Determination Report

Ekoresursai NH Group, Lithuania

Determination of the JI Project: Lapes Landfill Gas Utilization and Energy Generation

Reference number: 0049

Report No. 806960, Revision 6

Order Number: 95221

2009, November 10

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.
806960	**July 13, 2006**	6	**November 10, 2009**	-

Subject: Determination of the JI Project "Lapes Landfill Gas Utilization and Energy Generation"	
Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 80686 Munich Germany	**TÜV SÜD Contract Partner:** TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 80686 Munich Germany
Project Participant(s): Ekoresursai NH Group Savanoriu pr. 159a LT-03150 Vilnius 9 Nordic Environment Finance Corporation, NEFCO in its capacity as Fund Manager to the Baltic Sea Region Testing Ground Facility Fabianinkatu 34, P.O. Box 249 00171 Helsinki, Finland	**Project Site(s):** Lithuania, Kaunas County, Kaunas municipality, Lapes subdistrict, Lapes Landfill
Project Title: Lapes Landfill Gas Utilization and Energy Generation, Ref.number 0049	
Applied Methodology / Version: project specific, using elements of ACM0001 version 2	**Scope(s):** 1, 13 **Technical Area(s):** **1.2, 13.1**
First PDD Version (GSP): Date of issuance: 29-03-2007 Version No.: 01, reformatted version of PDD 26-06-2006. Starting Date of GSP 19-04-2007	**Final PDD version:** Date of issuance: 10-11-2009 Version No.: 09
Estimated Annual Emission Reduction:	33 857 tCO_2e
Assessment Team Leader: Klaus Nürnberger **Assessment Team Members:** Madis Maddison (GHG Auditor, Environmental Management Systems (ISO 14001), Local expert) Sergio Degener (GHG auditor) Dr. Albert Geiger (GHG auditor) **Trainees:** -	**Veto Person:** Robert Scharpenberg Javier Castro **Responsible Certification Body Members:** Thomas Kleiser Rachel Zhang

Summary of the Determination Opinion:
The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence for the determination of the project's fulfilment of all stated criteria. The determination was performed on the basis of relevant JI criteria for "Track2" procedure. TÜV SÜD made the first Determination of the Lapes Landfill Gas Utilization and Energy Generation on July 13, 2006 under the conditions of "Track 1". The project developer decided to terminate the determination under Track 1 and re-submit the project under "Track 2". A new PDD was submitted to TÜV SÜD for Re-Determination and approval by the JI Supervisory Committee (JISC). The project has been approved by Lithuania the 14.12.2006. There exists also a Letter of approval of Swedish Energy Agency.
In our opinion, the project meets all relevant UNFCCC requirements for the JI. Therefore, TÜV SÜD recommends the project for final determination by the JISC if the letters of approval of all Parties involved will be available.

Abbreviations

CAR	Corrective action request
CR	Clarification request
CEF	Carbon Emission Factor
DOE	Designated Operational Entity
DP	Determination Protocol
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
ERU	Emission Reduction Unit
GHG	Greenhouse gas(es)
IRR	Internal Rate of Return
JI	Joint Implementation
JISC	JI Supervisory Committee
KP	Kyoto Protocol
MP	Monitoring Plan
MS	Management System
NEFCO	Nordic Environmental Finance Corporation
NGO	Non Governmental Organisation
PDD	Project Design Document

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1 INTRODUCTION

1.1 Objective

Ekoresursai NH Group has commissioned TÜV SÜD Industrie Service GmbH (TÜV SÜD) to conduct a determination of the JI Project "Lapes Landfill Gas Utilisation for Energy Generation, Lithuania" with regard to the relevant requirements for JI project activities. The project owner decided to make a re-determination of the project in order to get approval by the JI Supervisory Committee (JISC). A new PDD with the JI PDD format has been submitted to TÜV SÜD for re-Determination.

The determination serves as a conformity test of the project design and is a requirement for all JI projects. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Determination is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions (in particular ERUs - in the first commitment period under the Kyoto Protocol).

UNFCCC criteria refer to the Kyoto Protocol Article 6 criteria and the Guidelines for the implementation of Article 6 of the Kyoto Protocol as agreed in the Marrakech Accords.

1.2 Scope

The determination scope is defined as an independent and objective review of the project design document (PDD), the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. TÜV SÜD has, based on the recommendations in the Validation and Verification Manual (see www.vvmanual.info), employed a risk-based approach in the determination, focusing on the identification of significant risks for project implementation and the generation of emission reductions.

This report is based on the PDD which has been issued in December, 2008 (5th version). The version from March, 2007 was published on the website of www.netinform.net and on the JISC-Website. According to CARs and CRs indicated in the audit process the client decided to revise the PDD. The final version submitted in September 2009 (Version 8) serves as the basis for the final conclusions presented herewith. After the completeness check by JISC a revised version number 9 in November 2009 was provided.

TÜV SÜD made the first determination of the Lapes Landfill Utilisation for Energy Generation under the conditions of "Track 1" which is documented in the report "Determination of the JI Project: Lapes Landfill Gas Utilisation for Energy Generation, Lithuania", dated July 13, 2006. The project was not submitted as a "Track 1"-project to the host country for approval.

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

1.3 GHG Project Description

The objective of the project is to use landfill gas extracted from the Lapes landfill site for heat and power generation in a combined heat and power plant (CHP) to be constructed. This will significantly reduce methane emissions from the landfill. Substituting landfill gas for fossil fuels in heat and power generations will reduce CO2 emissions in the Lithuanian energy sector.

The Lapes landfill (size 38,7 ha) is located near the city of Kaunas in Lithuania. Its exploitation started in 1973 and the annual waste volumes disposed have been around 110-120 thousand tonnes over the past years.

The project proponent is planning to build a landfill gas extraction system on the landfill. The CHP plant will provide electricity for the Lithuanian power grid and heat for the local district heating network. The CHP plant will have an electrical capacity of 1.1 MW_e an a heating capacity of 1.4 MW_{th}.

The project starting date is 15th July 2008 as the date when the concrete construction of the landfill gas extraction and flaring system started. The crediting period for the emission reduction units ERUs is defined as being from 1st July 2008 to 31 December 2012.

The project owner and project operator is UAB “Ekoresursai”, Lithuania. The project developer is GreenStream Network Ltd, Finland.

2 METHODOLOGY

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

- It organises, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent determination process where TÜV SÜD has documented how a particular requirement has been validated and the result of the determination.

The determination protocol consists for this project of three tables. The different columns in these tables are described in Figure 1.

The corrective action requests from CAR 2 to CAR 6 have been posed at the end of the determination process and therefore are not part of the main protocol but are described and answered in table 3 of the protocol.

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

Determination Protocol Table 1: Mandatory Requirements			
Requirement	***Reference***	***Conclusion***	***Cross reference***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the determination report.* ***O** is used in case of an outstanding, currently not solvable issue, **AI** means Additional Information is required.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent determination process.*

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

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

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) to assure 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:

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

It is required that the sectoral scope/s and the technical area/s linked to the methodology and project have to be covered by the assessment team.

Name	Qualification	Coverage of scope	Coverage of a technical area	Host country experience
Klaus Nürnberger	**ATL**	**1,13**	**1.1, 13.1**	☑
Madis Maddison	GHG-A	13	13.2	☑
Sergio Degener	GHG-A	1,13	1.1, 13.1	
Dr. Albert Geiger	GHG-A	13	13.2	

2.2 Review of Documents

The project participants submitted a PDD and additional background documents related to the project design and baseline. A review for all these documents has been performed in order to identify all issues for discussion during the follow-up interviews on-site and by phone or email.

2.3 Follow-up Interviews

From 19th until 21st April 2006 TÜV SÜD conducted the on-site-mission to confirm selected information and to resolve issues identified in the document review. Representatives of the project owners have been interviewed.

The main topics of the interviews are summarised in Table 1. The complete and detailed list of all persons interviewed is enclosed in Appendix 2 to this report.

Table 1: Interview topics

Interviewed organisation	Interview topics
Ekoresursai NH Group	Project design, monitoring plan, environmental impacts, permits and licenses, stakeholder comments, monitoring procedures, calibration of the measurement equipment, documentation, archiving of data, Energy Sector
Environmental Investment Fund	Reqirements of the host country
Kauno Savara (landfill operator)	Landfill design, further planning
Kaunas Municipality Energy Department	Situation of the energy sector, further planning

2.4 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified in order to achieve a positive conclusion during the assessment process. Clarification and Corrective Action Requests raised by TÜV SÜD have been resolved by the revised PDD submitted July, 2008 (4th version). Furthermore additional documents have been submitted afterwards in order to provide the requested evidences which came up during the quality assurance of the determination report. To guarantee the transparency of the determination process, the concerns raised are and the response given are summarised in chapter 3 below. The whole process is documented in more detail in the final determination protocol in Annex 1.

3 DETERMINATION FINDINGS

In the following sections the findings of the final determination are stated. The determination findings for each determination subject are presented as follows:

1) The findings from the desk review of the project design document and the findings from interviews during the follow up visit are summarised. A more detailed record of these findings can be found in the Determination Protocol in Annex 1.

2) Where TÜV SÜD has identified issues that needed clarification or that represented a risk to the fulfilment of the project objectives, a Clarification or Corrective Action Request, respectively, has been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Annex 1.

3) Where Clarification and Corrective Action Requests have been issued, the response by the project participants to resolve these requests is summarized in the final determination report.

4) The final conclusions of the determination are presented consecutively.

3.1 Project Design

3.1.1 General Findings

The PDD are considered to cover all aspects necessary to describe the project and to assess its conformity with the underlying regulations.

The JI PDD form for description of JI-Project has been used for the registration of the project under “Track 2”. The application is necessary for the approval of the JI Project by the JI Supervisory Committee (JISC).

The foreseen technology does reflect current good practice for generating electricity and heat by burning landfill gas. The project uses technology that goes beyond the state of the art in the host country. Moreover it is unlikely that the foreseen project technology will be substituted during the crediting period by a still more efficient technology.

Lithuania has ratified the Kyoto Protocol on January 3rd, 2003. The Ministry for Environment was appointed as national focal point.

The Letter of Approval of the host country Lithuania with data 14.12.2006 is available and has been submitted to TÜV SÜD.

Swedish Energy Agency as Swedish DFP has submitted the approval letter on 26.06.2007.

3.1.2 Issued CARs/CRs

Corrective Action Request 1:

The PDD template from pages 35 to 38 (UNFCCC logo) should be corrected.

Response:

The PDD has been corrected.

Corrective Action Request 5:

As it is now fixed, that Sweden is the buyer/investor of ERUs, the submitted documentation (e.g. information provided to the JI information system, PDD, determination report, modalities of communication, project approvals and authorizations) should list consistently only one investor party and the respective project participant.

Response: In Section A.3 and A.5. Sweden is now correctly mentioned as the investor Party.

3.1.3 Conclusion

Lithuania and the Swedish Energy Agency have submitted approval letters. The requirements due to National JI-Guidelines are fulfilled.

Sweden is now correctly mentioned as investor party in the PDD.

The foreseen technology does reflect current good practice for generation of electricity using landfill gas. The technical data are consistent and plausible.

The project uses technology that goes beyond the state of the art in the host country. It is moreover very unlikely that the foreseseen project technology will be substituted during the crediting period by a still more efficient technology .

The PDD contains information how training, operating, controlling, maintenance will be organized and managed. The aspects regarding future responsibilities and quality assurance are fixed.

The UNFCCC logo from pages 35 to 38 has been corrected, this issue is considered to be solved.

3.2 Baseline

3.2.1 Findings

The baseline of the Project is established as a project specific approach however strongly oriented on the approved CDM methodology ACM0001 version 2. The emission reductions result from the burning of methane and the replacement of electricity and heat from the Lithuanian grids.

The baseline does take into account the major national and/or sectoral policies, macro-economic trends and political developments. Relevant key factors are described and their impact on the baseline. The project's spatial boundaries are clearly defined. The used approach is transparent, reproducible and conservative.

The additionality of the project is demonstrated in the PDD by using financial analysis regarding project-IRR. It is demonstrated that the IRR without the revenues of ERUs is not enonomical viable and far below the specific benchmark of at least 7,77 % (see NEFCO Loan for Lapes Landfill JI Project from 26.09.2009). 10 % higher revenues do not break the benchmark. The impact of the additional revenues of ERUs is about an increase of 5 % on the IRR. So the most likely alternative would be the releasing of landfill gas into the the atmosphere until 2011.

The baseline emission factors for heat and electricity have been conservatively derived from actual and estimated future data. The CEF-factor for electricity has been chosen out of three scenarios (operating margin, two possible future building margins). The scenarios are plausible, the most conservative CEF-factor was choosen. Data and assumptions have been referenced.

Emission Factor CEF thermal 0.223 tCO2/MWh has been calculated using the IPCC emission factor for natural gas (15.3 tC/TJ) and a conservative estimated efficiency of 90%.
Emission Factor CEF electricity 0.6105 tCO2/MWh has been calculated based on the most conservative of three options: the actual fuel consumption in 2002 and two scenarios for 2010 for the Lithuanian Power Plant calculated by Lithuanian Energy Institute.

3.2.2 Issued CARs/CRs

Corrective Action Request 2:

In section B1 is written "The CDM methodology is not followed to the full extent, however."
==> A discussion in PDD is needed where the deviations are and why deviation is acceptable. (It should be checked whether monitoring parameters one by one of applied methodology is used or not. In case of leaving out some parameters proper reasons should be provided.)

Response:

In Section B1 explanation of the used methodology has been updated and clarified. The project follows fully ACM0001 version 2, which was the valid version of methodology when the PDD was first drafted. Differences to the current version 8 have been explained. Additional information on the grid emission factor has been added.

Corrective Action Request 3:

In section B2 "investment analysis": Firstly the sensitivity analysis with relevant parameters (e.g. production of biogas, electricity price, heat price...) has to be displayed in the PDD without taking into consideration of ERU-revenues. The sensitivity analysis has to be based on the IRR calculation. As a second step the impact of ERU-revenues can be shown. Please provide the sensitivity analysis as calculation sheet, too. We will assess this once more. Furthermore a proof has to be provided that IRR of 8,4 % is sufficient.

Response:

The Version 2 of the Lapes PDD and the relating Excel sheets for baseline and IRR calculations have been revised. A sensitivity analysis for the IRR has been provided.

The given letter from the project owner from May the 19th states that JI was essential for the investment decision.

Corrective Action Request 6:

Due to the time delay the baseline information in Annex 2 has to be updated. Especially the LEI-data should be renewed.

Response:

In Section B2 calculation of the grid emission factor has been updated (the LEI-factor remains the same).

3.2.3 Conclusion

The project specific approach is based on methodology ACM 0001 version 2 , which has been in use for CDM projects submitted before 14th July 2006, when the baseline for this JI project was first established. In this project version 2 has been maintained because there are no significant differences to the actual version 8. The flare efficiency has been determined according to the CDM "Tool to determine project emissions from flaring gases containing methane" (default value 90 %). In contrast to the first PDD there are no deviations to the chosen methodology.

The additionality is shown by an investment analysis using a benchmark of project IRR of 7,77 %, which has been confirmed by NEFCO in a letter from 26. June 2009. The IRR-calculation has been proven. Without ERUs the project IRR is only 4,71%, which is not sufficient for making the investment. The done sensitivity analysis shows, that this result is rather insensitive to changes in income. Furthermore the agreement between operator of the landfill and project owner is based on the assumption that the project will be approved as a JI project. Hence the additionality is sufficiently demonstrated.

The grid emission factor has been checked again according to the actual data. Additional information on the grid emission factor has been added in the PDD. The estimated and chosen emission factor for electricity is below the mentioned value for JI-projects of 0.634 tCO2/MWh in the National Allocation Plan for the period 2008-2012. IPCC values for fuel emission factors were used.

The project will be considered in the national NAP, thus preventing double counting.

The project meets the requirements of JI projects.

3.3 Duration of the Project

3.3.1 Findings

The project implementation schedules are defined. The operational lifetime of the project is announced to last 20 years. This timeframe is sufficiently conservative.

The starting date of the project is 15th July 2007. The landfill gas extraction system has been finalised the 30th April 2008.

The crediting period of the project under the JI rules is from 1st July 2008 till 31 December 2012.

Due to the regulations in Lithuania requiring to have a gas collection system on 1st January 2012 at latest, only electricity production generates emission reduction units in 2012.

3.3.2 Issued CARs/CRs

Corrective Action Request 4:

The phrase "crediting period" in case of JI is reserved only for the Kyoto-period 2008-2012. Please indicate firstly only this Kyoto crediting period, the respective emission reductions and also starting date. Additionally the emission reductions in the period before Kyoto period can be mentioned but complete separately to the ERUs. In general the template of JI-PDD-form and JI-Guidelines has to be used without any changes.

Response:
The dates for construction, project commissioning and crediting period have been updated for consistency in Sections A.4.3.1, C and elsewhere. The project now expects to start generating credits in July 2008. In Section E the calculations are now made for the crediting period 6/2008 – 12/2012.

3.3.3 Conclusions

The starting date of the project is fixed on 15th July 2007. The crediting period for the generation of emission reduction units ERUs is defined as being from 1st July 2008 to 31st December 2012.

The project does fulfil all the prescribed requirements.

3.4 Monitoring Plan

3.4.1 Findings

The monitoring methodology is in accordance with the chosen project specific approach. Indicators for project emissions have been defined and no leakage emissions are monitored according to the monitoring plan as there are no emissions to be expected. The flare efficiency will be controlled according to the ”Tool to determine project emissions from flaring gases containing methane”.

All aspects regarding future responsibilities for registration, monitoring, measurement are already fixed in advance.

3.4.2 Issued CARs/CRs

No findings in this chapter.

3.4.3 Conclusion

The monitoring methodology for Lapes Landfill Gas Utilisation for Energy Generation JI project is reasonable chosen and applicable. The relevant monitoring parameters are mentioned in the monitoring plan. To make it quite clear we state that the parameter *Q8* in Table D.1.2.1. is identical with the parameter $ET_{y\,in}$ section B.2..

The project does fulfil all the prescribed requirements.

3.5 Calculation of GHG Emissions

3.5.1 Findings

The calculation is according to the used project specific methodology. Uncertainties in the GHG emissions estimates are addressed.

No aspects of leakage have been identified; hence a leakage calculation is not requested.

The project will definitely result in fewer GHG emissions than the baseline scenario. The calculation of emission reductions is correctly computed.

3.5.2 Issued CARs/CRs

No findings in this chapter.

3.5.3 Conclusion

The amount of methane actually destroyed /combusted during the year has been recalculated considering the efficiency of the installations.

The increase of landfill gas production from 2009 is due to landfill covering.

The CEF-factor has been chosen out of three scenarios (operating margin, two possible future building margins). The scenarios are plausible, the most conservative CEF-factor was choosen.

The project does fulfil all the prescribed requirements completely.

3.6 Environmental Impacts

3.6.1 Findings

According to the Lithuanian Law the project does not require an environmental assessment. Nevertheless there is a statement of the Regional Environmental Department that the project has no negative impacts. Nevertheless the environmental impacts are described in the PDD.

3.6.2 Issued CARs/CRs

No such requests have been issued.

3.6.3 Conclusion

The project fulfils all prescribed requirements.

3.7 Local stakeholder process

3.7.1 Findings

Stakeholder comments have been invited and compiled in accordance with all local planning and permitting legislation, as well as through Lithuania's JI procedures. The project has been

introduced in the regional Newspaper. Authorities and stakeholders have been consulted. The project is supported by the municipality of Kaunas.

There have been no comments, which would have required any further action.

3.7.2 Issued CARs/CRs

No such requests have been issued.

3.7.3 Conclusion

The project fulfils all the prescribed requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD and JISC published the project design document on their websites for 30 days from April 19 to May 18, 2007.

Published on:

http://www.netinform.net/KE/Wegweiser/Guide2_1.aspx?ID=2889&Ebene1_ID=26&Ebene2_ID=866&mode=1

http://ji.unfccc.int/UserManagement/FileStorage/9MGKOINIV9ZRFAOOFQ7809X7JQTA9A

No comments have been received during this period.

5 DETERMINATION OPINION

TÜV SÜD has performed a determination of the JI-Project "Lapes Landfill Gas Utilization and Energy Generation".
The determination was performed on the basis of UNFCCC criteria as well as criteria given to provide for consistent project operations, monitoring and reporting.

TÜV SÜD made the first Determination of the Lapes Landfill Utilisation for Energy Generation under the conditions of "Track 1" which is documented in the report "Determination of the JI Project: Lapes Landfill Gas Utilisation for Energy Generation, Lithuania", dated July 13, 2006. project was not submitted as a "Track 1"-project to the host country for approval.
The project developer decided to make a Re-Determination of the project under "Track 2". A new PDD with the JI PDD format has been submitted to TÜV SÜD for Re-Determination and approval by the JI Supervisory Committee (JISC).

The review of the project design documentation have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project itself meets all relevant UNFCCC requirements for JI.

An analysis as provided by the applied project specific 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 Determination is based on the information made available to us and the engagement conditions detailed in this report. The Determination has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the JI project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the Determination opinion, which will go beyond that purpose.

Munich, 2009-11-10

Certification Body "Climate and Energy"

Munich, 2009-11-10

Klaus Nürnberger

Assessment Team Leader

Annex 1

Determination Protocol

Table 1 Mandatory Requirements for Joint Implementation (JI) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
1. The project shall have the approval of the Parties involved	Kyoto Protocol Article 6.1 (a)	The project is approved by the Lithuanian and Swedish Designated Focal Points. Letter of Approvals were provided to TÜV SÜD. However the Letter of Approval of Sweden refers to a previous version of PDD.	☑
2. Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur	Kyoto Protocol Article 6.1 (b)	The project is additional because the GHG emissions are lower that those that have been occurred in the absence of the project activity. ☑	Table 2, Section B.2
3. The sponsor Party shall not aquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7	Kyoto Protocol Article 6.1 (c)	☑	☑
4. The acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3	Kyoto Protocol Article 6.1 (d)	See comment above	☑

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
5. Parties participating in JI shall designate national focal points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects	Marrakech Accords, JI Modalities, §20	Lithuanian and Swedish DFP are designated. The respective JI Guidelines are published on JISC-website.	☑
6. The host Party shall be a Party to the Kyoto Protocol	Marrakech Accords, JI Modalities, §21(a)/24, 21	☑	Lithuania has ratified the Kyoto Protocol the January 3, 2003
7. The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities for the accounting of assigned amounts	Marrakech Accords, JI Modalities, §21(b)/24	☑	Third and Fourth National Communication is available
8. The host Party shall have in place a national registry in accordance with Article 7, paragraph 4	Marrakech Accords, JI Modalities, §21(d)/24, 10	☑	The GHG Registry is implemented at the Lithuanian Environmental Investment Fund
9. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination	Marrakech Accords, JI Modalities, §31	**CAR 1** The PDD template from pages 35 to 38 (unfccc logo) should be corrected.	A PPD has been submitted to the validator (TÜV SÜD) by Eskoresursai, which contains the most relevant information.
10. The project design document shall be made publicly available	Marrakech Accords,	☑	The PDD was open

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments	JI Modalities, §32		for comments from April 19 till May 18, 2007. No commenst were received.
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out	Marrakech Accords, JI Modalities, §33(d)	☑	An EIA-Statement has been submitted Table 2, Section F
12. The baseline for a JI project shall be the scenario that reasonably represents the GHG emissions or removal by sources that would occur in absence of the proposed project	Marrakech Accords, JI Modalities, Appendix B	☑	Table 2, Section B.2
13. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, JI Modalities, Appendix B	☑	Table 2, Section B.2
14. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, JI Modalities, Appendix B	☑	Table 2, Section B.2
15. The project shall have an appropriate monitoring plan	Marrakech Accords, JI Modalities, §33(c)	☑	Table 2, Section D

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project Activity The project design is assessed.				
A.1. Project Boundaries Project boundaries are the limits and borders defining the GHG emission reduction project.				
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	1,5,6,7,8,17	The project comprises the Lapes landfill located in the municipality of Kaunas. The site and spatial boundaries are clearly described in the PDD..	☑	☑
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1,5,6,7,8,17	The facilities are clearly defined.	☑	☑
A.2. Technology to be employed Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.				
A.2.1. Does the project design engineering reflect current good practices?	1,4,5,6,7,	The project is clearly described according to JI	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
	8	standards and reflect good practices		
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	1,3,4,5,6,7,8	The project uses state of the art technology	☑	☑
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,3,4,5,6,7,8	There are no indications that the technology used could be substituted during the first crediting period.	☑	☑
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1,5,6,7,8	Yes. See section D.6.	☑	☑
A.2.5. Does the project make provisions for meeting training and maintenance needs?	1,5,6,7,8	See above	☑	☑
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.				
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.				
B.1.1. Is the discussion and selection of the baseline methodology transparent? Is the applied methodology considered the most	1,5,6,7,8,22	The discussion and selection of the baseline methodology is transparent. The project applies the CDM methodology ACM 0001 version 2,	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
appropriate one?		applicable to landfill gas capture project activities. For this project it is reasonable shown, that there are no relevant differences between the current version 8. Nevertheless the CDM "Tool to determine project emissions from flaring gases containing methane" is applied. The baseline scenario is the partial or total atmospheric release of the gas.		
B.1.2. Does the baseline methodology specify data sources and assumptions?	1,5,6,7,8	Yes. The data sources and assumptions are specified in the PDD.	☑	☑
B.1.3. Does the baseline methodology sufficiently describe the underlying rationale for the algorithm/formulae used to determine baseline emissions (e.g. marginal vs. average, etc.)	1,5,6,7,8,22	Yes, see above.	☑	☑
B.1.4. Does the baseline methodology specify types of variables used (e.g. fuels used, fuel consumption rates, etc)?	1,5,6,7,8,22	Yes, see above.	☑	☑
B.1.5. Does the baseline methodology specify the spatial level of data (local, regional, national)?	1,5,6,7,8,22	Yes, see above.	☑	☑
B.1.6. Criteria 1: Is applicable to landfill gas capture project activities.		Applicability checklist / Yes/No Criterion discussed in the PDD? Yes Compliance provable? Yes Compliance verified? Yes	☑	☑

<table>
<tr><th>CHECKLIST QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>B.1.7. Criteria 2: applicable where the baseline scenario is the partial total atmospheric release of the gas.</td><td></td><td><table><tr><th>Applicability checklist</th><th>Yes /No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td></td></tr><tr><td></td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.1.8. Criteria 3: the gas and the project activities include situations such as:
a) The captured gas is flared. In this case the methodological tool – “Tool to determine project emissions from flaring gases containing methane”- shall be used in line with the latest EB-Decision; or
b) The captured gas is used to produce energy, but no emission reductions are claimed for displacing or avoiding energy from other sources; or
c) The captured gas is used to produce energy and emission reductions are claimed for displacing or avoiding energy generation from other sources.</td><td></td><td><table><tr><th>Applicability checklist</th><th>Yes /No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td></td></tr><tr><td>Is the option correctly presented and confirmed?*</td><td>Yes</td></tr></table>
The TÜV SÜD assessment team confirms that the option selected is clearly defined in the PDD. The PP selected option A and C.
* “Tool to determine project emissions from flaring gases containing methane” was applied accordingly.
* . The heating and electricity factors have been derived from actual data in a transparent and conservative way. The used emission factors are lower than recommended in the Lithuanian National Allocation Plan for 2008 to 2012.</td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
B.2. Baseline Determination The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.				
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	1,5,6,7,8,9	Yes, application of the methodology and the discussion and determination of the chosen baseline is transparent and performed in a conform manner.	☑	☑
B.2.2. Has the baseline been determined using conservative assumptions where possible?	1,2,3,4,5,6,7,8,20	Yes. The used landfill gas resources are at least 10 % under the resources predicted by the theoretical prognosis. The heating and electricity factors have been derived from actual data.	☑	☑
B.2.3. Has the baseline been established on a project-specific basis?	1,2,3,4,5,6,7,8,20	Yes, the baseline is determined with the project specific situation (region, relevant grid etc.)	☑	☑
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	1,2,3,4,5,6,7,8	Yes, the compliance with current and future laws and regulations has been discussed in the PDD.	☑	☑
B.2.5. Is the baseline determination compatible with the available data?	81,2,3,4,5,6,7,	Yes, because the baseline is build upon gas production and grid data.	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
	8			
B.2.6. Does the selected baseline represent a likely scenario in the absence of the project?	1,2,3,4,5,6,7,8	Yes, see above.	☑	☑
B.2.7. Is it demonstrated that the project activity itself is not a likely baseline scenario (e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project activity or (d) an indication that the project type is not common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?	1,2,3,4,5,6,7,8	See below B.4.	☑	☑
B.2.8. Have the major risks to the baseline been identified?	1,2,3,4,5,6,7,8	The baseline is derived from real data, there is no significant risk on an overestimation of the baseline.	☑	☑
B.2.9. Is all literature and sources clearly referenced?	5,6,7,8	*Yes*	☑	☑
B.3. Description of the sources and gases included in the project boundary				
B.3.1. Source: Emissions from decomposition of waste at landfill site		Boundary checklist | Yes / No	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS		Draft Concl.	Final Concl.
Description of Source Gas(es): CO_2 Type: Baseline Emissions		Source and gas(es) discussed in the PDD?	Yes		
		Inclusion / exclusion justified?	Yes		
		Explanation / Justification sufficient?	Yes		
		Consistency with monitoring plan?	Yes		
B.3.2. Source: Emissions from electricity consumption Description of Source Gas(es): CO_2 Type: Baseline Emissions		These emissions are not regarded, which is a conservative approach and therefore acceptable.		☑	☑
B.3.3. Source: Emissions from thermal energy generation Description of Source Gas(es): CO_2 Type: Baseline Emissions		Boundary checklist	Yes / No	☑	☑
		Source and gas(es) discussed in the PDD?	Yes		
		Inclusion / exclusion justified?	Yes		
		Explanation / Justification sufficient?	Yes		
		Consistency with monitoring plan?	Yes		
B.3.4. Source: Onsite-fossil fuel consumption due to the project activity other than for electricity Description of Source Gas(es): CO_2 Type: Project Emissions		Boundary checklist	Yes / No	☑	☑
		Source and gas(es) discussed in the PDD? Here: Natural gas	Yes		
		Inclusion / exclusion justified?	Yes		
		Explanation / Justification sufficient?	Yes		
		Consistency with monitoring plan?	Yes		
B.3.5. Source: Emissions from onsite electricity use		Boundary checklist	Yes /	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
Description of Source Gas(es): CO_2 Type: Project Emissions		<table><tr><th></th><th>No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table>		
B.4. Description of the sources and gases included in the project boundary				
B.4.1. Step 1 (Identification of alternative scenarios) Are all plausible alternative scenarios defined by the project participants?		Yes. Two plausible alternative scenarios are defined.	☑	☑
B.4.2. Step 2 (Investment analysis) In case of applying step 3 (investment analysis) of the additionality tool: Is the analysis method identified appropriately?		Yes.	☑	☑
B.4.3. Is the most suitable financial indicator such as IRR, NPV, cost benefit ratio, or (levelized) unit cost clearly identified?		The project-IRR is clearly described in the latest investment analysis.	☑	☑
B.4.4. Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?		Yes. The most appropriate alternative is the continuation of current situation.	☑	☑
B.4.5. Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?		Calculation sheets have been submitted to the DOE. As benchmark proof was provided the interest rates for new loans to non-financial corporations. See homepage of Bank of	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
		Lithuania http://www.lb.lt/stat_pub/statbrowser.aspx?group=7279&lang=en It is shown that the average interest rate in 2007 is about 7.6 %. This benchmark does not take not into account the project risk and can be considered as conservative.		
B.4.6. Does a sensitive analysis show whether the conclusion regarding the financial attractiveness is robust to reasonable variations in other assumptions? Is ensured that the most economically and financially attractive scenario is considered as baseline scenario?		The sensitivity analysis of carbon revenues is performed also included on the PDD. For 10 % higher income the benchmark will just be reached. Taking the project risk into the consideration the financial attractiveness is robust to reasonable variations.	☑	☑
B.4.7. Step 3 (Barrier analysis) In case of applying barrier analysis of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?		Barrier analysis was not really applied.	☑	☑
B.4.8. Step 4 (common practice analysis) Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD?		It is obvious that capturing of landfill gases is not a common practice in Lithuania.	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
C. Duration of the Project/ Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	,5,6, 7,8	The starting date of the projects is 15. July 2007 as the date when the concrete construction of the landfill gas extraction and flaring system started. The data is reasonable.	☑	☑
C.1.2. Is the project's crediting time clearly defined?	1,5,6 ,7,8	The crediting period is 5 years, starting the 1st July 2008 and ending 31 December 2012.	☑	☑
D. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.				
D.1. Monitoring Methodology It is assessed whether the project applies an appropriate baseline methodology.				
D.1.1. Does the monitoring methodology reflect good monitoring and reporting practices?	1,2,3 ,4,5, 6,7,8 ,22	The monitoring plan is in accordance with the approved plan of ACM 0001, it reflects good monitoring and reporting practices.	☑	☑
D.1.2. Is the selected monitoring methodology supported by the monitored and recorded data?	1,2,3 ,4,5, 6,7,8	The monitoring methodology is in principle supported by the monitored and recorded data. The heat and energy meters in the CHP will	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
	,22	measure the amount of heat and electricity sales. These meters will be installed in agreement with Kaunas energy company and national electricity law for selling electricity. Meters will be installed for measuring the internal demand of electricity.		
D.1.3. Are the monitoring provisions in the monitoring methodology consistent with the project boundaries in the baseline study?	1,2,3 ,4,5, 6,7,8 ,22	Yes, the monitoring methodology is consistent with the baseline.	☑	☑
D.1.4. Have any needs for monitoring outside the project boundaries been evaluated and if so, included as applicable?	1,2,3 ,4,5, 6,7,8 ,22	There is no need for monitoring outside the project boundaries.	☑	☑
D.1.5. Does the monitoring methodology allow for conservative, transparent, accurate and complete calculation of the ex post GHG emissions?	1,2,3 ,4,5, 6,7,8 ,22	Yes.	☑	☑
D.1.6. Is the monitoring methodology clear and user friendly?	1,2,3 ,4,5, 6,7,8 ,22	Yes.	☑	☑
D.1.7. Does the methodology mitigate possible monitoring errors or uncertainties addressed?	1,2,3 ,4,5, 6,7,8	There is a quality control plan in the PDD.	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
	,22			
D.2. Monitoring of Project Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.				
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	1,2,3,4,5,6,7,8,22	Yes, a "Monitoring Plan" has been submitted. The plan details the aspects on monitoring and archiving of data as provided by chapter D of the PDD.	☑	☑
D.2.2. Are the choices of project GHG indicators reasonable?	1,2,3,4,5,6,7,8,22	Yes	☑	☑
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	1,2,3,4,5,6,7,8,22	Yes	☑	☑
D.2.4. Will the indicators enable comparison of project data and performance over time?	1,2,3,4,5,6,7,8,22	Yes	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
D.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.				
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1,2,3,4,5,6,7,8	Yes. Also the aspect of double issuing of CO2-certificates in the context of EU-ETS is resolved. The generation of heat and electricity in the new plant leads to a reduction in the other plants of the grid, thus reducing the emissions in these plants. The respective authority which is responsible for the National Allocation Plan (NAP) have sent a list which shows that they have regarded Lapes Landfill gas project in the JI reserve for the NAP to avoid double issuing.	☑	☑
D.3.2. Have relevant indicators for GHG leakage been included?	1,2,3,4,5,6,7,8	Not applicable	☑	☑
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1,2,3,4,5,6,7,8	Not applicable	☑	☑
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	1,2,3,4,5,6,7,8	Not applicable	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
D.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.				
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining the baseline emissions during the crediting period?	1,2,3,4,5,6,7,8	Yes, see comment under D.2.1	☑	☑
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1,2,3,4,5,6,7,8	Yes, see above	☑	☑
D.4.3. Will it be possible to monitor the specified baseline indicators?	1,2,3,4,5,6,7,8	Yes, see above	☑	☑
D.5. Monitoring of Environmental Impacts It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.				
D.5.1. Does the monitoring plan provide for the collection and archiving of relevant data on environmental impacts?	1,2,3,4,5,6,7,8,18	There is no requirement for an EIA by law. According to the EIA there are no significant impacts on the environment. No observations of environmental impacts are foreseen.	☑	☑
D.5.2. Will it be possible to monitor the specified environmental impact indicators?	1,2,3,4,5,	See above.	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
	6,7,8,18			
D.6. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.				
D.6.1. Is the authority and responsibility of project management clearly described?	1,2,4,5,6,7,8	Yes	☑	☑
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	1,2,4,5,6,7,8	Yes, see D.3. of the PDD	☑	☑
D.6.3. Are procedures identified for training of monitoring personnel?	1,2,4,5,6,7,8,	The equipment suppliers will provide the monitoring and maintenance service paid by Ekoresursai.	☑	☑
D.6.4. Are procedures identified for emergency preparedness where emergencies can result in unintended emissions?	1,2,4,5,6,7,8	Yes, emergency procedures have been prepared.	☑	☑
D.6.5. Are procedures identified for calibration of monitoring equipment?	1,2,4,5,6,7,8	Yes, procedures for the calibration of the monitoring equipment are described in the PDD, Table D.2.	☑	☑
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	1,2,3,4,5,	Yes, see above	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
	6,7,8			
D.6.7. Are procedures identified for monitoring, measurements and reporting?	1,2,3,4,5,6,7,8	Yes	☑	☑
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	1,2,4,5,6,7,8	Yes	☑	☑
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1,2,4,5,6,7,8	The PDD includes quality control procedures in chapter D.2. From the viewpoint of quality control and quality assurance the monitoring of the project is relatively straightforward, since the quantity of methane extracted and combusted at the CHP plant and flare stack is a key element determining the emission reductions. The reliability of the monitoring will be determined by two factors, i.e. the accuracy of the measuring instruments and the technical reliability of the equipment. The measuring instruments and equipment will meet either Lithuanian national standards or international standards (DIN-standards or comparable).	☑	☑
D.6.10. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	1,2,4,5,6,7,8	Yes, see point D.6.9.	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
D.6.11. Are procedures identified for project performance reviews?	1,2,4,5,6,7,8	Yes, see point D.6.9.	☑	☑
D.6.12. Are procedures identified for corrective actions?	1,2,4,5,6,7,8	Yes, see point D.6.9.	☑	☑
D.7. Application of the monitoring methodology and description of the monitoring It is checked that project implementation is properly prepared for and that critical arrangements are addressed.				
D.7.1. Is the list of parameters presented in chapter D.1.2.1 considered to be complete with regard to the requirements of the applied methodology?	1,2,4,5,6,7,8	Yes, the presented list is complete.	☑	☑
D.7.2. Parameter Title: Total amount of landfill gas captured		Monitoring Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided for estimation? Yes Has this value been verified? Yes Measurement method correctly described? Yes Correct reference to standards? Yes	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS		Draft Concl.	Final Concl.
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
D.7.3. Parameter Title: Amount of landfill gas flared		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
D.7.4. Parameter Title: Amount of landfill gas combusted in CHP plant		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		

CHECKLIST QUESTION	Ref.	COMMENTS		Draft Concl.	Final Concl.
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
D.7.5. Parameter Title: Amount of methane combusted in boiler		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
D.7.6. Parameter Title: Flare combustion efficiency		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		

CHECKLIST QUESTION	Ref.	COMMENTS		Draft Concl.	Final Concl.
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
D.7.7. Parameter Title: Methane fraction in the landfill gas		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
D.7.8. Parameter Title: Temperature of the landfill gas		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		

CHECKLIST QUESTION	Ref.	COMMENTS		Draft Concl.	Final Concl.
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
D.7.9. Parameter Title: Pressure of the landfill gas		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
D.7.10. Parameter Title: Total amount of electricity and/or other energy carriers used in the project for gas		Monitoring Checklist: Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided for estimation? Yes Has this value been verified? Yes Measurement method correctly described? Yes Correct reference to standards? Yes Indication of accuracy provided? Yes QA/QC procedures described? Yes QA/QC procedures appropriate? Yes	☑	☑
D.7.11. Parameter Title: Co2 emissions intensity of the electricity		Monitoring Checklist: Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided for estimation? Yes Has this value been verified? Yes Measurement method correctly described? Yes Correct reference to standards? Yes Indication of accuracy provided? Yes QA/QC procedures described? Yes	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS		Draft Concl.	Final Concl.
		QA/QC procedures appropriate?	Yes		
D.7.12. Parameter Title: Project emissions from flaring of the residual gas stream		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
D.7.13. Parameter Title: Electricity generated by the project		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		

CHECKLIST QUESTION	Ref.	COMMENTS		Draft Concl.	Final Concl.
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
D.7.14. Parameter Title: Heat generated by the project		Monitoring Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
E. Calculation of GHG Emissions by Source It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.				
E.1. Predicted Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.				
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	1,2,5,6,7,8	See E.1.2.		
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	1,2,5,6,7,8	Yes, the calculations are in a transparent manner. The emissions from the operation of the landfill equipment are incorporated. The flare efficiency is not accounted separately, but could be considered to be within the collection efficiency of 80 %. The increase in landfill gas production is due to the closing of the field Nr. 1. The CEF-factor was derived carefully from given data and two future scenarios, based on the countries energy policy.	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1,2,5,6,7,8	Yes	☑	☑
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	1,2,5,6,7,8	Yes	☑	☑
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	1,2,5,6,7,8	Yes	☑	☑
E.2. Leakage Effect Emissions It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.				
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	1,2,5,6,7,8	Not applicable	☑	☑
E.2.2. Have these leakage effects been properly accounted for in calculations?	1,2,5,6,7,8	See above	☑	☑
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	1,2,5,6,7,8	See above	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
E.2.4. Are the calculations documented in a complete and transparent manner?	1,2,5,6,7,8	See above	☑	☑
E.2.5. Have conservative assumptions been used when calculating leakage?	1,2,5,6,7,8	See above	☑	☑
E.2.6. Are uncertainties in the leakage estimates properly addressed?	1,2,5,6,7,8	See above	☑	☑
E.3. Baseline Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.				
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	1,2,4,5,6,7,8	Yes, the most relevant baseline indicators has been chosen.	☑	☑
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	1,2,4,5,6,7,8	Yes	☑	☑
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	1,2,4,5,6,7,8	Yes, the calculations have been documented in a transparent manner.	☑	☑
E.3.4. Have conservative assumptions been used when	1,2,4	See above	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
calculating baseline emissions?	,5,6, 7,8			
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	1,2,4 ,5,6, 7,8	Yes	☑	☑
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	1,2,4 ,5,6, 7,8	Yes	☑	☑
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.				
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	1,2,4 ,5,6, 7,8	Yes	☑	☑
F. Environmental Impacts Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.				
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	1,2,3 ,4,5, 6,7,8	Yes, it is sufficiently described in the PDD	☑	☑

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl.	Final Concl.
	,18			
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1,2,3,4,5,6,7,8,18	There is no requirement for an EIA by law, but an EIA-Statement was submitted by the regional department of environment.	☑	☑
F.1.3. Will the project create any adverse environmental effects?	1,2,3,4,5,6,7,8,18	Adverse environmental impacts will not be created.	☑	☑
F.1.4. Are transboundary environmental impacts considered in the analysis?	1,2,3,4,5,6,7,8,18	The nature of the project allows to exclude transboundary impacts	☑	☑
F.1.5. Have identified environmental impacts been addressed in the project design?	1,2,3,4,5,6,7,8	Not applicable	☑	☑
F.1.6. Does the project comply with environmental legislation in the host country?	1,2,3,4,5,6,7,8,11,18	Yes	☑	☑

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests	Ref. to checklist question in table 2	Summary of project owner response	Determination conclusion
Corrective Action Request 1: The PDD template from pages 35 to 38 (unfccc logo) should be corrected.	Table 1, 9	The PDD has been corrected.	☑
Further Requests			
Corrective Action Request 2: In section B1 is written "The CDM methodology is not followed to the full extent, however." ==> A discussion in PDD is needed where the deviations are and why deviation is acceptable. (It should be checked whether monitoring parameters one by one of applied methodology is used or not. In case of leaving out some parameters proper reasons should be provided.)		In Section B1 explanation of the used methodology has been updated and clarified. The project follows fully ACM001 version 2, which was the valid version of methodology when the PDD was first drafted. Differences to the current version 8 have been explained. Additional information on the grid emission factor has been added.	Yes, in the PDD Version 4 the used methodology has been explained in detail. The project follows fully the methodology ACM001 version 2, which was the valid version of the methodology when the PDD was first drafted. The determination of the project emissions from flaring will be done according to the "Tool to determine project emissions from flaring gases containing methane " (EB28, annex 13) According to the given information the project has been completely adjusted to the approved methodology and the

Draft report clarifications and corrective action requests	Ref. to checklist question in table 2	Summary of project owner response	Determination conclusion
			relevant tools. The given information is considered to be sufficient.
Corrective Action Request 3: In section B2 "investment analysis": Firstly the sensitivity analysis with relevant parameters (e.g. production of biogas, electricity price, heat price...) has to be displayed in the PDD without taking into consideration of ERU-revenues. The sensitivity analysis has to be based on the IRR calculation. As a second step the impact of ERU-revenues can be shown .Please provide the sensitivity analysis as calculation sheet, too. We will assess this once more. Furthermore a proof has to be provided that IRR of 8,4 % is sufficient.		The Version 2 of the Lapes PDD and the relating Excel sheets for baseline and IRR calculations have been revised. A sensitivity analysis for the IRR has been provided. The given letter from the project owner from May the 19th states that JI was essential for the investment decision.	The investment calculation has been revised according to the comments of TÜV SÜD. Further evidence has been provided that the project -IRR is below the specific benchmark and only profitable with ERU sales. ☑
Corrective Action Request 4: The phrase "crediting period" in case of JI is reserved only for the Kyoto-period 2008-2012.		The dates for construction, project commissioning and crediting period have been updated for consistency in Sections A.4.3.1, C and elsewhere. The project now expects to start generating credits in July	The dates have been adjusted according to the UNFCCC guidelines.

Draft report clarifications and corrective action requests	Ref. to checklist question in table 2	Summary of project owner response	Determination conclusion
Please indicate firstly only this Kyoto crediting period, the respective emission reductions and also starting date. Additionally the emission reductions in the period before Kyoto period can be mentioned but complete separately to the ERUs. In general the template of JI-PDD-form and JI-Guidelines (see http://ji.unfccc.int/Ref/Documents/Guidelines.pdf) without any changes has to used.		2008. In Section E the calculations are now made for the crediting period 6/2008 – 12/2012.	☑
Corrective Action Request 5: As it is now fixed, that Sweden is the buyer/investor of ERUs, the submitted documentation (e.g. information provided to the JI information system, PDD, determination report, modalities of communication, project approvals and authorizations) should list consistently only one investor party and the respective project.		In Section A.3 and A.5. Sweden is now correctly mentioned as the investor Party.	Sweden is now correctly mentioned in the PDD. ☑

Draft report clarifications and corrective action requests	Ref. to checklist question in table 2	Summary of project owner response	Determination conclusion
participant.			
Corrective Action Request 6: Due to the time delay the baseline information in Annex 2 has to be updated. Especially the LEI-data should be renewed.		In Section B2 calculation of the grid emission factor has been updated (the LEI-factor remains the same).	The information in Annex 2 has been updated. ☑

Annex 2

Information Reference List

Reference No.	Document or Type of Information
1	On-site interviews at Ekoresursai office in Vilnius by the TÜV SÜD auditing Team (Dr. Geiger, ;Madis Maddison), 20th April 2006: Interviewed persons: Gerardas Zukauskas, Ekoreursai Dr. Andrius Tamosiunas, Stream Green
2	On-site interviews at the Lithuanian Environmental Investment Fund office in Vilnius by the TÜV SÜD auditing Team, 20th April 2006: Interviewed persons: Jolanta Zaltkauskiene, Head of the GHG registry
3	On-site interviews at Svara office (Landfill operator) in Kaunas by the TÜV SÜD auditing Team, 20th April 2006: Interviewed persons: Petras Ciegis, Generaldirektor Juozas Yla, Direktor
4	On-site interviews at the Kaunas municipality by the TÜV SÜD auditing Team, 20th April 2006: Interviewed person: Algirdas Vaitiekunas
5	Draft PDD Version 1, 03/2006 (Track 1)
6	Draft PDD Version 2, 29.05.06 (Track 1)
7	Draft PDD Version 3, 13.06.06 (Track 1)
8	PDD Version 4, 26.06.06 (Track 1), re-formatted 29.03.07 (Track 2)
9	Investment Analysis (excel sheet) 14.06.06
10	Letter of Approval of the Lithuanian Environmental Investment Fund, 2006-01-03
11	Letter of Approval of the Lithuanian Ministry of Environment, 2006-12-14
12	Letter of Approval of the Lithuanian Ministry of Economy, 2005-12-21
13	Description of National Guidelines and Procedures for JI Projects Cycle in Lithuania
14	Protocol of the meeting of Board of Kauno Energija, 2006-01-30
15	NEFCO Loan for Lapes Landfill JI Project, LAPES_NEFCO_Loan_Letter_090626_signed.pdf, 26.09.2009
16	Contract with Modifications of the landfill operator (Kauno Svara),
17	Extract from the State Register, 2006-02-02
18	EIA-Statement of the regional department of environment
19	Publication of the Project in the Newspaper Kauno Diene, 2006-03-16

Reference No.	Document or Type of Information
20	Gas Production Report, Geologijos Institutas, 1999
21	UNFCCC homepage http://www.unfccc.int
22	Approved baseline methodology ACM0001/Version 02: “ Consolidated baseline methodology for landfill gas project activities”
23	Form MS 004 – Flare monitoring
24	Letter of Approval of the Swedish Energy Agency, 2007-06-26
25	Letter of “Naujoji Siluma”, 2008-05-19
26	PDD Version 8, September 2009
27	Lithuania´s National Allocation Plan for Greenhouse Gas Emission Allowances for the period 2008 to 2012, Ministry of Environment, Vilnius 2006