

Choose certainty. Add value.

Validation Report

JBS S/A

VALIDATION OF THE CDM-PROJECT: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

REPORT NO. 1170523

13 January 2009

TÜV SÜD Industrie Service GmbH

Carbon Management Service Westendstr. 199 - 80686 Munich – GERMANY



Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
1170523	23-05-2008	3	13-01-2009	-

Subject: Validation of a CDM Project				
Accredited TÜV SÜD Unit:	TÜV SÜD Contract Partner:			
TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 80686 Munich Germany	TÜV SÜD DO BRASIL – SERVIÇOS TÉCNICOS PARA A INDÚSTRIA E O MEIO AMBIENTE LTDA. Rua Henrique Monteiro n.90, 10.º andar ZIP 05423-020 - São Paulo Brazil			
Project Participant (client): JBS S/A Avenida Marginal Direita do Tietê, 500 São Paulo, ZIP 05118-100 Brazil	Project Site(s): Vilhena Facility: Rodovia BR 364, km 18 Distrito Industrial, Caixa Postal 441 ZIP 78995-000, Vilhena State of Rondonia, Brazil GPS coordinates of the general site (Source: PRAD – Plan for Recovery of Degraded Areas): Latitude: 12°43'41.08" Longitude: 60°10'10.49"			
Project Title: Project JBS S/A – Slaughterhouse V	Vastewater Aerobic Treatment – Vilhena Unit			
Applied Methodology / Version: AMS III.I. / ve	ersion 6 Scope(s): 13			
First PDD Version:	Final PDD version:			
Date of issuance: 18-02-2008	Date of issuance: 06-01-2009			
Version No.: 01	Version No.: 05			
Starting Date of GSP 23-02-2008				
Estimated Annual Emission Reduction:	29,239 tCO ₂ e			
Assessment Team Leader:	Further Assessment Team Members:			
Johann Thaler				
Summary of the Validation Opinion: The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. In our opinion, the project meets all relevant UNECCC requirements for the CDM. Hence TÜV SÜD will				

recommend the project for registration by the CDM Executive Board in case letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.
 The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board on this decision.



Abbreviations

ACM	Approved Consolidated Methodology
AM	Approved Methodology
AMS	Approved Methodology Small scale
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
COD	Chemical Oxygen Demand
СМ	Combined Margin
СМР	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CR / CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	GreenHouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
IRR	Internal Rate of Return
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
OM	Operational Margin
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change



VVM Validation and Verification Manual



Table of Contents

Page

1	INTRODUCTION	6
1.1	Objective	6
1.2	Scope	6
2	METHODOLOGY	8
2.1	Appointment of the Assessment Team	9
2.2	Review of Documents	10
2.3	Follow-up Interviews	10
2.4	Further cross-check	10
2.5	Resolution of Clarification and Corrective Action Requests	10
2.6	Internal Quality Control	11
3	SUMMARY	12
3.1	Approval	12
3.2	Participation	
3.3	Project design document	
3.4	Project description	12
3.5	Baseline and monitoring methodology	13
3.6	Additionality	16
3.7	Monitoring plan	19
3.8	Sustainable development	19
3.9	Local stakeholder consultation	20
3.10	Environmental impacts	20
4	COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS	21
5	VALIDATION OPINION	22

Annex 1: Validation Protocol

Annex 2: Information Reference List



1 INTRODUCTION

1.1 Objective

The validation objective is an independent assessment by a Third Party (Designated Operational Entity = DOE) of a proposed project activity against all defined criteria set for the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and will finally result in a conclusion by the executing DOE whether a project activity is valid and should be submitted for registration to the CDM Executive Board (CDM-EB). The ultimate decision on the registration of a proposed project activity rests at the CDM-EB and the Parties involved.

The project activity discussed by this validation report has been submitted under the project title:

Project JBS S/A - Slaughterhouse Wastewater Aerobic Treatment - Vilhena Unit

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities the scope is set by:

- Ø The Kyoto Protocol, in particular § 12 and modalities and procedures for the CDM
- Ø Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Ø Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 8/CMP.1)
- Ø Decisions and specific guidance by the EB published under http://cdm.unfccc.int
- Ø Guidelines for Completing the Project Design Document (CDM-PDD), and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- Ø Baselines and monitoring methodologies (including GHG inventories)
- Ø Management systems and auditing methods
- Ø Environmental issues relevant to the sectoral scope applied for
- Ø Applicable environmental and social impacts and aspects of CDM project activity
- Ø Sector specific technologies and their applications
- Ø Current technical and operational knowledge of the specific sectoral scope and information on best practice

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

Once TÜV SÜD receives a first PDD version, it is made publicly available at the UNFCCC webpage and at TÜV SÜD's webpage for starting a 30 day global stakeholder consultation process (GSP). In case of any request a PDD might be revised (under certain conditions the GSP could be repeated) and the final PDD will form the basis for the final evaluation as presented in this report. Information on the first and the final PDD version is presented in page 1.

Page 7 of 22



The only purpose of a validation is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD cannot be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.



2 METHODOLOGY

The project assessment applies standard auditing techniques to assess the correctness of the information provided by the project participants. The assessment is based on the "Clean Development Mechanism Validation and Verification Manual" version 01. The work starts with appointment of team covering the technical scope(s), sectoral scope(s) and relevant host country experience for evaluating the CDM project activity. Once the project is made available for the stakeholder consultation process, members of the team carry out the desk review, follow-up actions, resolution of issues identified and finally preparation of the validation report. The prepared validation report and other supporting documents then undergo an internal quality control by the CB "climate and energy" before submission to the CDM-EB.

In order to ensure transparency, assumptions are clear and explicitly stated; the background material is clearly referenced. TÜV SÜD developed methodology-specific checklists and protocol customised for the project. The protocol shows, in a transparent manner, criteria (requirements), the discussion of each criterion by the assessment team and the results from validating the identified criteria. The validation protocol serves the following purposes:

It organises, details and clarifies the requirements a CDM project is expected to meet;

It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation and any adjustment made to the project design.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below.

Validation Protocol Table 1: Conformity of Project activity and PDD						
Checklist Topic / Question	Reference	Comments	PDD in GSP	Final PDD		
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further sub-divided. The lowest level constitutes a checklist question / criterion.	Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.	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. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any Request has to be substantiated within this column	Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (b), or a Corrective Action Request (CAR) due to non- compliance with the checklist question (See below). Clarification Request (CR) is used when the validation team has identified a need for further clarification. Forward action request to highlight issues related to project implementation that require review during the first verification.	Conclusions are presented in the same manner based on the assessment of the final PDD version and further documents including assumptions presented in the documentation.		

The completed validation protocol is enclosed in Annex 1 to this report.



Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests						
Clarifications and cor- rective action requests		Summary of project owner response	Validation team conclusion			
If the conclusions from table 1 are either a Corrective Action, a Clarification or a Forward action Request, these should be listed in this section.	Reference to the checklist question number in Table 1 where the issue is explained.	The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.	This section should summarise the discussion on and revision to project documentation together with the validation team's responses and final conclusions. The conclusions should be reflected in Table 1, under "Final PDD".			

In case of a denial of the project activity more detailed information on this decision will be presented in table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests				
Clarifications and corrective action requests	Id. of CAR/CR 1	Explanation of the Conclusion for Denial		
If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.	Identifier of the Request.	This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion with a clear reference to the requirement which is not complied with.		

2.1 Appointment of the Assessment Team

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

- Ø Assessment Team Leader (ATL)
- Ø Greenhouse Gas Auditor (GHG-A)
- Ø Greenhouse Gas Auditor Trainee (T)
- Ø Experts (E)

It is required that the sectoral scope linked to the methodology has to be covered by the assessment team.

Name	Qualification	Coverage of technical scope	Coverage of sec- toral expertise	Host country experience
Johann Thaler	ATL	þ	þ	þ





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

2.2 Review of Documents

A first version of the PDD was submitted to the DOE in February 2008. The first PDD version submitted by the PP and additional background documents related to the project design and baseline were reviewed to verify the correctness, credibility and interpretation of the presented information, furthermore a cross check between information provided and information from other sources (if available) have been done as initial step of the validation process. A complete list of all documents and proofs reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

On 06/03/2008 TÜV SÜD performed interviews, telephone conferences and physical site inspection with project stakeholders to confirm relevant information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in this context.

Name	Organisation
Giuliano Fabricio Conde, environmental coordina- tor	JBS S/A
Angela Garcia, environmental manager	JBS S/A
Andréa Loyola, project developer	Instituto TOTUM
Sheila Guebara, project developer	Instituto TOTUM

2.4 Further cross-check

During the validation process, the team makes reference to available information related to similar projects or technologies as the CDM project activity. The documentation has also been reviewed against the approved methodology/ies applied to confirm the appropriateness of formulae and correctness of calculations.

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions and clarifications and any other outstanding issues which needed to be clarified for TÜV SÜD's conclusion on the project design. The CARs and CRs raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are documented in more detail in the validation protocol in annex 1.

The final PDD version that was submitted in January 2009 serves as the basis for the final assessment presented herewith. Changes are not considered to be significant with respect to the qualifica-

Page 11 of 22



tion of the project as a CDM project based on the two main objectives of the CDM, i.e. to achieve a reduction of anthropogenic GHG emissions and to contribute to a sustainable development.

2.6 Internal Quality Control

As final step of a validation the final documentation including the validation report and the protocol have to undergo an internal quality control by the CB "climate and energy", i.e. each report has to be finally approved either by the head of the CB or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

After confirmation of the PP the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform.

Industrie Service

Page 12 of 22

3 SUMMARY

The assessment work and the main results are described below in accordance with the VVM reporting requirements. The reference documents indicated in this section and Annex 1 are stated in Annex 2.

3.1 Approval

The project participants are Instituto Totum Ltda and JBS S/A, both from Brazil. The host Party Brazil meets the requirements to participate in the CDM.

The final letter of approval has not been received yet, but a request for registration will not be submitted until it has been received according to § 50 (a) of the VVM.

3.2 Participation

See chapter 3.1.

3.3 Project design document

The PDD is compliant with relevant form and guidance as provided by UNFCCC.

The most recent version of the PDD form was used.

TÜV SÜD considers that the guidelines for the completion of the PDD in their most recent version have been followed. Relevant information has provided by the participants in the applying PDD sections. Completeness was assessed through the checklist included to Annex 1 of this report.

3.4 Project description

The following description of the project as per PDD could be verified during the on-site audit:

The project activity aims to modify the effluent treatment system in JBS S/A slaughterhouse unit in Vilhena by altering the anaerobic lagoon treatment to an aerobic system which consists of a physico-chemical treatment by air diffusion avoiding methane emissions generated from the anaerobic lagoons. This modification in the wastewater treatment is responsible for the emissions reductions and is only viable due to the CER's income.

950 head of cattle are currently being slaughtered per day. The baseline scenario considers an increase of 163 % to a future average of 2,500 head of cattle per day which will produce an estimated daily flow rate of 6,250 m³/day and 5,000 mg/L of COD. The treatment process will involve two separate filtering screens, a physical flotation system and the principal physico-chemical flotation system that presents an efficiency of about 80% of dissolved organic removal. The generated sludge (solid portion) generated throughout the entire process will then be used for aerobic soil application.

Besides avoiding methane emissions the proposed project activity will contribute to sustainable development by improving the quality of the effluent which will be discharged in the river and reduction of odour. Furthermore, the project activity will result in social benefits as e.g. more employment and local income distribution.

The information presented in the PDD on the technical design is consistent with the actual planing and implementation of the project activity as confirmed by:

Page 13 of 22



- review of data and information (see annex 2), cross check the same with other sources if available.
- An on-site visit has been performed and relevant stakeholder and personnel with knowledge of the project were interviewed, in case of doubt further cross checks through additional interviews have been done.
- Finally information related to similar projects or technologies as the CDM project activity have been used if available to confirm the accuracy and completeness of the project description.

In light of the above, TÜV SÜD confirms that the project description as included to the PDD is sufficiently accurate and complete in order to comply with the requirements of the CDM.

3.5 Baseline and monitoring methodology

3.5.1 Applicability of the selected methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology AMS III.I. – Avoidance of methane production in wastewater treatment through replacement of anaerobic lagoons by aerobic systems / version 6 has been demonstrated.

The assessment was carried out for each applicability criteria and included among others the compliance check of the local project setting with the applicability conditions in regard to baseline setting and eligible project measures. This assessment also included the review of secondary sources which sustain that applicability conditions are complied with.

The Methodology specific protocol included to the Annex 1 documents the assessment process, including the steps taken. The results on the compliance check as well as the relevant evidence are explicitly presented in annex 1.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

Emission sources which are not addressed by the applied methodology and which are expected to contribute more than 1% of the overall expected average annual emissions reduction have not been identified.

3.5.2 **Project boundary**

The project boundary was assessed in the context of physical site inspection, interviews and based on the secondary evidence received on the design of the project. The project boundary is the physical, geographical site where the project wastewater and sludge treatment takes place.

The most relevant documentation assessed in order to confirm the project boundary is the following:

Commissioning Report FAST (IRL 37)

The same have been validated during the validation process using standard audit techniques, further details of any observation are transparently presented in the annex 1.

Page 14 of 22



Hence TÜV SÜD confirms that the identified boundary and the selected sources and gases as documented in the PDD are justified for the project activity.

3.5.3 Baseline identification

In the PDD the following basline scenario has been defined:

The baseline scenario is the continuation of the current effluent treatment system, that means that in the absence of the proposed project activity, degradable organic matter in wastewater is treated in anaerobic lagoons and methane is emitted to the atmosphere.

The information presented in the PDD has been validated by a first document review of all the data, further confirmation based on the on-site visit and a final step by cross checking the information with similar relevant projects and/or technologies. The sources referenced in the PDD have been quoted correctly. The information was cross-checked based on verfiable and credible sources, such as: -Environmental Technical Guide on swine and cattle slaughterhouses – Cleaner Production Series

-Environmental Technical Guide on swine and cattle slaughterhouses – Cleaner Production Series (IRL 10)

- Layout of the anaerobic lagoon system (IRL 13)

- Visual inspection (IRL 16)

TÜV SÜD has determined that no reasonable alternative scenario has been excluded.

Based on the validated assumptions on calculations TÜV SÜD considers that the identified baseline scenario is reasonable.

TÜV SÜD confirms that all relevant CDM requirements, including relevant and / or sectoral policies and circumstances, have been identified correctly taken into account in the definition of the baseline scenario.

A verfiable description of the baseline scenario has been included to the PDD.

In regard to item 86 of VVM, TÜV SÜD confirms that:

- 1. All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- 2. All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- 3. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- 4. Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- 5. The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.5.4 Algorithm and/or formulae used to determine emission reductions

3.5.4.1 Baseline Emissions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions and leakage and emission reductions. Corresponding calculations were carried out based on calculation spread-sheets. The parameters and equations presented in the PDD and further documentation have been



compared with the information and requirements presented in the methodology and respective tools. The equation comparison has been made explicitly following all the formulae presented in the calculation files.

Baseline emissions are calculated as the amount of methane produced in the anaerobic system that is replaced by the aerobic system. The procedure defined unter category AMS III.H is applied.

The baseline emissions are determined using reliable assumptions. The parameters "volume of wastewater" and "chemical oxygen demand of the effluent entering the lagoons (COD)" as the decisive parameters for the quantitative prognosis are based on slaughtering figures of 2,500 heads of cattle per day. This is equivalent to an increase of 163 % until August 2008, what is clearly before the starting date of the crediting period. Project participants explained convincingly during the on-site visit that such an increase reflects the reality and the increase is confirmed by the directory of JBS. COD was measured at the entrance point of the effluent into the first anaerobic lagoon.

Further data for the baseline calculations consist of default values defined as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Such default values include "methane correction factor for the wastewater treatment in anaerobic lagoons, "methane producing capacity for the wastewater" and "Global Warming Potential for methane".

All default values have been correctly applied and in the case where a selection of different options was possible, the chosen values are appropriate.

The estimate of baseline emissions can be confirmed as the same have been replicated by the audit team using the information provided.

3.5.5 **Project emissions**

Project emissions due to the proposed project activity consist of "emissions on account of electricity consumption" and "emissions from the aerobic wastewater treatment".

Emissions on account of electricity consumption are calculated by using the default value of 1.3 tCO2/MWh according to scenario A, option A2 of the "Tool to calculate baseline, project or leakage from electricity consumption". The application of the default value is appropriate, as it is only referred to project electricity consumption sources but not to baseline electricity consumption sources.

Project emissions from electricity consumption are calculated by the electricity consumed by the project activity devices times the emissions factor default value of 1.3 tCO2/MWh. Devices and its consumption have been verified by the validation team.

Emissions from the aerobic wastewater treatment are based on the formula of baseline emissions, however instead of using the methane correction factor for the wastewater treatment in anaerobic lagoons, it is applied the default value for the methane correction factor for the wastewater treatment in aerobic systems.

"Emissions from anaerobic decay of the sludge" are considered as zero, as the sludge is not disposed to decay anaerobically in a landfill without methane recovery, but used for aerobic soil application.

All default values have been correctly applied and in the case where a selection of different options was possible, the chosen values are appropriate.

The estimate of project emissions can be confirmed as the same have been replicated by the audit team using the information provided.

Page 16 of 22



3.5.6 Leakage

Leakage is not involved in the proposed project activity, as all the equipment installed in the Vilhena unit is new and no equipment is being transferred from another activity.

3.5.7 Emission Reductions

In summary, the calculation of baseline and project emissions as well as emission reductions can be considered as correct.

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked and confirmed.

Based on the information reviewed it can be confirmed that the sources used are correctly quoted and interpreted in the PDD.

The values presented in the PDD are considered reasonable based on the documentation reviewed, further references and the result of the interviews.

The baseline methodology has been correctly applied following the requirements.

Detailed information on the verification of the parameters used in the equations can be found in the annex 1.

3.6 Additionality

The additionality of the project has been presented in the PDD using following approach: The Tool for the demonstration and assessment of additionality (additionality tool), version 5.2. has been applied and step 2 (investment analysis) has been used to demonstrate additionality of the proposed project activity.

The approach used in the PDD has been assessed first based on a document review, where following relevant documents has been reviewed:

Simple cost analysis excel file (IRL 18)

On site the additionality has been discussed principally with: Angela Garcia, JBS S/A. Furthermore some documents have been reviewed on-site (for details see annex 2).

Finally the data, rationales, assumptions, justifications and documentation provided have been check using local knowledge and sectoral and financial expertise, the same has been cross checked by:

- Net present value calculation sheet (IRL 34)
- Declaration JBS S/A related to the capacity increase of slaughtering figures (IRL 27)
- Civil construction budget, VIERO Ltda., (IRL 36)
- Financial Analysis Vilhena (IRL 35)

Based on this validation steps we can confirm that the documentation assessed is appropriate for this project.

3.6.1 Prior consideration of the clean development mechanism

The starting date of the project activity is determined by the date of the commercial approval of the project equipment's purchase. In order to confirm the same, the assessment team has reviewed the following documents: Electronical Commercial Approval (04.09.2007) about the purchase of the pro-



Page 17 of 22

ject equipment (IRL 5), additionally the assessment team cross checked this information with the time schedule for the project implementation (IRL 9) as well as with interviews with Angela Garcia, environmental manager (JBS S/A) and Giuliano Fabricio Conde, environmental coordinator (JBS S/A).

The starting date of the project activity is determined to be September 04, 2007 which is before 02 August 2008 and also before the GSP. The PPs have presented to the assessment team following documentation:

The validation team verified that CDM was seriously considered in the decision to proceed with the project activity. The framework contract between JBS S/A and Instituto Totum Ltda., dated 18/04/2007, was submitted to the validation team and is clearly dated before the project's starting date.

The original of the documentation presented has been reviewed and cross checked based on interviews with Angela Garcia, environmental manager (JBS S/A) and representatives of the project developer (Andréa Loyola and Sheila Guebara), hence the document can be considered appropriate to confirm the prior consideration. Additionally in order to confirm that the PPs have taken real actions to continue the activity as CDM, following timeline has been reviewed against the respective documents presented in the table below:

Activity	Document	Auditor conclusion
CDM consideration	Contract between Instituto To- tum and JBS S/A (IRL 26)	CDM consulting contract was submitted to the audit team and can be considered to be au- thentic.
Commercial agreement (pro- ject's starting date)	Electronical Commercial Approval (04.09.2007) about the purchase of the project equipment (IRL 5)	Electronical Commercial Approval was submitted to the audit team and can be considered to be authentic.
Equipment assembly	Commissioning Report FAST (IRL 37)	Commissioning Report signed by FAST was submitted to the audit team and can be consid- ered to be authentic.
Start up and full system opera- tion	Commissioning Report FAST (IRL 37)	Commissioning Report signed by FAST was submitted to the audit team and can be consid- ered to be authentic.

Hence the project complies with the requirements to demonstrate the prior consideration of the CDM.

3.6.2 Identifications of alternatives

The output of the project is avoidance of methane emissions by altering the wastewater treatment from an anaerobic lagoon system to a aerobic system (physico-chemical treatment by air diffusion).

The list of alternatives to supply the outputs mentioned above, which is presented in the PDD includes the project activity undertaken without being registered as CDM project. The rest of the alternatives presented do include all plausible scenarios taking into account the local and sectoral situations for the outputs mentioned. Hence the list of alternatives is considered to be complete. Page 18 of 22



3.6.3 Investment analysis

The PP uses the investment analysis to demonstrate the additionality.

The project is less economically or financially attractive than the baseline. The baseline scenario considering a readjustment of the anaerobic lagoons in order to receive the effluents of 2,500 head of cattle per day (here called: future baseline scenario) is compared with the proposed project activity (installation of an aerobic wastewater treatment system) in an investment comparison analysis. As the investment into the future baseline scenario is much less than that into the proposed project activity, consequently the Net Present Value (NPV) of the proposed project activity is about by 166 % more negative than that of the future baseline scenario.

The parameters used in the financial calculations have been validated based on a revision of the sources presented in the PDD, inter alia: some have been evidenced by purchase agreement and proposals (in the case of the proposed project activity) and others were estimated by the environmental manager of Vilhena unit based on local costs and experience from other units, the same that were confirmed verbally on-site.

Furthermore based on a cross check with the excel files Financial Analysis – Vilhena with specification of costs (IRL 35) and Civil construction budget, VIERO Ltda. (IRL 36), it can be seen that the parameters are plausible and can be considered acceptable under the project situation.

Further assumptions presented in the financial analysis inter alia lifetime and SELIC rate have been also reviewed and were find appropriate based on IRL 25 and IRL 38. The validation team with its sectoral expertise can confirm that the applied values, both investment and operation and maintenance costs, are in a reasonable range and reflect market price reality. Hence it can be confirmed that the underlying assumptions are appropriate for this project.

The financial calculation has been completely checked, all the calculation files were checked and no mistakes have been found. Hence it can be confirmed that the calculations are correct.

3.6.4 Barrier analysis

Not applicable to the proposed project activity.

3.6.5 Common practice analysis

The region for the common practice analysis has been defined as Brazil, the host country where the proposed project activity is located. The project activity's technology is first of its kind and can not be found in other slaughterhouses in the host country.

The assessment team has revised official sources as the study developed by FIESP (IRL 10), confirming that there are no Brazilian slaughterhouses that owns a physico-chemical treatment by air diffusion, i.e. that the wastewater treatment process applied in the proposed project activity is first of its kind in cattle slaughterhouses in the host country. Additionally the team made a further cross check of the information based on the interviews.

Hence it can be confirmed that the proposed CDM activity is not a common practice in the defined region.

Page 19 of 22



3.7 Monitoring plan

The monitoring plan presented in the PDD complies with the requirement of the methodology. The assessment team has checked all the parameters presented in the monitoring plan against the requirements of the methodology; no deviations relevant for the project activity have been found in the plan.

The procedures have been revised by the assessment team through document review and interviews with the relevant personnel; this information together with a physical inspection allows the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The major parameters to be monitored have been discussed with the PPs especially regarding the location of the meters, the data management and in general the quality assurance and quality control procedures to be implemented in the context of the project.

Baseline as well as project emissions will be monitored as according to the requirements of the methodology AMS III-I, version 6.

The amount of COD treated in the wastewater treatment plant will be monthly analysed in an external laboratory, which follows the *Standard Methods for Examination of Water & Wastewater*. The analyses will be taken from in the entrance of the equalization tank where the green line enters and in the equalization tank where the red line enters. The measurements will be done separately and an arithmetic mean of the COD values of the green line and red line will be calculated.

The volume of wastewater flow entering the flotation system will be measured each hour using an analogical flow meter. Monthly averages will be available. In the case the analogical meter would fail, the time in which the data was not collected will not be taken under consideration when calculating the flow rate throughout the year.

The yearly amount of sludge produced will be directly measured by weighing arriving trucks (empty without sludge) and leaving trucks (carrying the sludge). The difference between both weights will result in the amount of sludge produced. The scale follows standard calibration procedures. The end-use of the sludge has to be monitored, that means it has to be checked in the verification whether sludge is really applied to land and whether there are no project emissions from sludge.

In the case of project emissions, the electricity consumption will not be measured by a meter, since it would not be financially feasible to install an energy meter since electricity consumption for the project equipment is not very significant. Electricity consumption is conservatively based on equipments maximum capacity and in order to get project emissions on account of electricity, this electricity consumption is multiplied with the ex-ante for the whole crediting period determined default emissions factor of 1.3 tCO2/MWh. Emissions from the aerobic wastewater treatment are monitored through the wastewater flow and COD.

Ambient average temperature at the project site will be monitored through official data from Vilhena monitoring station SEDAM.

Hence it is expected that he PPs will be able to implement the monitoring plan and the emission reductions achieved can be reported ex-post and verified.

3.8 Sustainable development

The project contributes to the sustainable development of the host Party. This was confirmed during the on-site visit and will be cross-checked by the audit team before submitting the project for registration once the LoA will be received.

Page 20 of 22



3.9 Local stakeholder consultation

The relevant local stakeholders have been invited by letters via postal in February 2008 and partly November 2008. The evidence of these invitations is IRL 23. The assessment team has reviewed the documentation in order to validate the inclusion of relevant stakeholders and using the local expertise can confirmed that the communication method used to invite the stakeholders can be considered appropriate. The summary of comments presented in the PDD has been cross checked with the documentation of the stakeholder consultation and it is found to be complete.

The relevant comments presented by the local stakeholders have been taken due account by the PP, the same has been cross checked with the information obtained during the interviews.

Hence the local stakeholder consultation has been adequately performed according to the CDM requirements.

3.10 Environmental impacts

The project participants undertake an analysis of environmental impacts. The assessment team made a document review of the information presented. The IRL 12, 14, 15, 17 confirms the correctness of the approach used by the PPs. Hence the PPs followed the requirements of the host country regarding the environmental impacts.



4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on UNFCCC website by installing a link to TÜV SÜD's own website and invited comments by Parties, stakeholders and non-governmental organisations during a period of 30 days.

The following table presents all key information on this process:

webpage:					
http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=4777&Ebene1_ID=26&Ebene2_ID=1353&mode=1					
Starting date of the global stakeholder consultation process:					
23-02-2008					
Comment submitted by:	Issues raised:				
None	-				
Response by TÜV SÜD:					
-					



5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM project activity:

Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Standard auditing techniques have been used for the validation of the project. Methodology-specific checklists and protocol customised for the project have been prepared to carry out the audit and present the outcome in a transparent and comprehensive manner.

The review of the project design documentation, the subsequent follow-up interviews and the further cross check of references have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board.

An analysis as provided by the applied methodology demonstrates that the proposed project activity 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. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions as specified within the final PDD version.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed following the VVM requirements. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 13-01-2009

Thomas Kleiser Head of the Certification Body "climate and energy" TÜV SÜD Industrie Service GmbH Fortaleza, 13-01-2009

Johann Thaler Assessment Team Leader



Annex 1: Validation Protocol

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52Report N° 1170523

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD		
A. General description of small-scale project activity						
A.1. Title of the small-scale project activity						
A.1.1. Does the used project title clearly en- able to identify the unique CDM activity?	1,2	Yes. The project title clearly enables to identify the unique CDM activity.		þ		
A.1.2. Are there any indication concerning the revision number and the date of the revision?	1,2	Yes. It is indicated version 1 dated 18/02/2008.	þ	þ		
A.1.3. Is this consistent with the time line of the project's history?	1,2	Yes. It is consistent with the time line of the project's history. Version 1 (18/02/2008) was submitted to the GSP.	þ	þ		
A.2. Description of the small-scale project act	ivity					
A.2.1. Is the description delivering a transpar- ent overview of the project activities?	1,2	 Corrective Action Request No.1. It is not clear according to the description of A.2. how the proposed project activity will reduce CO2 emissions. Please explain. It is not explained in A.2. how the proposed project activity contributes to sustainable development. Please add. The purpose of the proposed project activity should be more retraceable. 	CAR 1	þ		
A.2.2. What proofs are available demonstrat- ing that the project description is in compli- ance with the actual situation or planning?	1,2,5 ,6, 13- 17	The pre-project situation is characterised as the following: Efflu- ents from the red and the green line pass (separately) through a filtering screen where big solid particles are removed. After that they pass a solid separator before they enter together the first and in sequence the second anaerobic lagoon. After that the effluents pass through a 3 rd facultative lagoon and a 4 th polishing lagoon before they enter to the river.	þ	þ		

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		 The following documents have been submitted to the validation team during the on-site visit, proving that the project description is in compliance with the actual situation or planning: Layouts of the existing anerobic lagoons system (Dimensions: 1st lagoon: 66x35,50x4,50 m, 2nd lagoon: 64x37,50x4,50, 3rd lagoon: 112x62x2m, 4th lagoon: 120x83x1,50m) Environmental operational license Request for the renewal of the environmental operational license Electronical Commercial Approval (04.09.2007) about the purchase of the project equipment Technical characteristics of the project equipment (FAST (manufacturer)) Plan for environmental control ("Plano de controle ambiental") including the existing anaerobic lagoon system and the future aerobic project system Photos evidencing the existance of anaerobic lagoons The visual inspection by the validation team confirmed the existance of an anaerobic lagoon system and on-going works of the proposed project activity. 		
A.2.3. Is the information provided by these proofs consistent with the information pro- vided by the PDD?	1,2	See A.2.1.	See CAR 1	þ
A.2.4. Is all information presented consistent	1,2	The information presented is consistent with details provided by	See	þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52

Report N° 1170523

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD	
with details provided by further chapters of		further chapters of the PDD.	CAR 1		
		However, see A.2.1.			
A.2.5. Does the description of the technology to be applied provide sufficient and transpar- ent input to evaluate its impact on the green- house gas balance?	1,2,6	See A.2.1. and A.4.2.3.	See CAR 1 See CAR 2	þ	
A.2.6. Is the brief explanation how the project will reduce greenhouse gas emission transparent and suitable?	1,2	See A.2.1.	See CAR 1	þ	
A.3. Project participants					
A.3.1. Is the form required for the indication of project participants correctly applied?	1,2	Yes. The form required for the indication of project participants is correctly applied.	þ	þ	
A.3.2. Is the participation of the listed entities or Parties confirmed by each one of them?	1,2,7	A declaration of the voluntary participation at the CDM project activity signed by JBS S/A and Instituto TOTUM has been submit- ted to the validation team.	þ	þ	
A.3.3. Is all information on participants / Par- ties provided in consistency with details pro- vided by further chapters of the PDD (in par- ticular annex 1)?	1,2	Yes. The information on project participants is consistent with Annex 1 of the PDD.	þ	þ	
A.4. Technical description of the small-scale project activity					
A.4.1. Location of the small-scale project activity					
A.4.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	1,2, 12	The PDD indicates the address of the project site as well as the GPS coordinates from Google Earth.	þ	þ	

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52

Report N° 1170523

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A.4.1.2. How is it ensured and/or demon- strated, that the project proponents can im- plement the project at this site (ownership, li- censes, contracts etc.)?	1,2,8	The official registry of land purchase (where the project will be implemented) has been presented to the validation team. It is clearly ensured that the project proponents can implement the project at the site.		þ
A.4.2. Type and category(ies) and technology/measur	e of the	small-scale project activity	-	
A.4.2.1. To which type(s) does the project activity belong to? Is the type correctly identi- fied and indicated?	1,2	The project activity falls under the Type (III): Other project activi- ties. The type is correctly identified.	þ	þ
A.4.2.2. To which category (ies) does the project activity belong to? Is the category cor- rectly identified and indicated?	1,2, 22	The project activity belongs to Category I: Methane Recovery in Wastewater Treatment. The category is correctly identified and inciated. However, the name of the methodology had not been correct in version 1 of the PDD (A.4.2.) and was corrected during the on-site audit.	þ	þ
A.4.2.3. Does the technical design of the project activity reflect current good practices?	1,2,6	The technical design of the project activity has been explained in detail to the validation team during the on-site visit. The proposed project activity consists of an aerobic treatment system, which is a completely new technology applied to a slaughterhouse replacing the current good practice of anaerobic lagoons. The technical design is not sufficiently described in the PDD. Corrective Action Request No.2. Please describe in detail the technical design of the project activity as it was described to validation team and project developer during the on-site visit.	CAR 2	þ
A.4.2.4. Does the implementation of the project activity require any technology transfer	1,2	According to the information provided on-site, the equipment for flotation system is imported from the Netherlands, all the other	CAR 3	þ



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52

Report Nº 1170523

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
than any commonly used technologies in the host country?		be only available after implementation of the project.		
A.4.2.8. Is the project technology likely to be substituted by other or more efficient tech- nologies within the project period?	1,2	The project technology is not likely to be substituted by other or more efficient technologies within the project period.		þ
A.4.2.9. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the pro- ject period?	1,2,6	The project requires initial training and maintenance efforts. The company "FAST", responsible for manufacturing parts of the equipment and complete assembling, will provide initial training and maintenance efforts to the local staff. Besides, regular internal training is planned.		þ
A.4.2.10. Is information available on the de- mand and requirements for training and main- tenance?	1,2,6	See A.4.2.9.	þ	þ
A.4.2.11. Is a schedule available for the implementation of the project and are there any risks for delays?	1,2,9	A schedule for the implemenation of the project has been pre- sented to the validation team. There are no significant risks for delays. However, no information regarding a time schedule is provided in the PDD. <u>Corrective Action Request No.5.</u> A time schedule for the implementation of the CDM project activity should be presented in the PDD.	CAR 5	þ
A.4.3. Estimated amount of emission reductions over	the cho	sen crediting period	1	L
A.4.3.1. Is the form required for the indica- tion of projected emission reductions correctly applied?	1,2	Yes. The form required for the indication of projected emission reductions is correctly applied.	þ	þ



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52

Report N° 1170523

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD
A.4.3.2. Are the figures provided consistent with other data presented in the PDD?	1,2	Yes. The figures provided are consistent with c sented in the PDD.	other data pre-	þ	þ
A.4.3.3. Are the figures consistent with the small-scale criteria for the used Type?	1,2	The limit for emission reductions is 60.000 t CO proposed project activity is below this limit.	02 annually. The	þ	þ
A.4.4. Public funding of the small-scale project activity	/				
A.4.4.1. Is the information provided on pub- lic funding provided in compliance with the ac- tual situation or planning as available by the project participants?	1,2	No public funding is involved in the project acti The project has been financed 100 % with own	vity. equity.	þ	þ
A.4.4.2. Is all information provided consis- tent with the details given in remaining chap- ters of the PDD (in particular annex 2)?	1,2	The information is consistent with the one give PDD.	n in Annex 2 of the	e þ	þ
A.4.5. Confirmation that the small-scale project activity	y is not	a debundled component of a large scale project	activity		
A.4.5.1. Is there a registered small-scale CDM project activity or an application to regis- ter another small-scale CDM project activity: with the following characteristics:	ered small-scale application to regis- M project activity: istics: 1,2 1,2 A.4.5. should mention the debundling criteria (project participant, project category/technology, registered within previous two years and boundary within 1 km of the project boundary).		CAR 6	þ	
		Debundling checklist	Yes / No		
		the same project participants?	Yes		
		In the same project category and technol-	Yes		
		Registered within previous two years? Or in registration process?	Yes		
		Whose boundary is within 1 km of the pro- ject boundary of the small scale project ac- tivity under consideration?	No		



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52

Report N° 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A.4.5.2. If the answer to all the above ques- tion is ' Yes ' then does the total size of the small scale project activity combined with pre- viously registered small scale CDM project ac- tivity exceeds the limits of small scale CDM project activities?		Not applicable.	Þ	þ
B. Application of a baseline and monitoring	meth	odology		
B.1. Title and reference of the approved basel	ine an	d monitoring methodology applied to the small-scale proje	ct activity	y
B.1.1.1.Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	1,2, 22	It is clearly indicated methodology AMS III.I, Version 6. However, the name of the methodology is not correct. Corrective Action Request No.7. The name of the methodology has to be modified to "Avoidance of methane production in wastewater treatment through replacement of anerobic lagoons by aerobic systems".	CAR 7	þ
B.1.1.2.Is the applied version the most recent one and / or is this version still applica- ble?	1,2, 22	Version 6 of AMS III.I is the most recent version at the time of submission of the PDD for the GSP.	þ	þ
B.2. Justification of the choice of the methodo	ology a	and why it is applicable to the project activity		
B.2.1. Is the applied methodology considered the most appropriate one?	1,2, 22	Yes. The applied methodology is the most appropriate one.	þ	þ
Integrate the required amount of sub-checklists on the applicability criteria as given by the applied methodology and comment on at least every line answered with "No";				
B.2.1.1.Criterion 1: Project comprises meas- ures that avoid the production of meth- ane from biogenic organic matter in	1,2,6 ,17, 22	Corrective Action Request No.8. Criteria 1-3 have to be mentioned in the PDD and the applicability to the proposed project activity has to be demonstrated.	CAR 8	þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMEN	TS	PPD in GSP	Final PDD
wastewaters being treated in anerobic lagoons.		Applicability checklistCriterion discussed in the PDD?Compliance provable?Compliance verified?Means of validation: Technical characequipment (FAST), visual inspection,	Yes / No / NA No Yes Yes cteristics of the project photos		
B.2.1.2.Criterion 2: The project activity substi- tutes anaerobic lagoons by aerobic sys- tems	1,2, 16, 22	See B.2.1.1. Applicability checklist Criterion discussed in the PDD? Compliance provable? Compliance verified? Means of validation: on-site visual ins mental control ("Plano de controle am	Yes / No / NA No Yes Yes pection, Plan for environ- biental")	See CAR 8	þ
B.2.1.3.Criterion 3: The project activity does not recover or combust methane in wastewater treatment facilities (unlike III.H)	1,2,6 ,22	See B.2.1.1 Applicability checklist Criterion discussed in the PDD? Compliance provable? Compliance verified? Means of validation: Technical charac equipment (FAST)	Yes / No / NA No Yes Yes cteristics of the project	See CAR 8	þ
B.2.1.4.Criterion 4: Are the projected emission reductions less than or equal to 60,000 tonnes CO ₂ equivalent per annum?	1,2,3 ,22	Applicability checklist Criterion discussed in the PDD? Compliance provable?	Yes / No / NA Yes Yes	þ	þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD
		Compliance verified?	Yes		
		Means of validation: calculations (Waste lus_JBS_Vilhena)	Means of validation: calculations (Wastewater Calcu- lus_JBS_Vilhena)		
B.3. Description of the project boundary		•		·	
B.3.1. Does the project boundary include physical, geographical site where the wastewater treatment takes place?	1,2, 22	Yes. The project boundary includes the site where the wastewater treatment take	physical, geographical s place.	þ	þ
B.3.2. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PDD2	1,2, 22	The spatial and technological boundary PDD.	is not clearly limited in the	CAR 9	þ
		Corrective Action Request No.9.			
		The spatial and technological boundary PDD.	should be revised in the		
B.4. Details of baseline and its development		-			-
B.4.1. Has the most recent version of the addtionality tool been applied?	1,2, 21, 22	Yes. The most recent version of the add	itionality tool is applied.	þ	þ
B.4.2. Have realistic and credible alternatives been identified providing comparable outputs or services? (step 1a) May this list considered to be complete?	1,2, 21, 22	Realistic and credible alternatives have PDD. The following alternatives are mentioned a) The untreated wastewate sea, river, lake, stagnant b) Installation of organic dig	been identified in the d in the PDD: r being discharged into sewer or flowing sewer esters with methane cap-	CAR 10	þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523







Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52

Report N° 1170523

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
fied alternatives concerning the compliance with applicable laws and regulations? (step 1b)	21, 22	tation of any of the proposed scenarios". This is not correct, as the first alternative "Untreated wastewaster is being directly dis- charged into sea, river, lake, stagnant sewer or flowing sewer" is not in conformance with the legislation.	11	
		Corrective Action Request No.11. It has to be mentioned in sub-step 1.b) that the alternative "Un- treated wastewaster is being directly discharged into sea, river, lake, stagnant sewer or flowing sewer" is not in conformance with the law.		
B.4.6. Does the project identify correctly and excludes those options not in line with regulatory or legal requirements?	1,2, 21, 22	See B.4.5.	See CAR 11	þ
B.4.7. In case the PDD argues that specific laws are not enforced in the country or region: ls evidence available concerning that state- ment? (step 1b)		Not applicable.	þ	þ
B.4.8. Does the selected baseline scenario correspond to the selected project scenario as per section B.2 above?	1,2, 21, 22	Yes. The selected baseline scenario corresponds to the selected project scenario as per section B.2 above.	þ	þ
B.4.9. Is the identified baseline scenario in line with regulatory or legal requirements?	1,2, 21, 22	Yes. The identified baseline scenario is in line with regulatory or legal requirements.	þ	þ
B.4.10. Does the PDD identify the most likely baseline scenario in absence of the project	1,2,	Yes. The baseline scenario is the situation where, in the absence of the project activity, degradable organic matter in wastewater is	þ	þ



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009

Number of Pages: 52

Report N° 1170523

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		Final PDD		
activity?	21, 22	treated in anaerobic lagoons and methane is emitted to the at- mosphere.				
B.4.11. Is this identification supported by official and/or verifiable documents (e.g. studies, web pages, certificates, etc?	1,2, 10, 21, 22	The study developed by São Paulo's State Government, FIESP (Industrial Federation of the State of São Paulo), CETESB (Envi- ronmental Technological Company) and SMA (Environmental Office) – Environmental Technical Guide on swine and cattle slaughterhouses – Cleaner Production Series (<i>Guia Técnico Am- biental de Abates (bovinos e suínos) – Série P+L</i>) from 2006 indi- cates that the most common effluent treatment found is the an- aerobic system. The study has been submitted to the validation team.		þ		
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):						
Integrate questions concerning the determination of the	additior	nality when applying the "additionality tool"; Replace blue text, if neces	ssary			
B.5.1. In case of applying step 2 / investment analysis of the additionality tool: Is the analy- sis method identified appropriately (step 2a)?	1,2, 20, 21, 22	The PDD has chosen the simple cost analysis. See B.5.2.	See CAR 12	þ		
B.5.2. In case of Option I (simple cost analy- sis): Is it demonstrated that the activity pro- duces no economic benefits other than CDM income?	1,2, 20, 21, 22	 During the on-site visit the validation team was informed that possibly sludge will be used as a fuel for the operation of the boiler. As this would substitute wood as fuel oil, possibly economic benefits others than CDM income would be generated. Not all the costs mentioned in the simple cost analysis have been retraceable during the on-site visit and it seems 	CAR 12	þ		


Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009 Number of Pages: 52

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		Final PDD
		 that some of them are inconsistent with the raw data. Corrective Action Request No.12. 1. Please revise the applicability of the simple cost analysis in the case that sludge is used as fuel for the boiler operation. 2. Please submit a revised excel sheet for the simple cost analysis. 		
B.5.3. In case of Option II (investment com- parison analysis): Is the most suitable finan- cial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1,2, 20, 21, 22	Not applicable.	þ	þ
B.5.4. In case of Option III (benchmark analy- sis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1,2, 20 21, 22	Not applicable.	þ	þ
B.5.5. In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?	1,2, 20 21, 22	Not applicable.	þ	þ
B.5.6. In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the util-ized data?	1,2, 20 21, 22	Not applicable.	þ	þ
B.5.7. In case of applying step 3 (barrier	1,2,	Not applicable.	þ	þ



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009

Number of Pages: 52

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
analysis) of the additionality tool: Is a com- plete list of barriers developed that prevent the different alternatives to occur?	21, 22			
B.5.8. In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and sig- nificance of these barriers?	1,2, 21, 22	See B.5.7.	þ	þ
B.5.9. In case of applying step 3 (barrier analysis): Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?	1,2, 21, 22	See B.5.7.	þ	þ
B.5.10. Have other activities in the host country / region similar to the project activity been identified and are these activities appropri- ately analyzed by the PDD (step 4a)?	1,2, 21, 22	 According to information given in the PDD, the only aerobic treatment implemented in cattle slaughterhouses are biological filters, bio disks and processes such as activated sludge. However, it is not clear what the exact difference between the proposed project activity and other aerobic treatment system is. Besides, during the on-site visit FAST (company responsible for manufacturing some parts of the equipment and complete assembling) has informed in a telephone conversation that similar aerobic treatment systems have been implemented, however not in slaugtherhouses. Corrective Action Request No.13. 	CAR 13	þ
		 Please explain the exact differences between the proposed project activity and other aerobic treatment systems like bio disks, biological filters and processes such as activated sludge. Please explain the exact differences of already other implemented aerobic treatment systems implemented by 		



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD	
		FAST to the proposed project activity.			
B.5.11. If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component (step 4b)?	1,2, 21, 22	See B.5.10.	See CAR 13	þ	
If the additionality tool has not been used please answer B.5.13 to B.5.18					
B.5.12. If the starting date of the project activity is before the date of validation, is evidence available to prove that incentive from the CDM was seriously considered in the deci- sion to proceed with the project activity?	1,2,5	It has not been submitted a clear evidence to the validation team yet evidencing that CDM has been seriously considered in the decision to proceed with the project activity. Corrective Action Request No.14. Please submit a clear evidence showing that CDM has been considered before project start (04.09.2007).	CAR 14	þ	
B.5.13. Is a complete list of barriers developed that prevents the project activity to occur?		Not applicable.	þ	þ	
B.5.14. Does this list include at least one of the following barriers?		Not applicable.BarrierDiscussed?InvestmentTechnologicalDue to prevailing practiceOther	þ	þ	
B.5.15. Does the discussion sufficiently take into account relevant national and/or sectoral policies?		Not applicable.	þ	þ	



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52

Report Nº 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD		
B.5.16. Is transparent and documented evi- dence provided on the existence and signifi- cance of these barriers?		Not applicable.	þ	þ		
B.5.17. Is it appropriately explained how the approval of the project activity will help to overcome the identified barriers?		Not applicable.		þ		
B.6. Emissions reductions						
Integrate questions concerning methodological choices	and sel	ection of options, if necessary				
B.6.1. Explanation of methodological choices						
B.6.1.1.Is it explained how the procedures pro- vided in the methodology are applied by the proposed project activity?	1,2, 22	Yes. Procedures are applied by the proposed project activity as explained in the methodology.	þ	þ		
B.6.1.2.Is every selection of options offered by the methodology correctly justified and is this justification in line with the situa- tion verified on-site?	1,2, 22	 Corrective Action Request No.15. 1. Regarding the emissions factor: It should be explicitly mentioned in B.6.1. which option of AMS I-D is chosen for the calculation of the emissions factor 2. The formula for methane emissions from the anaerobic decay of the final sludge generated in the wastewater system in the year "y" should be mentioned, even though the value is zero. 		þ		
B.6.1.3.Determination of project emissions (Com	ment or	any line answered "No")	-			
a. Component 1: CO2 emissions related to the power used by the project activity facilities. Emission factors for grid electricity or diesel fuel use shall be calculated as de-	1,2, 22	Project emission checklistYes / NoComponent discussed in the PDD?YesFormulae correctly applied?Yes	See CAR 15	þ		



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		Final PDD
scribed in category I.D.		However, see B.6.1.2.		
b. Component 2: Methane emis- sions during the aerobic wastewa- ter treatment	1,2, 22	Project emission checklistYes / NoComponent discussed in the PDD?YesFormulae correctly applied?Yes	þ	þ
c. Component 3: Methane emis- sions from the decay of the sludge generated by the aerobic systems, if the sludge is disposed to decay anaerobically in a landfill without methane recovery.	1,2, 22	See B.6.1.2.Project emission checklistYes / NoComponent discussed in the PDD?NoFormulae correctly applied?No	See CAR 15	þ
B.6.1.4.Are the formulae required for the de- termination of baseline emissions cor- rectly presented, enabling a complete identification of parameter to be used and / or monitored?	1,2, 22	Yes. The formula required for the determination of baseline emis- sions is correctly presented, enabling a complete identification of parameter to be used and/or monitored.		þ
B.6.1.5.Are the formulae required for the de- termination of project emissions cor- rectly presented, enabling a complete identification of parameter to be used and / or monitored?	1,2, 22	Yes. The formulae required for the determination of project emis- sions are correctly presented. However, see B.6.1.2.		þ
B.6.1.6.Are the formulae required for the de- termination of leakage emissions cor- rectly presented, enabling a complete identification of parameter to be used and / or monitored?	1,2, 22	Not applicable as there are no leakage emissions in the project activity.		þ
B.6.1.7. Are the formulae required for the de-	1,2,	The formula for the determination of emission reductions is cor-	þ	þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
termination of emission reductions cor- rectly presented?	22	rectly presented in B.6.3. of the PDD.		
B.6.2. Data and parameters that are available at validation	ation			
B.6.2.1.Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	1,2, 22	The list of parameters presented in chapter B.6.2. is considered to be complete.		þ
B.6.2.2.Comment on any line answered with "No"	,			
B.6.2.2.1. Parameter Title: ECp,y energy or diesel consump- tion in the year "y" by the project activity.		Not applicable / See chapter B.7.1.Data ChecklistYes / No / NATitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?	đ	þ
B.6.2.2.2. Parameter Title: EFe,y emission factor for energy generation / diesel consumption	1,2, 22	Data ChecklistYes / No / NATitle in line with methodology?YesData unit correctly expressed?YesAppropriate description of parameter?Yes	þ	þ



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009

Number of Pages: 52

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD
		Source clearly referenced?	Yes		
		Correct value provided?	Yes		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
B.6.2.2.3. Parameter Title:		Not applicable / See chapter B.7.1.		þ	þ
Q _{ww,y,m} Volume of wastewater		Data Checklist	Yes / No / NA		
treated during the months m, dur-		Title in line with methodology?			
ing year "y", for the months with		Data unit correctly expressed?			
ambient average temperature		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided?			
		Has this value been verified?			
		Choice of data correctly justified?			
		Measurement method correctly described?			
B.6.2.2.4. Parameter Title: COD _{y,m} Chemical oxygen demand		Not applicable / See chapter B.7.1.		þ	þ
of the effluent entering the lagoons		Data Checklist	Yes / No / NA		
in the year y (tonnes/m3) for the		Title in line with methodology?			
months with ambient average tem-		Data unit correctly expressed?			
perature above 15°C.		Appropriate description of parameter?			
		Source clearly referenced?			
		Correct value provided?			
		Has this value been verified?			
		Choice of data correctly justified?			
		Measurement method correctly described?			



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009

Number of Pages: 52

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD
B.6.2.2.5. Parameter Title: B _{o,ww} methane producing capacity of the wastewater (IPCC default value for domestic wastewater of 0.21 kg CH4/kg.COD)	1,2, 22, 23, 24	Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?	Yes / No / NA Yes Yes Yes Yes Yes Yes Yes Yes Yes	þ	þ
B.6.2.2.6. Parameter Title: MCF _{aerobic} methane correction fac- tor for the wastewater treatment in aerobic systems (MCF higher value of 0.1 for well managed systems, or 0.4 for poorly managed or over- loaded systems as per table III.H.1 in category III.H)	1,2, 22, 23, 24	Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?	Yes / No / NA Yes Yes Yes Yes Yes Yes Yes Yes Yes	þ	þ
B.6.2.2.7. Parameter Title:		Not applicable / See chapter B.7.1.		þ	þ









Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD
B.6.2.2.12.Parameter Title:	1,2,	Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described?		þ	þ
for the wastewater treatment in an- aerobic lagoons (MCF lower value of 0.8 as per table III.H.1 under AMS III.H).	22, 23, 24	Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?Choice of data correctly justified?Measurement method correctly described?	Yes / No / NA Yes Yes Yes Yes Yes Yes Yes Yes Yes		
B.6.2.2.13.Parameter Title: GWP_CH4 Global Warming Poten- tial for methane	1,2, 22, 23, 24	Data ChecklistTitle in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided?Has this value been verified?	Yes / No / NA Yes Yes Yes Yes Yes Yes	þ	þ



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
B.6.3. Ex-ante calculation of emission reductions					
B.6.3.1.Is the projection based on the same procedures as used for future monitor-ing?	1,2, 22	The projection is based on the same procedure ture monitoring.	The projection is based on the same procedures as used for fu- ture monitoring.		þ
B.6.3.2.Are the GHG calculations documented in a complete and transparent manner?	1,2,3	The GHG calculations are documented in a complete and trans- parent manner in the PDD as well as in the calculation sheet "Wastewater Calculus_JBS_Vilhena".		þ	þ
B.6.3.3.If there is more than one component of the project activity, then are emission reduction calculations provided sepa- rately for each component?		Not applicable as there is only one component of the project activ- ity.		þ	þ
B.6.3.4.Is the data provided in this section con- sistent with data as presented in other chapters of the PDD?	1,2	The data is consistent with data in other sections of the PDD.		þ	þ
B.6.4. Summary of the ex-ante estimation of emission	reducti	ions			
B.6.4.1.Will the project result in fewer GHG emissions than the baseline scenario?	1,2	Yes. The project will result in fewer GHG emiss baseline scenario.	ions than the	þ	þ
B.6.4.2.Is the form/table required for the indica- tion of projected emission reductions correctly applied?	1,2	The table required for the indication of projected emission reduc- tions is correctly applied.		þ	þ
B.6.4.3.If the project activity involves more than one component, is separate table in- cluded for each of the component.		Not applicable.		þ	þ
B.6.4.4.Do these values comply with small-	1,2,	The values comply with small-scale criteria for e	every year.	þ	þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52

Report Nº 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD		
scale criteria for every year?	22					
B.6.4.5.Is the projection in line with the envi- sioned time schedule for the project's implementation and the indicated credit- ing period?	1,2,9	See A.4.2.11.		þ		
B.6.4.6.Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	1,2	The data provided in this section is consistent with data in other sections of the PDD.		þ		
B.7. Application of the monitoring methodology and description of the monitoring plan						
B.7.1. Data and parameters monitored						
B.7.1.1.Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	1,2, 22	The list of parameters presented in B.7.1. is considered to be complete.		þ		
B.7.1.2.Comment on any line answered with "No	,					
B.7.1.2.1. Parameter Title: Q _{ww,y,m} Volume of wastewater treated during the months m, dur- ing year "y", for the months with ambient average temperature above 15°C (m3)	1,2, 22	Corrective Action Request No.16.Regarding the parameter "Qww.y.m Volume of wastewater treatedduring the months m, during year "y"": Source (not measured byproject developer, but by project owner) and QA/QC procedureshave to be revised; correct reference to standards and accuracyhave to be added. Besides, it has to be mentioned that the valuerefers to future slaughtering figures of 2.500 head of cattle perday. Please indicate the slaughtering figure today and the in-crease in %.Monitoring ChecklistYes / NoTitle in line with methodology?YesData unit correctly expressed?Yes	CAR 16	¢		





Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	COMMENTS		Final PDD
		QA/QC procedures appropriate?	No		
B.7.1.2.3. Parameter Title: COD _{y,m} Chemical oxygen demand of the effluent entering the lagoons in the year y (tonnes/m3) for the months with ambient average tem- perature above 15°C.	1,2, 11, 22	Corrective Action Request No.18. 1. Please describe at what point the analysis, walue for estimation of emission reductions we point where future analysis will be taken. 2. It has to be mentioned that the value refers a ing figures of 2.500 head of cattle per day. Pleas slaughtering figure today and the increase in % Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? Some more specifications of the parameter ha during the on-site visit into B.7.1 of the PDD.	which provides the re taken and the to future slaughter- ase indicate the 6. Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	CAR 18	Φ
B.7.1.2.4. Parameter Title: DOC _{y,s} - Degradable organic con-		Not applicable Monitoring Checklist	Yes / No	þ	þ





CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD
tent of the sludge generated by the wastewater treatment in the year y (fraction). It shall be measured by sampling and analysis of the sludge produced.		Title in line with methodology?Data unit correctly expressed?Appropriate description of parameter?Source clearly referenced?Correct value provided for estimation?Has this value been verified?Measurement method correctly described?Correct reference to standards?Indication of accuracy provided?QA/QC procedures described?QA/QC procedures appropriate?			
B.7.1.2.5. Parameter Title: Ambient average temperature at the project site in month <i>m</i> in the year "y"	1,2, 22, 26	Some more specifications of the parameter ha during the on-site visit into B.7.1 of the PDD. Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described?	ve been included Yes / No Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	þ	þ



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD
B.7.1.2.6. Parameter Title: ECp,y energy or diesel consumption in the year "y" by the project activity.	1,2,6 ,22	Some more specifications of the parameter had during the on-site visit into B.7.1. of the PDD. T slightly corrected.	ve been included The value has been	þ	þ
		Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described?	Yes / No Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes		
B.7.1.2.7. EFe,y emission factor for energy generation / diesel consumption		Not applicable, as EF is applied ex-ante. Monitoring Checklist Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards?	Yes / No N/A	þ	þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009



Number of Pages: 52 Report N° 1170523

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate?		
B.7.2. Description of the monitoring plan				1
B.7.2.1.Is the operational and management structure clearly described and in com- pliance with the envisioned situation?	1,2	The operational and management structure is described in the PDD. An organigram of the operational and management structure has been included into the PDD during the on-site visit.	þ	þ
B.7.2.2.Are responsibilities and institutional ar- rangements for data collection and ar- chiving clearly provided?	1,2	Yes. The dedicated CDM Manager of the project developer is responsible for checking the data (according to a formal proce- dure) and the CDM Manager will be responsible for managing the collection, storage and archiving of all data and records.	þ	þ
B.7.2.3.If the project activity is under a pro- gramme of activities, are the conditions for use of this methodology in a project activity under a programme of activities applied?		Not applicable.	þ	þ
B.7.2.4.Does the monitoring plan provide cur- rent good monitoring practice?	1,2	Data collection, equipment calibration and QA/QC procedures are not adequately explained in B.7.2. of the PDD. <u>Corrective Action Request No.19.</u> The monitoring plan of the PDD should describe data collection, equipment calibration and QA/QC procedures for all parameters to be monitored.	CAR 19	þ
B.7.2.5.If applicable: Does annex 4 provide	1,2	Annex 4 provides some more useful information enabling a better	See	þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
useful information enabling a better un- derstanding of the envisioned monitoring provisions?		understanding of the envisioned monitoring provisions. However, see B.7.2.4.	CAR 19	
B.8. Date of completion of the application of the son(s)/entity(ies)	he bas	eline study and monitoring methodology an the name of th	e respor	sible per-
B.8.1.1.Is there any indication of a date when the baseline was determined?	1,2	Yes. It is indicated 18/02/2008 when the baseline was deter- mined.	þ	þ
B.8.1.2.Has dd/mm/yyyy format been used to indicate the date.	1,2	Yes. The format dd/mm/yyyy has been used to indicate the date.	þ	þ
B.8.1.3.Is this consistent with the time line of the PDD history?	1,2	Yes. It is consistent with the time line of the PDD history.	þ	þ
B.8.1.4.Is the information on the person(s) / en- tity (ies) responsible for the application of the baseline and monitoring method- ology provided consistent with the actual situation?	1,2	Yes. The information on the persons (Mr Carlos Henrique Delpupo, Miss. Sheila Guebara de Souza and Miss Andrea Marilia Loyola) and entity (Instituto TOTUM) responsible for the application of the baseline and monitoring methodology is pro- vided consistent with the actual situation.	þ	þ
B.8.1.5.Is information provided whether this person / entity is also considered a pro- ject participant?	1,2	The information was not provided in version 1 of the PDD. During the on-site visit the information has been included into the PDD.	þ	þ
C. Duration of the project activity / crediting	g perio	od		
C.1. Duration of the project activity				
C.1.1. Are the project's starting date and op- erational lifetime clearly defined and reason- able?	1,2,5	 Corrective Action Request No.20. The project's starting date should be modified to the date when the purchase of the project equipment was approved 	CAR 20	þ



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		by the supply manager on September 04, 2007. From that date the project may be considered as irreversible without big financial losses.		
		The operational lifetime of the proposed project activity in- dicated in the PDD should be evidenced.		
C.2. Choice of the crediting period and related	l inforr	nation		
C.2.1. 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)?	1,2	It is chosen a renewable crediting period of 7 years. The start of the crediting period is indicated with 01/08/2008. This is reasonable.	þ	þ
C.2.2. Has dd/mm/yyyy format been used to indicate the start date of the crediting period.	1,2	The format dd/mm/yyyy has been correctly indicated.	þ	þ
D. Environmental impacts				
D.1. Documentation on the analysis of the env	/ironm	ental impacts, including transboundary impacts		
 D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved? If yes answer also D.1.2 to D.1.4 	1,2, 18	There is no EIA necessary for this kind of project activity. This has been confirmed on-site by verifying Article 2 of the CONAMA Resolution n°1 /23/01/1986.	þ	þ
D.1.2. Has the analysis of the environmental impacts of the project activity been sufficiently described?	1,2	Environmental impacts are sufficiently described in the PDD.	þ	þ
D.1.3. Will the project create any adverse en- vironmental effects?	1,2	The environmental impacts related to this project activity are not considered significant.	þ	þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52Report N° 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD	
D.1.4. Were transboundary environmental impacts identified in the analysis?	1,2	No transboundary environmental impacts are involved with the project activity. The PDD informs about it.	þ	þ	
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the proce- dures as required by the host Party					
D.2.1. Have the identified environmental im- pacts been addressed in the project design sufficiently?	1,2	See D.1.2. and D.1.4.	þ	þ	
D.2.2. Does the project comply with environ- mental legislation in the host country?	1,2, 13, 15	The project complies with the environmental legislation in the host country. The valid operational licence as well as the request for a new operational licence including the proposed project activity have been presented to the validation team during the on-site visit. Corrective Action Request No.21.	CAR 21	đ	
		Please include information about environmental licences into the PDD.			
E. Stakeholders' comments					
E.1.Brief description how comments by local stakeholders have been invited and compiled					
E.1.1. Have relevant stakeholders been con- sulted?	1,2, 25	Yes. Relevant stakeholders have been consulted in February 2008. Confirmations about receipt of the letters have been pre- sented to the validation team during the on-site visit. The only confirmation still missing is the one from the Brazilian Forum of	CAR 22	þ	

Corrective Action Request No.22.

The confirmation about receipt of the letter from the Brazilian Fo-

NGOs.

Project Title: Project: Project JBS S/A - Slaughterhouse Wastewater Aerobic Treatment - Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52





Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD	
F.1.2. Is the information on all private participants and directly involved Parties presented?	1,2	Yes. Information on all private participants is presented.	þ	þ	
F.2. Annex 2: Information regarding public funding					
F.2.1. Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	1,2	There is no public funding involved.	þ	þ	
F.2.2. If necessary: Is an affirmation available that any such funding from Annex-I- countries does not result in a diversion of ODA?	1,2	Not applicable as no public funding involved.	þ	þ	
F.3. Annex 3: Baseline information					
F.3.1. If additional background informa- tion on baseline data is provided: Is this in- formation consistent with data presented by other sections of the PDD?		Not applicable, as no additional information is provided.	þ	þ	
F.3.2. Is the data provided verifiable? Has sufficient evidence been provided to the validation team?		Not applicable.	þ	þ	
F.3.3. Does the additional information substantiate / support statements given in other sections of the PDD?		Not applicable.	þ	þ	
F.4. Annex 4: Monitoring information					
F.4.1. If additional background informa- tion on monitoring is provided: Is this informa-	1,2	Yes. Additional background information is consistent with data presented in other sections of the PDD.	þ	þ	

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52

Report Nº 1170523



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
tion consistent with data presented in other sections of the PDD?				
F.4.2. Is the information provided verifi- able? Has sufficient evidence been provided to the validation team?	1,2	See B.7.2.4.	See CAR 19	٩
F.4.3. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1,2	See B.7.2.4.	See CAR 19	Þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action re-quests by	Ref. to	Summary of project owner response	Validation team
validation team	table 1		conclusion
Validation team A Corrective Action Request No.1. A 1. It is not clear according to the description of A.2. how the proposed project activity will reduce CO2 emissions. Please explain. A 2. It is not explained in A.2. how the proposed project activity contributes to sustainable development. Please add. 3. The purpose of the proposed project activity should be more retraceable. B	table 1 A.2.1.	 Answer 25.04.2008: 1. Information regarding GHG emission reduction added in section A.2 of the PDD. 2. Information added in the last paragraph of section A.2 of the PDD. 3. The project activity was more detailed and structured throughout section A.2 of the PDD. Answer 05.05.2008: 1. The increase was added to section A.2. of the PDD. 2. Further information was added in the final paragraph of section A.2. 	 Conclusion 27.04.2008: Information how the proposed project activity will reduce CO2 emissions is provided in the last submitted PDD. However, the baseline mentioned in A.2. should consider the increase of slaughtered animals to 2,500 heads per day. The contribution to sustainable development should be discussed in more detail in A.2. of the PDD. The purpose of the proposed project activity is retraceable in the last submitted PDD. The norease to 2,500 slaughtered animals per day has been considered in the last submitted pDD.



			submitted PDD. 2. The last submitted PDD explains how the proposed project activity contributes to sustainable development. CAR 1 is considered to be resolved. þ
Corrective Action Request No.2. Please describe in detail the technical design of the project activity as it was described to validation team and project developer during the on-site visit.	A.4.2.3.	Answer 25.04.2008: The applied technology in the project activity was de- tailed in section A.2 following the provided explanation from the project developer and added throughout the PDD. Answer 05.05.2008: The detailed version of the technology applied was placed in section A.4.2. and a shorter version can now be found in section A.2.	Conclusion 27.04.2008: The detailed description of the applied technology should be mentioned rather in A.4.2. than in A.2 A.2. should give just a short over- view about the applied tech- nology. Please revise. Conclusion 06.05.2008: The detailed description of the applied technology is applied in A.4.2. of the last submitted PDD. CAR 2 is considered to be resolved. p
Corrective Action Request No.3. Information about technology transferred from other countries and/or manufactured domestically is miss- ing in the PDD. Please provide respective informa- tion.	A.4.2.4.	Answer 25.04.2008: Information regarding technology transference was added in section A.4.2. of the PDD.	Conclusion 27.04.2008: No technology transfer is involved. Information was provided in A.4.2. of the last submitted PDD. CAR 3 is considered to be resolved. p

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



	-		
Corrective Action Request No.4.	A.4.2.5.	Answer 25.04.2008:	Conclusion 27.04.2008:
Please provide information in the PDD that the tech-		Information added in the final paragraph of section	Finally it is nothing said in
nology implemented by the project activity is envi-		A.4.2 of the PDD.	A.4.2. of the PDD whether
Torinentally sale.		Answer 05.05.2008:	and why the technology im-
		The information regarding how the technology imple-	safe.
		A.4.2. of the PDD.	Please describe.
			Conclusion 06.05.2008:
			Information about environ-
			mental safety has been re-
			PDD.
			CAR 4 is considered to be
			resolved. þ
Corrective Action Request No.5.	A.4.2.11	Answer 25.04.2008:	Conclusion 27.04.2008:
A time schedule for the implementation of the CDM		A time schedule was added to the PDD in section	The time schedule was in-
project activity should be presented in the PDD.		A.4.2.	cluded in the last submitted
			CAR 5 is considered to be
			resolved. þ
Corrective Action Request No.6.	A.4.5.1.	Answer 25.04.2008:	Conclusion 27.04.2008:
A.4.5. should mention the debundling criteria (project		The debundling criteria were added in section A.4.5 of	Debundling criteria were
participant, project category/technology, registered		the PDD.	added in the last submitted
of the project boundary).			PDD.
			cAR 6 is considered to be resolved. þ
Corrective Action Request No.7.	B.1.1.1.	Answer 25.04.2008:	Conclusion 27.04.2008:
The name of the methodology has to be modified to		The name of the methodology was altered in section	The name of the methodol-
"Avoidance of methane production in wastewater			

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52

treatment through replacement of anerobic lagoons by aerobic systems".		B.1 of the PDD.	ogy is correct in the last submitted PDD. CAR 7 is considered to be resolved. þ
Corrective Action Request No.8. Criteria 1-3 have to be mentioned in the PDD and the applicability to the proposed project activity has to be demonstrated.	B.2.1.1.	Answer 25.04.2008: The detailed technical characteristics of the equipment from FAST are in a document provided by FAST which is attached to the protocol. (Annex CAR 8)	Conclusion 27.04.2008: Applicability criteria are men- tioned in the last submitted PDD. CAR 8 is considered to be resolved. þ
Corrective Action Request No.9. The spatial and technological boundary should be revised in the PDD.	B.3.2.	Answer 25.04.2008: A schematic diagram of the aerobic system for effluent treatment applied in the project activity which encom- passes the project boundary was added in the section B.3 of the PDD. <u>Answer 05.05.2008:</u> We do not agree with the validation team's opinion once the title of figure 2 clearly illustrates that it is not related to the project boundary. This scheme is meant to detail what a slaughterhouse process involves in or- der to clarify someone's vision on the process. But to avoid any further disagreement the figure was placed in section A.2.	Conclusion 27.04.2008: It is quite confusing in the opinion of the validation team to indicate Figure 2 in chapter "Project boundary". Someone could interprete Figure 2 as project boundary. Please make it more transparent that Figure 2 is not the project boundary or take it from this chapter. Conclusion 06.05.2008: The figure was placed in sec- tion A.2., thus CAR 9 is con- sidered to be resolved. p
 <u>Corrective Action Request No.10.</u> 1. Please include the alternative "installation of another type of aerobic wastewater treatment system such as biological filters, bio disks and processes like 	B.4.2.	Answer 25.04.2008: 1. Option 3 - Installation of another aerobic wastewater treatment system such as biological filters, bio disks (rotating biological contactors)	Conclusion 27.04.2008: 1. The requested alternative "installation of another type of aerobic wastewater treatment



Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52



activated sludge" and explain why it is not the base- line scenario. 2. Please describe the development of the baseline in B.4. of the PDD.		 and processes like activated sludge - this was added to section B.4 and B.5 of the PDD. 2. B.4 was re-structured and additional information was added in order to better develop the baseline scenario. Answer 05.05.2008: 1. In section B.4 an explanation was detailed on why the aerobic treatments are not considered as an alternative to the baseline scenario. 	system such as biological filters, bio disks and proc- esses like activated sludge" was included in the last sub- mitted PDD. However, it is not explained at all why this alternative is not the baseline scenario. Please revise. 2. The development of the baseline was described in B.4. of the last submitted PDD. <u>Conclusion 06.05.2008:</u> Explanation may be consid- ered as sufficient in the last submitted PDD. CAR 10 is considered to be resolved. p
Corrective Action Request No.11. It has to be mentioned in sub-step 1.b) that the alter- native "Untreated wastewaster is being directly dis- charged into sea, river, lake, stagnant sewer or flow- ing sewer" is not in conformance with the law.	B.4.5.	Answer 25.04.2008: Section B.4 of the PDD was altered and the required information was added. Answer 05.05.2008: English revised in section B.4.	Conclusion 27.04.2008: English is not clear. Please revise. Conclusion 06.05.2008: English was revised in sec- tion B.4. of the last submitted PDD. CAR 11 is considered to be resolved. þ
Corrective Action Request No.12.	B.5.2.	Answer 25.04.2008:	Conclusion 27.04.2008:



 Please revise the applicability of the simple cost analysis in the case that sludge is used as fuel for the boiler operation. Please submit a revised excel sheet for the simple cost analysis. 		 The sludge will not be used as fuel for the boiler operation. The calculation sheet was substituted by the Commercial proposal of FAST (Annex CAR12). <u>Answer 05.05.2008:</u> The costs involved in the installation and construction are not included once the construction is still going on. If I write values that can not be evidenced that will be a problem so I would rather not include the costs without definition. 	 As sludge will not be used as fuel for the boiler opera- tion, the simple cost analysis may continue to be used. Installment/Construction costs are not considered in the simple cost analysis. Pro- ject participants should in- form why not. Please indicate explicitly that no other benefits are gener- ated by the proposed project activity than CDM related income. Conclusion 06.05.2008: Answer regarding installation and construction costs may be accepted due to conserva- tiveness. The last submitted PDD men- tions that all financial support arises from the CDM. CAR 12 is considered to be resolved. Please refer also to CAR 25. p
Corrective Action Request No.13. 1. Please explain the exact differences between the proposed project activity and other aerobic treatment systems like bio disks, biological filters and processes such as activated sludge.	B.5.10.	Answer 25.04.2008: 1. The various types of aerobic systems were de- tailed in section B.4 of the PDD and the stud- ies used are attached to the protocol. (Annex CAR13_A, CAR13_B, CAR13_C)	Conclusion 27.04.2008: 1. Project participants explain other aerobic treatment sys- tems like bio disks, biological filters and processes such as

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



2. Please explain the exact differences of already other implemented aerobic treatment systems imple- mented by FAST to the proposed project activity.		 2. The already existing aerobic flotation systems were described in section B.5 of the PDD and the differences between the existing flotation system and the one provided by FAST were explained in section B.5 of the PDD. <u>Answer 05.05.2008:</u> 1. The drawings are meant to clearly explain the differences between the many aerobic systems. The differences were more detailed in section B.4. 	activated sludge, however exact differences to the pro- posed project activity are not illustrated. Please explicitly explain the differences as this is important to show that the proposed project activity is not common practice. 2. See item 1. Conclusion 06.05.2008: Differences of other aerobic systems have been clearly demonstrated in the last submitted PDD. CAR 13 is considered to be resolved. þ
Corrective Action Request No.14. Please submit a clear evidence showing that CDM has been considered before project start (04.09.2007).	B.5.12.	Answer 25.04.2008: Attached to protocol. (Annex CAR14_page 6) Answer 21.05.2008: Translated pages have been submitted to the DOE.	Conclusion 27.04.2008: The relevant pages of the proposal and contract have to be submitted in English lan- guage to the validation team. The translated pages have to be clearly referenced and will be submitted together with the validation report to the EB. Conclusion 21.05.2008: Relevant pages of the docu- ment evidencing CDM con- sideration have been submit-



Corrective Action Request No.15.	B.6.1.2.	Answer 25.04.2008:	Conclusion 27.04.2008:
 Regarding the emissions factor: It should be explicitly mentioned in B.6.1. which option of AMS I-D is chosen for the calculation of the emissions factor The formula for methane emissions from the anaerobic decay of the final sludge generated in the wastewater system in the year "y" should be men- 		1. As already stated in the PDD in section B.6.2 the emission factor applied is prepared by project developers in Brazil following the tool methodology " Tool to calculate the emission factor for an electricity system ". Therefore there is no need to specify the options provided by AMS I.D.	1. The validation team ac- cepts the answer as the "Tool to calculate the emission fac- tor for an electricity system" is applied and methodology AMS I.D. refers to this Tool.
tioned, even though the value is zero.		2. The formula related to the project emissions from the decay of sludge was added to section B.6.1.	 2. Formula for methane emissions from the anaerobic decay of the final sludge was added in the last submitted PDD. CAR 15 is considered to be resolved. b
Corrective Action Request No.16.	B7121	Answer 25.04.2008:	Conclusion 27.04.2008:
Regarding the parameter "Q _{ww,y,m} Volume of waste- water treated during the months m, during year "y"": Source (not measured by project developer, but by project owner) and QA/QC procedures have to be revised: correct reference to standards and accuracy		In section B.7.1 of the PDD the contents of the table regarding the parameter $Q_{ww,y,m}$ was modified according to what was said on site by the project owners. Answer 05.05.2008:	The explanation in value has to be revised. Please refer to "future slaughtering figures of 2.500 head of cattle per day".
have to be added. Besides, it has to be mentioned that the value refers to future slaughtering figures of 2.500 head of cattle per day. Please indicate the		Information was added in section B.7.1 in the value of data $(Q_{ww,y,m})$. We understand that the information was quite confusing so the information was planified	Please indicate the slaughter- ing figure today and the in- crease in % as requested in CAR 18.
		The description refers to months and years as deter- mined by the methodology.	QA/QC procedures have not been revised yet:
			-It is not clear whether the



			hydric meter is the analogical meter or another flow meter. Please explain more trans- parent. -Besides, it is not clear what is meant with a "conservative approach" will be used based on the volume of wastewater in m ³ / hour". The analogical meters always measures per hour. Please explain.
			refer to months and years? Please clarify.
			Conclusion 06.05.2008:
			All requested chang- ings/addings have been real- ized in the last submitted PDD.
			CAR 16 is considered to be resolved. þ
Corrective Action Request No.17.	B.7.1.2.2.	Answer 25.04.2008:	Conclusion 27.04.2008:
Regarding the parameter " S_y – amount of sludge generated by the wastewater treatment in the year y": Data unit, value, measurement method, QA/QC pro-		In section B.7.1 of the PDD the contents of the table regarding the parameter S_y was modified according to what was said on site by the project owners.	It is not clear why two differ- ent values are indicated: 5320 t and 5472 t. Please
cedures and comment should be revised; the accu-		Answer 05.05.2008:	revise. Further on, it should
added.		Value was revised in section B.7.1. The value 5320 t was altered to 5472 t.	be clearly mentioned that the sludge will be used aerobi- cally in the fields of farmers
		B.7.1 and B.7.2 were revised.	(and not anerobically in land-



	fills).
	Measurement method should
	be revised: the methodology
	clearly indicates that sludge
	should be directly measured
	by weight of indirectly by its
	particpants have used a mix
	of both. Please revise also in
	B.7.2.
	Even though accuracy is not
	exactly available yet, at least
	a rough idea of accuracy
	should be given (something
	like low or high accuracy).
	Conclusion 06.05.2008:
	Specifications of the parame-
	ter " S_y – amount of sludge
	generated by the wastewater
	been revised in the last sub-
	mitted PDD.
	CAR 17 is considered to be
	resolved. þ

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52Report N° 1170523



 Corrective Action Request No.18. 1. Please describe at what point the analysis, which provides the value for estimation of emission reductions were taken and the point where future analysis will be taken. 2. It has to be mentioned that the value refers to future slaughtering figures of 2.500 head of cattle per day. Please indicate the slaughtering figure today and the increase in %. 	B.7.1.2.3.	 Answer 25.04.2008: The information regarding where the COD is measured today and where it will be measured in the aerobic system is detailed in the table regarding the data Σ (COD_{y,m}) in section B.7.1. Information added in section B.7.1 of the PDD in the table regarding the data Σ (COD_{y,m}). 	Conclusion 27.04.2008: Requested information has been provided in the last submitted PDD. CAR 18 is considered to be resolved. þ
Corrective Action Request No.19. The monitoring plan of the PDD should describe data collection, equipment calibration and QA/QC proce- dures for all parameters to be monitored.	B.7.2.4.	Answer 25.04.2008: The monitoring plan was detailed in section B.7.2 and in Annex 4. Answer 05.05.2008: The roles were explained in section B.7.2. The organigram is from Friboi and in terms of CDM Giuliano will assume all the monitoring responsibilities which is detailed in section B.7.2. Flow rate was removed from the QA/QC procedures to avoid further confusion. Yes, the flow rate will be meas- ured with an analogical meter. Annex 4 was altered.	Conclusion 27.04.2008: -Roles and responsibilities of the environmental analyst and corporate environmental manager should be still ex- plained. -Please include the CDM manager into the organigram as the main person responsi- ble for CDM monitoring. In- dustrial manager and envi- ronmental coordinator may be taken out of the organi- gram as it is the same per- son. Otherwise it is very con- fusing. -QA/QC procedures mention "The water analysis that de- termines the COD and flow rate will be sent to an accred-



			ited laboratory". What does in that context "flow rate" mean? How is it possible that a water analysis done by a laboratory determines the flow rate? Flow rate will be measured by the analogical meter. Please clarify.
			- Regarding Annex 4, item Data collection, it is men- tioned "The wastewater will be collected manually. The sample will be made from the effluent that enters the flota- tion system." It is not clear at all to the validation team what is meant. Please be more accurate in the information.
			Conclusion 06.05.2008: All requested chang- ings/addings have been real- ized in the last submitted PDD. CAR 19 is considered to be resolved. þ
Corrective Action Request No.20. 1. The project's starting date should be modified to the date when the purchase of the project equipment was approved by the supply manager on September 04, 2007. From that date the project may be consid- ered as irreversible without big financial losses.	C.1.1.	 <u>Answer 25.04.2008:</u> 1. Date was altered in section C.1.1. 2. Document supplied by FAST is attached to protocol. (Annex CAR 20) 	Conclusion 27.04.2008: 1. The project's starting date was modified to 04/09/2007 as requested. 2. The operational lifetime is indicated with 10 years in the
Validation Protocol

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



2. The operational lifetime of the proposed project activity indicated in the PDD should be evidenced.			last submitted PDD and con- firmed by the supplier FAST. CAR 20 is considered to be resolved. þ
Corrective Action Request No.21. Please include information about environmental li- cences into the PDD.	D.2.2.	<u>Answer 25.04.2008:</u> Information regarding operational license was added to section D.1 of the PDD and the document is attached to the protocol. (Annex CAR 21)	Conclusion 27.04.2008: Information about the valid operational license was added in D.1. of the last submitted PDD. CAR 21 is considered to be resolved. þ
Corrective Action Request No.22. The confirmation about receipt of the letter from the Brazilian Forum should be still submitted to the vali- dation team.	E.1.1.	Answer 25.04.2008: Attached to the protocol. (Annex CAR 22)	Conclusion 27.04.2008: The receipt confirmation of the letter sent to the Brazilian Forum was submitted to the validation team. CAR 22 is considered to be resolved. þ
Corrective Action Request No.23. The start of the crediting period has to be revised as the period between submission for registration and the start of the crediting period has to be at least 8 weeks. Thus, 01/08/2008 as start of the crediting period is not possible anymore bearing in mind that a LoA is still pending.		Answer 21.05.2008: The start of the crediting period was modified.	Conclusion 21.05.2008: The start of the crediting pe- riod was modified to realistic date and can be accepted by the validation team. CAR 23 is considered to be resolved. þ
Corrective Action Request No.24. (01.05.2008) JBS should provide the monthly expansion plan of		Answer 21.05.2008: The monthly expansion plan of slaughtering figures has been submitted to the DOE.	Conclusion 21.05.2008: The validation team has re- ceived the expansion plan of

Validation Protocol

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit

Date of Completion:13/01/2009Number of Pages:52Report N° 1170523



slaughtering figures in the Vilhena unit.			slaughtering figures. It is clearly documented, that at the start of the crediting pe- riod the slaughtering figure will be 2,500 heads per day. CAR 24 is considered to be resolved. þ
Corrective Action Request No.25. (16.06.2008) How is it ensured that the existing lagoon system (pre-project system) would have been sufficient to treat the effluent from the expanded plant? The PDD has to be revised and has to include a discussion on this issue. Otherwise, it is not clear whether an improvement to the system was necessary due to the planned expansion in order to meet the environmental regulations (and thus the project would be a potential baseline scenario).	Certification Body (CB) Revision	JBS would have no other option than to invest in the extension of the current anaerobic wastewater treatment (alternative 2 in the PDD) in order to fulfill environmental regulations or to invest into the proposed project activity (alternative 4 in the PDD). An investment comparison analysis between two alternatives shows, that the Net Present Value of alternative 4 is much more negative than that of alternative 2, in other words alternative 4 is 75% more expensive than alternative 2. There is no income expected without CDM, which reenforces how the CDM incentive would be important to proceed with CDM. The PDD has been revised. The NPV calculation sheet as well as a cost compilation sheet were submitted to the validation team.	Conclusion 25.07.2008: The investment comparison analysis clearly shows, that the proposed project activity is much more expensive than the readjusted baseline sce- nario (expansion of the an- aerobic lagoon system). The NPV calculation sheet as well as the cost compilation sheet have been verified by the validation team. The docu- ments are retraceable and no errors have been found. CAR 25 is considered to be resolved. þ
Corrective Action Request No.26. (16.06.2008) The annual demonstration that sludge is applied to land should be added as a parameter to the Monitor- ing Plan in Section B.7.1.	CB Revi- sion	The parameter "End-use of the final sludge" was in- cluded in B.7.1. of the PDD.	Conclusion 25.07.2008: The parameter "End-use of the final sludge" was included in B.7.1. of the last submitted PDD. It will be monitored whether the sludge is finally applied to land.

Validation Protocol

Project Title: Project: Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit Date of Completion: 13/01/2009 Number of Pages: 52 Report N° 1170523



			CAR 26 is considered to be resolved. þ
Clarification Request No.1.	E.2.1.	Answer 21.05.2008:	Conclusion 21.05.2008:
The validation team should be informed if stakeholder comments have been received.		Stakeholder's comments were received by City Hall Vilhena and Municipal Secretary of Industry, Commer- cial, Agriculture and Environment (Semicam / Vilhena) and were sent to the DOE.	Stakeholder comments were submitted to the validation team. There were no nega- tive comments, thus no ac- tion was required. CR 1 is considered to be resolved. þ

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	ld. of CAR/CR	Explanation of Conclusion for Denial
-	-	-



Annex 2: Information Reference List

Final Report N°1170523	13/01/2009	Validation of the "Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit" Information Reference List	Page 1 of 4	
				Industrie Service

Referenc e No.	Document or Type of Information
1	On-site interview at "JBS S/A – Vilhena Unit" by auditing team of TÜV SÜD
	Validation team on-site:
	Johann Thaler TÜV Industrie Service GmbH TÜV SÜD Group
	Interviewed persons:
	Date: 06.03.2008
	Representatives of JBS S/A:
	Giuliano Fabricio Conde, Environmental Coordinator
	Angela Garcia, Cooperative Environmental Manager
	Representatives of INSTITUTO TOTUM:
	Andréa Loyola, Project developer
	Sheila Guebara, Project Developer
2	Project Design Document "Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit ", version 01, 18/02/2008, word and pdf-file, submitted on February 20, 2008.
3	CER calculation sheet "Wastewater Calculus_JBS_Vilhena", version 1, excel-file, submitted on February 19, 2008.
4	Signed Participation List, paper-copy.
5	Evidence for the project start: Electronical Commercial Approval (04.09.2007) about the purchase of the project equipment, pdf-file, submitted on March 06, 2008.
	This document was also submitted in English language on May 21, 2008 to the validation team.
6	Technical characteristics of the project equipment, "Memorial descritivo", manufacturer FAST, N° 03/2007, dated 15.10.2007, pdf-file,

Final Report N°1170523	13/01/2009	Validation of the "Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit" Information Reference List	Page 2 of 4	
				Industne Service

Referenc	Document or Type of Information
e No	
NO.	submitted on March 06, 2008.
7	Declaration of the voluntary participation at the CDM project activity signed by JBS S/A and Instituto TOTUM, dated 29/02/2008, paper- copy, submitted on March 06, 2008.
8	Official Registry of land purchase, immatriculation n° 9718, dated 12/03/2002, paper-copy, presented on March 06, 2008 and contract of alteration of the legal entity from 02.03.2006, pdf-file, presented on March 06, 2008.
9	Time schedule for the project implementation, paper-copy, presented on March 06, 2008.
10	Environmental Technical Guide on swine and cattle slaughterhouses – Cleaner Production Series (Guia Tecnico Ambiental de Abates (bovinos e suinos) – Serie P + L, 2006, FIESP, CETESB and SMA, pdf-file, presented on March 06, 2008.
11	COD analysis, Analitica, collection date 30/01/2008, report dated 15/02/2008, collection date 28/11/2007, report dated 07.12.2007, collection date 24/08/2007, report dated 12/09/2007, paper-copy, presented on March 06, 2008.
12	Environmental operational license, issued by SEDAM/Rondonia on July 26, 2006, valid until 26/07/2008, N° 0002271/NUCOF/SEDAM, paper-copy, presented on March 06, 2008.
13	Layout of the anaerobic lagoon system "Layout Geral – Antes da ampliacao redes de esgoto e tratamento", dated 22/01/2008, registered CREA N° 8207023229, 06/02/2008, paper-copy, presented on March 06, 2008.
14	Request for the renewal of the environmental operational license, dated 05/03/2008, N° 001/2008, paper-copy, presented on March 06, 2008.
15	Plan for environmental control ("Plano de controle ambiental") including the existing anaerobic lagoon system and the future aerobic project system, dated 15/01/2008 with protocol of SEDAM N°052/08, dated 05/03/2008.
16	Photos evidencing the existance of anaerobic lagoons, jpg-files, photos taken on March 06, 2008.
17	RESOLUÇÃO CONAMA N. 1, DE 23.01.86, pdf-file, submitted on March 06, 2008.
18	Simple cost analysis "Planilha de investimentos", excel-file, submitted on March 06, 2008.
19	Additionality tool, version 4.

Final Report N°1170523	13/01/2009	Validation of the "Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit" Information Reference List	Page 3 of 4	SUD
				Industrie Service

Referenc	Document or Type of Information
e No.	
20	Methodology AMS III-I: Avoidance of methane production in wastewater treatment through replacement of anaerobic lagoons by aerobic systems, version 6.
21	IPCC: Revised 2006 Guidelines for National Greenhouse Gas Inventories
22	IPCC: 2000, Good Practice Guidance
23	Invitation letters to stakeholders and receipt confirmations (dated February 2008 and November 2008), paper-copy and pdf-files, submitted on March 06, 2008, April 25, 2008 and December 30, 2008.
24	Temperature records, Agritempo, http://www.agritempo.gov.br.
25	Declaration FAST related to the lifetime of the project equipment, dated 08/04/2008, pdf-file, submitted on April 25, 2008.
26	Evidence for CDM consideration: contract between Instituto Totum and JBS S/A, dated 18/04/2007, pdf-file, submitted on May 05, 2008.
	Relevant pages were submitted also in English language on May 21, 2008 to the validation team.
27	Declaration JBS S/A related to the capacity increase of slaughtering figures, dated 29/04/2008, pdf-file, submitted on May 12, 2008.
28	Comments received by City Hall Vilhena and Municipal Secretary of Industry, Commercial, Agriculture and Environment (Semicam / Vilhena), Vilhena, dated 13/03/2008, pdf-files, submitted on May 12, 2008.
29	Evidence for the GPS coordinates, EKO – Qualidade Ambiental "PRAD_part 21.pdf", pdf-file, submitted on May 12, 2008.
30	Declaration FAST that the proposed project activity is first of its kind, dated 13/05/2008, pdf-file, submitted on May 13, 2008.
31	Final CER calculation sheet "Wastewater Calculus_JBS_Vilhena_25.07.20081", excel-file, submitted on July 28, 2008.
32	Final Project Design Document "Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit ", version 05, 06/01/2009, word and pdf-file, submitted on January 06, 2009.
33	Monthly expansion plan of slaughtering figures, pdf-file, submitted on May 21, 2008.
34	Net Present Value calculation sheet "NPV-Investment Analysis - VHA", excel-file, submitted on January 05, 2009.

Final Report N°1170523	13/01/2009	Validation of the "Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit" Information Reference List	Page 4 of 4	SUD
				Industrie Service

Referenc	Document or Type of Information
е	
No.	
35	Financial Analysis – Vilhena (Specification of costs), excel-file, submitted on 05/01/2009.
36	Civil construction budget, VIERO Ltda., 3 excel-files, submitted on January 06, 2009.
37	Commissioning Report FAST mentioning date of assembly and start-up/operation, without date, pdf-file, submitted per Email on 31/12/2008.
38	SELIC rate, http://www.bcb.gov.br/?COPOMJUROS, site consulted on 05/01/2009.