					Date: 23/09/2008		
According with guidance from the EB, the starting date of the Project Activity was changed to 20/10/2008 – this is the expected date to the beginning of the landfill's perforation.							
Acceptance and Close out by Lead Assessor: Fabian Gonçalves					Date: 06/10/2008		
Information Provided: Revised PDD, implementation chronogram of the project activity Information Verified: Starting date of the project activity						Verified Document Reference: Ref.1 PDD version 2; Ref.16	
Reasoning for not acceptance or acceptance and close out: The PP changed the starting date of the project activity to attend the required by EB 41. The project did not start the implementation as seen during site visit. The forecast starting date of the implementation, wells perforation, is being considered as the starting date of the project activity. CAR 7 was closed out.							

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	8	Type:	CAR	Issue:	Project emission and leakage calculations	Ref.:	B.5
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
Section B.6.3 of PDD version 1 does not present the ex ante calculation of project emission and leakage.							
Project Participant Response:					Date: 23/09/2008		
According with ACM0001 and AM0069, there is no need to account for leakage. Ex-ante Project Emissions calculation was included in the PDD.							
Acceptance and Close out by Lead Assessor:					Date: 20/10/2008		
Information Provided: Revised PDD Information Verified: Section B.6.3 of the PDD						Verified Document Reference: Ref.1 PDD version 2	
Reasoning for not acceptance or acceptance and close out: Section B.6.3 of the PDD was revised and now presents the ex ante calculation of project emissions. Leakage is not applicable for the project. CAR 8 was closed out.							

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	9	Type:	NIR	Issue:	NCV Town gas	Ref.:	
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		

Provide the reference of the values of NCV of the gases used to calculate the NCV from town gas.	
Project Participant Response:	Date: 23/09/2008
NCV used to calculate the NCV of the Town Gas were adopted from the "Gas Engineers Handbook / SINDE". Reference was made in the calculation spreadsheet and in the PDD.	
Acceptance and Close out by Lead Assessor:	Date: 17/10/2008
Information Provided: Revised PDD Information Verified: The document available (Gas Engineers Handbook/SINDE) at the web link described in the PDD.	Verified Document Reference: Ref.1 Revised PDD version 2.
Reasoning for not acceptance or acceptance and close out: As the values of NCV are according to the reference provided, NIR 9 was closed out.	

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	1	Type:	FAR	Issue:	CERs	Ref.:	A.4.5
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
As the IPP is not implemented yet and the contract between GPC and Novo Gramacho is not signed yet, it is requested to the PP to provide for verification a document assuring that the CERs will be claimed only by Novo Gramacho.							
Project Participant Response:					Date: 23/09/2008		
The document will be evidenced by the time of the 1st Verification.							

Date:	22/09/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	2	Type:	FAR	Issue:	Operational and management structure	Ref.:	A.4.5
Lead Assessor Comment: Fabian Gonçalves					Date: 22/09/2008		
It is requested to the PP to provide before verification: • the description of authority and responsibility of project management; • the authority and responsibility for registration, monitoring, measurement and reporting data; • procedures for training of monitoring personnel							
Project Participant Response:					Date: 23/09/2008		
As the project has not been implemented nor operational, the requested documents were not available. By the time of the 1st Verification, these documents will be presented to the Verification Team.							

Date:	06/10/2008			Raised by:	Fabian Gonçalves and Thaís Carvalho		
No.:	3	Type:	FAR	Issue:	Monitoring Plan	Ref.:	Annex 4
Lead Assessor Comment: Fabian Gonçalves					Date: 06/10/2008		
It is requested to the PP to provide before verification: • the procedures implemented for monitoring data to ensure the delivery of high quality data and compliance with the required by the methodologies ACM0001, version 9 and AM0069, version 1.							

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name: Fabian Goncalves SGS Affiliate: SGS Brazil

Status

- Product Co-ordinator ☒
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☐

	Validation	Verification
- Local Assessor	☒	☒
- Lead Assessor	☒	☒
- Assessor / Trainee Lead Assessor	☒	☒

Scopes of Expertise

1.	Energy Industries (renewable / non-renewable)	☒
2.	Energy Distribution	☐
3.	Energy Demand	☐
4.	Manufacturing	☒
5.	Chemical Industry	☒
6.	Construction	☐
7.	Transport	☐
8.	Mining/Mineral Production	☐
9.	Metal Production	☐
10.	Fugitive Emissions from Fuels (solid,oil and gas)	☐
11.	Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	☐
12.	Solvent Use	☐
13.	Waste Handling and Disposal	☒
14.	Afforestation and Reforestation	☐
15.	Agriculture	☐

Approved Member of Staff by: Siddharth Yadav Date: 18/10/2007