JI VERIFICATION REPORT

- 1ST PERIODIC –

CARBON CAPITAL MARKETS LTD

METHANE CAPTURE AND DESTRUCTION AT THE SOLID WASTE LANDFILL IN THE CITY OF LVIV, UKRAINE

Monitoring Period: 2009-04-01 – 2011-02-28
(incl. both days)

JI Project Reference Number: 0172

Report No: 8000404812-12/062

Date: 2012-05-11

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Verification Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8000404812-12/062	0	2012-05-11	2012-05-11
Project:	***Title:***	***JI Track:***	***Registration date:***	***JI Project Ref.-No.:***
	Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine	☐1 ☒2	2011-11-25[1]	0172
Project Participant(s):	***Host party:***		***Other involved parties:***	
	Gafsa LLC (Ukraine)		Carbon Capital Markets Ltd (United Kingdom)	
Applied methodology/ies:	***Title:***		***No.:***	***Scope:***
	"Consolidated baseline and monitoring methodology for landfill gas project activities"		ACM0001 Version 11	13
Monitoring:	***Monitoring period (MP):***		***No. of days:***	***MP No.***
	2009-04-01 to 2011-02-28 - both days included		699	1
Monitoring report:	***Title:***		***Draft version:***	***Final version:***
	"Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine"		Version 1 dt. 2012-02-22	Version 2 dt. 2012-04-26
Verification team / Technical Review and Final Approval	***Verification Team:***		***Technical review:***	***Final approval:***
	Evgeni Sud Ksenia Konofalova Sergej Friesen		Walter Ulrich	Rainer Winter
Emission reductions: [t CO_{2e}]	***Verified amount***		***As per draft MR:***	***As per PDD:***
	108,528		108,528	211,557
Summary of Verification Opinion:	TÜV NORD JI/CDM Certification Program has carried out the 1st periodic verification of the project: "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine", with regard to the relevant requirements for JI project activities, as well as criteria for consistent project operations, monitoring and reporting. 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. The objective of the project activity is the reduction of anthropogenic GHG emissions by means of the collecting and flaring of the landfill gas, which otherwise would be released into atmosphere. This verification covers the period from 2009-04-01 to 2011-02-28 (including both days). In the course of the verification 3 Corrective Action requests (CAR) and nil Clarification Request (CL) were raised and successfully closed. No FARs have been raised to improve the monitoring system in the future. The verification is based on the hosted monitoring report (dated: 2012-02-22/MR/), final monitoring report (dated: 2012-04-26/MR/), the monitoring plan as set out in the registered PDD/PDD/, the determination report/FDR/, emission reduction calculation spreadsheet/XLS/ and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant. As a result of this verification, the verification confirms that: • all operations of the project are implemented and installed as planned and described in the validated project design document; • the monitoring plan is consistent with the methodology; • the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately;			

[1] As per the UNFCCC notification

	• the monitoring system is in place and functional. Reducing emissions from collecting and burning methane (landfill gas) are measured accurately. As the result of the 1st periodic verification, the verifier confirms that the LFG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows: **Emission reductions:** 108,528 **t CO2e**	
Document information:	*Filename:*	*No. of pages:*
	2012-05-16 FVR Lviv.doc	83

Abbreviations:

AIE	**Accredited Independent Entity**
CA	**Corrective Action / Clarification Action**
CAR	**Corrective Action Request**
CDM	**Clean Development Mechanism**
CO_2	**Carbon dioxide**
CO_{2eq}	**Carbon dioxide equivalent**
CP	**Certification Program**
CR	**Clarification Request**
DVM	**Determination and Verification Manual**
DNA	**Designated National Authority**
ER	**Emission Reduction**
ERU	**Emission Reduction Units**
FAR	**Forward Action Request**
GHG	**Greenhouse gas(es)**
JI	**Joint Implementation**
JPA	**JI programme activity**
JPoA	**JI programme of activities**
LFG	**Landfill Gas**
MP	**Monitoring Plan**
MR	**Monitoring Report**
PDD	**Project Design Document**
PP	**Project Participant**
QA/QC	**Quality Assurance / Quality Control**
UNFCCC	**United Nations Framework Convention on Climate Change**
XLS	**Emission Reduction Calculation Spread Sheet**

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1. INTRODUCTION

TÜV NORD JI/CDM Certification Program has carried out the 1st periodic verification of the project

"Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine"

with regard to the relevant requirements for JI (Track 2) project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) of the registered JI project (reference number 0172).

GHG data for the monitoring period covering 2009-04-01 – 2011-02-28 were verified in detailed manner applying the set of requirements, audit practices and principles as required under the Determination and Verification Manual /DVM/ of the UNFCCC.

This report summarizes the findings and conclusions of this 1st periodic verification of the above mentioned project activity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- implementation and operation of the project activity as given in the PDD,
- compliance with applied approved monitoring plan,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence,
- accuracy of the monitoring equipment,
- quality of evidence,
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this registered project is based on the project design document /PDD/, the monitoring report/MR/, emission reduction calculation spread sheet/XLS/, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

The verification is carried out on the basis of the following requirements, applicable for this project activity:

- Article 6 of the Kyoto Protocol /KP/,

- guidelines for the implementation of Article 6 of the Kyoto Protocol as presented in the Marrakech Accords under decision 9/CMP.1 /MA/, and subsequent decisions made by the JISC and COP/MOP,
- other relevant rules, including the host country (Ukraine) legislation,
- JI Validation and Verification Manual /DVM/,
- monitoring plan as given in the registered PDD /PDD/.

2. GHG PROJECT DESCRIPTION

2.1. Project Characteristics

Essential data of the project is presented in the Table 2-1.

Table 2-1: Project Characteristics

Item	Data		
Project title	Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine		
JI Track	☐ Track 1	☒ Track 2	☐ JPA
Project size	☒ Large Scale	☐ Small Scale	☐ N/A
JI Approach	☐ JI Specific Approach	☒ Approved CDM Methodology	
Project Scope *(according to UNFCCC sectoral scope numbers for CDM)*	☐	1	Energy Industries (renewable- /non-renewable sources)
	☐	2	Energy distribution
	☐	3	Energy demand
	☐	4	Manufacturing industries
	☐	5	Chemical industry
	☐	6	Construction
	☐	7	Transport
	☐	8	Mining/Mineral production
	☐	9	Metal production
	☐	10	Fugitive emissions from fuels (solid, oil and gas)
	☐	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	☐	12	Solvents use
	☒	13	Waste handling and disposal
	☐	14	Land-use, land-use change and forestry
	☐	15	Agriculture
Approved CDM Meth:	ACM0001: Consolidated baseline and monitoring methodology for landfill gas project activities --- Version 11		
Technical Area(s):	13.1		
JI Project Ref.-No.:	0172		
Crediting period	☐ Renewable Crediting Period (7 y) ☒ Fixed Crediting Period is 4 years (2009–2012)		

2.2. Project Verification History

Essential events since the registration of the project are presented in the following Table 2-2.

Table 2-2: Project verification history

#	Item	Time	Status
1	Date of registration/issuance of the HCA	2011-11-25	*Project registered*
2	Start of crediting period	2009-04-01	-
3	1st Monitoring period	2009-04-01 – 2011-02-28	*ongoing*

2.3. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-3).

Table 2-3: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	Ukraine	Gafsa LLC
Other involved party/ies	United Kingdom	Carbon Capital Markets Ltd

2.4. Project Location

The details of the project location are given in table 2-4:

Table 2-4: Project Location

No.	Project Location
Host Country	Ukraine
Region:	Lviv
Project location address:	Lviv City, Zhovkivskiy region, Grybovychi village
Latitude:	49° 49‘ N
Longitude:	23° 57‘ E

2.5. Technical Project Description

The Project is located in the Lviv Region in Ukraine, at the municipal landfill of the City of Lviv – the landfill is also known as “Zbyranka”. The landfill is situated near the Grybovychy village of Zhovkivsky District, about 5 km north of the City of Lviv.

The project activity involves a complete extraction and flaring station provided by Hofstetter. The main components of the collection system are the incoming pipes, flow control valves, gas blower and pressure boosting pumps. Collected LFG is flared in the enclosed flare provided by Hofstetter.

The design of the integrated station includes monitoring equipment in order to fully implement the monitoring plan that is described in the PDD.

2.6. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report

- A desk review of the Monitoring Report submitted by the client and additional supporting documents with the use of customised verification protocol /CPM/ according to the Determination and Verification Manual /DVM/,
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

The sequence of the verification is given in the table 3.1 below:

Table 3.1: Verification sequence

Topic	Time
Assignment of verification	2012-01-25
Uploading of Monitoring Report	2012-02-29
On-site visit	From 2012-03-28 till 2012-03-29
Draft reporting finalised	2012-04-15
Technical review finalised	2012-05-05

2.7. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the JI accreditation requirements

a contract review was carried out before the contract was signed.

2.8. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consistent of one team leader and additional team members, was appointed. Furthermore also the personnel for the technical review and the final approval was determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence	Technical competence [4]	Host country Competence	Team Leading competence
☒ Mr. ☐ Ms.	Evgeni Sud	TÜV Nord Cert GmbH	TL	LA	☒	13.1	☒	☒
☒ Mr. ☐ Ms.	Sergej Friesen	TÜV Nord Cert GmbH	TM	LA	☒	-	☒	☒
☐ Mr. ☒ Ms.	K. Konofalova	TÜV Nord Russia (OOO «PARITET»)	ETE	-	☐	-	☒	☐
☒ Mr. ☐ Ms.	Walter Ulrich	TÜV Nord Cert GmbH	TR[3]	A	☒	13.1	☐	☐
☒ Mr. ☐ Ms.	Rainer Winter	TÜV Nord Cert GmbH	FA[3]	SA	☒	-	☐	☒

[1] TL: Team Leader; TM: Team Member, TR: Technical review; FA: Final approval

[2] GHG Auditor Status: A: Assessor; E: Expert; SA: Senior Assessor; T: Trainee; TE: Technical Expert

[3] No team member

[4] As per S01-MU03 or S01-VA070 A2 (such as A, B, C.....)

2.9. Publication of the Monitoring Report

In accordance with decision 9/CMP.1 (§ 36) the draft monitoring report, as received from the project participants, has been made publicly available on the dedicated UNFCCC JI website prior to the verification activity commenced (relevant for Track 2 projects only). Comments received are taken into account in the course of the verification, if applicable.

2.10. Verification Planning

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in table 3-2 below.

Table 3-2: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)**
The following potential risks were identified and divided and structured according to the possible areas of occurance.	*The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding risks.* *The following measures are implemented:*	*Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.*	*The additional verification testing performed is described. Testing may include:* - *Sample cross checking of manual transfers of data* - *Recalculation* - *Spreadsheet 'walk throughs' to check links and equations* - *Inspection of calibration and maintenance records for key equipment* - *Check sampling analysis results* *Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.*	*Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.*

The completed table A-1 is enclosed in the annex 1 (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements a JI project is expected to meet for verification
- It ensures a transparent verification process where the verifying AIE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic verification is described in table 3-3.

Table 3-3: Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist						
No.	***DVM[2] paragraph / Checklist Item*** *(incl. guidan-ce for the determi-nation team)*	***Initial Finding*** *(Means and results of assessment)*	***Ref.***	***Action requested to project participant*** *(CAR, CL, FAR)*	***Review of PP´s action***	***Conclu-sion***
Number of the checklist item	*The section gives a reference to the relevant paragraph of the DVM. The checklist items are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then fur-ther subdivi-ded as per the require-ments of the topic and the individual project activity.*	*The section is used to elaborate and discuss the checklist item in detail. It includes the initial assessment of the verification team and how the assessment was carried out.*	*Gives reference to the in-formation source on which the assess-ment is based on.*	*Assessment based on evidence provided if the criterion is not fulfilled a CAR, CL or FAR (details of each finding are elaborated in chapter 4) is raised otherwise no action is requested. The assess-ment refers to the draft verification stage.*	*Assess-ment based on the project participant action in response to the raised CAR, CL or FAR (details of each finding are elaborated in chapter 4). The assess-ment refers to the final verification stage.*	*Final assessment at the final verfication stage is given.*

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in the annex (table A-2) to this report.

[2] JISC 19 Annex 4

2.11. Desk review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan/PDD/,
- the last revision of the determination report/DET/,
- the monitoring report, including the claimed emission reductions for the project/MR/,
- the emission reduction calculation spreadsheet/XLS/.

Other supporting documents, such as publicly available information on the UNFCCC / host country website and background information were also reviewed.

2.12. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria. Furthermore the on-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

- The on-site assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The duly calibration of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.

Before and during the on-site visit the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives of the Project Participant as well as those of the JI consultant were interviewed. The main topics of the interviews are summarised in Table 3-4.

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel, Project Participant(s)	- General aspects of the project - Technical equipment and operation - Changes since validation - Monitoring and measurement equipment - Remaining issues from validation - Calibration procedures - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - GHG emission reduction calculation - Procedural aspects of the verification - Maintenance - Environmental aspects

2.13. Draft verification reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further background investigation the verification protocol is completed. This protocol together with a general project and procedural description of the verification and a detailed list of the verification findings form the draft verification report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

2.14. Resolution of CARs, CLs and FARs

Nonconformities raised during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation or previous verifications requiring actions by the project participants to be verified during verification have not been resolved.

The verification team uses the term Clarification Request (CL), which is be issued if:

- information is insufficient or not clear enough to determine whether the applicable JI requirements have been met.

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the monitoring and reporting require attention and / or adjustment for the next verification period.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification pl. refer to chapter 4.

2.15. Final reporting

Upon successful closure of all raised CARs and CLs the final verification report including a positive verification opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative verification opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

2.16. Technical review

Before submission of the final verification report a technical review of the whole verification procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

2.17. Final approval

After successful technical review an overall (esp. procedural) assessment of the complete verification will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the request for issuance can be started.

3. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report/MR/, the calculation spreadsheet/XLS/, PDD/PDD/, the Determination Report/DET/ and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, CL and FAR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CL and FAR

Verification topic	No. of CAR	No. of CL	No. of FAR
A – Project Approvals	0	0	0
B – Project Implementation	0	0	0
C – Monitoring Plan Compliance	3	0	0
D – Monitoring Plan Revision	0	0	0
E – Data Management	0	0	0
F – PoA Verification	0	0	0
SUM	**3**	**0**	**0**

The following tables include all raised CARs, CLs and FARs and the assessments of the same by the verification team. For an in depth evaluation of all verification items it should be referred to the verification protocols (see Annex).

Finding	C1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The information about the equipment used in the project esp. detailed information about the collection and flaring systems is not provided in the monitoring report.		

Finding	C1
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Information has been added into the 1st paragraph of the Section 1.1 of the Monitoring Report 001 (ver.02) providing some details on the equipment used (Integrated Solution Flaring Plant HOFGAS-2000 C by Hofstetter AG) and clarifying the components of the Project LFG collection and destruction system.
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The information about the installed equipment for LFG collection and flaring was included in the monitoring report. Provided information was crosschecked against the provided technical specification inter alia: • Technical specification of the extraction and flaring station Hofstetter Umwelttechnik AG • Scheme of the project: Specification H-10376 Landfill Lviv Ukraine and found consistent. Please also refer to the section B.1 of the annex 1 of this report.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	C2		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Information about the replacement/calibration of the applied thermocouple is not provided in the monitoring Report.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	A clarifying statement has been added into the Table 5.1. Furthermore, an additional footnote (#15) has been made to the Table 5.2. The both are w.r.t. the Thermocouple calibration and maintenance procedure (rf. Monitoring Report 001 (ver.02), pp.17-18).		

Finding	C2
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	In response to the finding the PP explained that calibration frequency as per the manufacturer recommendation is 3 years. However PP will replace or calibrate the applied thermocouples on an annual basis. This is conservative and therefore was accepted by the verification team.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	C3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Information about the calibration of the "LFG Turbine Gas Flow Counter" including the pressure and temperature sensors is not adequately provided in the monitoring report.		

Finding	C3
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The LFG Turbine Gas Flow Counter (FIRT 61.1) incorporates Turbine type Flow-meter (FIR 61.1) with pressure transmitter (PIR 61.1) and temperature transmitter (TIR 61.1), which allows producing a compensated measurement and recording of the LFG flow at NTP/dry basis. Maintenance of the LFG Turbine Gas Flow Counter has to be (and was) undertaken in accordance with the recommendation of the Flaring Plant manufacturer (Hofstetter AG) noted in the Table 5.1 as well as in the Monitoring Protocol (Section E) and the Manufacturer's Operating Instructions (Manual) – all documents have been provided to the Verifier. Specific operation and maintenance instructions, by the direct manufacturer – Elster-Instromet AG, have been provided to and considered/used by the Operation and Service Team. Original certified calibration of the LFG Turbine Gas Flow Counter was a part of the "Calibration Certificates" package provided to the Verifier. The manufacturer recommended recalibration of the equipment on 3yr basis, which was conservatively assumed as 3 yr from the previous certified calibration (16/01/2009), despite the fact that the equipment was put into normal operation after commissioning on 18/05/2009. Next calibration would have to be on/before 16/01/2012, which is beyond the reported Monitoring period. However, to evidence absolute compliance with the stated requirements, the Operation and Service Team (Gafsa LLC) has provided all necessary certificates of re-calibration of the LFG Turbine Gas Flow Counter (its all three main components) made on 28/11/2011 (which was before the scheduled deadline 16/01/2012). An explanatory footnote (#16) about the re-calibration date has been inserted on the p.18, Monitoring Report 001 (ver.02).

Finding	C3
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The verification team was provided with all required information about the calibration of "LFG Turbine Gas Flow Counter" for the entire monitoring period. Additional information about the means of calibration of the "LFG Turbine Gas Flow Counter" for subsequent periods has been included in the monitoring report. Information about the calibration frequency is in line with the manufacturer specification. The calibration was performed in timely manner and in accordance with the provisions of the monitoring plan. This could be verified based on the provided calibration certificates/evidences. Please refer to E.2 of annex 1 of this report. Thus, the verification team concluded that the requirements for calibration are fulfilled.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

4. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CRs are closed out. For details of the assessments pl. refer to the discussion of the verification findings in chapter 4 and the verification protocol (Annex 1).

4.1. Implementation of the project

During the verification a site visit and document review have been carried out. Based on this it can be confirmed that w.r.t. the realized technology, the project equipments, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the determined project design document and monitoring plan/PDD/.

4.2. On-site audits

As a part of the verification, the verification team has carried out the on-site audits at the PP ("Gafsa" LLC) and the Landfill in Lviv (Lviv City, Zhovkivskiy region, Grybovychi village).

4.3. Project history

During the determination, the AIE might have raised issues that could not be closed or resolved during the validation stage. No FARs were raised.

4.4. Special events

No special events with effect on the monitoring of the project have been observed during the monitoring period.

4.5. Compliance with the monitoring plan

ACM0001 Consolidated baseline and monitoring methodology for landfill gas project activities Version 11 has been applied. This is in line with the Host Country (Ukraine) criteria for JI projects. The monitoring plan provides a workbook, which includes Excel calculation spreadsheets. These spreadsheets contain defined and validated formulae for calculation of emission reductions. In addition, the monitoring plan provides an explanation and guidance on the application of the developed calculation tool.

The applied spreadsheets have been reviewed and examined. It has been verified that the formulae and procedures as defined within the monitoring plan have been appropriately applied.

The GHG data management is in line with the procedures indicated in the monitoring plan of the PDD. The procedure for data collecting and recording is in line with requirements of the monitoring plan and is carried out by the responsible personnel.

The calculation of the ERUs in the corresponding Excel spreadsheet has been appropriately carried out.

4.6. Monitoring parameters

During the verification all relevant monitoring parameters (as listed in the PDD) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist.

As a result, it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

All parameters and formulae are in line with the PDD.

The total amount of landfill gas captured at Normal Temperature and Pressure was less than it has been predicted in the PDD, i.e. the amount of flared landfill gas that was measured at Normal Temperature and Pressure has been reduced in comparison with what had been planned. It caused the decrease in emission reductions of GHGs in 2009-2011. According to the PDD, the expected emission reduction in 2009-2011 should be approx. 211,557 tCO_2, but actually the emission reduction is 108,528 tCO_2.

4.7. Monitoring report

A draft monitoring report/MR/ was submitted to the verification team by the project participants.

During the verification, needs for clarification were identified. The PP has carried out the requested corrections so that it can be confirmed that the monitoring report/MR/ is complete and transparent and in accordance with the registered PDD and other relevant requirements.

4.8. ER Calculation

Requests for clarifications do not have an impact on the accuracy of the calculated emission reductions and have been accepted by the verification team.

Thus it is confirmed that the ER calculation is overall correct.

4.9. Quality Management

Quality Management procedures for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel in the framework of this JI project activity have been defined. The procedures defined can be assessed as appropriate for the purpose. No deviations thereof have been observed during the verification.

4.10. Overall Aspects of the Verification

All necessary and requested documentation was provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installations of the plant which are relevant for the project performance and the monitoring activities.

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are not compliant with the UNFCCC / host country criteria and relevant guidance provided by the COP/CMP and the JISC (clarifications and/or guidance).

4.11. Hints for next periodic Verification

No FARs were raised.

5. VERIFICATION OPINION

TÜV NORD JI/CDM Certification Program has carried out the 1st periodic verification of the project: "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine", with regard to the relevant requirements for JI project activities, as well as criteria for consistent project operations, monitoring and reporting. 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.

The objective of the project activity is the reduction of anthropogenic GHG emissions by means of the collecting and flaring of the landfill gas, which otherwise would be released into atmosphere.

This verification covers the period from 2009-04-01 to 2011-02-28 (including both days). In the course of the verification 3 Corrective Action requests (CAR) and nil Clarification Request (CL) were raised and successfully closed. No FARs have been raised to improve the monitoring system in the future.

The verification is based on the hosted monitoring report (dated: 2012-02-22/MR/), final monitoring report (dated: 2012-04-26/MR/), the monitoring plan as set out in the registered PDD/PDD/, the determination report/FDR/, emission reduction calculation spreadsheet/XLS/ and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verification confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document;
- the monitoring plan is consistent with the methodology;
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately;
- the monitoring system is in place and functional. Reducing emissions from collecting and burning methane (landfill gas) are measured accurately.

As the result of the 1st periodic verification, the verifier confirms that the LFG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: 108,528 **t CO2e**

Essen, 2012-05-11

Evgeni Sud

TÜV NORD JI/CDM CP

Verification Team Leader

Essen, 2012-05-11

Rainer Winter

TÜV NORD JI/CDM CP

Final Approval

6. REFERENCES

Table 6-1: Documents provided by the project participant(s)

Reference	Document
/**EIA-1**/	Expert conclusion No. 264 – 54101 regarding the construction of the project dated June 27, 2008, "Lviv Regional Sanitary- Epidemiologic administration" Ministry of Health Care of Ukraine
/**EIA-2**/	Expert Conclusion 04/06/2008 No. 13/1/3632 Department of supervisory and preventory activities issues at the main administration of the ministry of emergencies of Ukraine in Lviv Region
/**EIA-3**/	For No. 8.749K/04 as of 14/05/2008 CONCLUSION of state ecological examination for the contractor design "Technical restoration and active degassing of Lviv city ground of solid domestic waste"
/**EIA-4**/	Expert Evidence on the labour protection issues. Examination of contractor design No. 75.08.12.3.3-B Contractor design "Technical restoration and active degassing of Lviv city ground of solid domestic waste"
/**EIA-5**/	Complex Conclusion of state examination Nr. 8,749K on the contractor design "Technical restoration and active degassing of Lviv city ground of solid domestic waste" August 06, 2008
/**CGFM**/	Calibration certificate # M07.26012 from 2009-01-16 (inc. PIR61.1 TIR61.1, and FIR61.1), Serial# 10510214 LFG Turbine Gas Flow
/**CCT**/	Calibration certificate # 2008-853 Thermocouple # S 5885-00 from 2008-04-08
/**CR**/	Commissioning reports related to the various stages of the project implementation, which evidence the project starting date.
/**CT**/	Confirmation of the initial calibration Thermocouple # 6 on 10.02.2010
/**GCI-1**/	Passport # 248A-44/09 calibration gas cylinder # 14602, from 16.04.2009 to 16.04.2010
/**GCI-2**/	Passport # 251A-44/09 calibration gas cylinder # 17908, from 16.04.2009 to 16.04.2010
/**GCI-3**/	Passport # 252A-44/09 calibration gas cylinder # 25365, from 16.04.2009 to 16.04.2010

Reference	Document
/**GCl-4**/	Certificate for the CBC # 1370-44/10 calibration gas cylinder # 9601, from 24.04.2010 to 24.04.2011
/**GCl-5**/	Certificate for the CBC # 1371-44/10 calibration gas cylinder # 59577, from 24.04.2010 to 24.04.2011
/**GCl-6**/	Certificate for the CBC # 1372-44/10 calibration gas cylinder # 66569, from 24.04.2010 to 24.04.2011
/**HCA**/	Host Country Approval (Ukraine) for the project activity "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine" dated 20.04.2011
/**LoA**/	Host Country Approval (United Kingdom) for the project activity "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine" dated 07.06.2011
/**MR**/	• Monitoring Report: Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine version 1 dated 2012-02-22 • Monitoring Report: Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine version 2 dated 2012-04-26
/**Mt-Pr**/	Internal procedures for GHG data management introduced by PP to manage the monitoring of the entire project activity.
/**PDD**/	Project Design Document Version 4 dated 19.07.2011 "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine"
/**PPW**/	Statement on voluntary withdrawal from the JI project issued by Zbyranka Landfill Recovery LLC dated 28.01.2011
/**RUM**/	Resolution of the State Service of Mining Supervision and Safety of Ukraine № 098.08.46-90.03.0 to perform work on the utilization of methane from 03.10.2008 to 02.10.2011
/**SPC**/	Scheme of the project: Specification H-10376 Landfill Lviv Ukraine
/**TR**/	Training certificates "Operator Training (on the Landfill Zbyranka, Lviv) of the Hofstter HOFGAS®- Ready 2000CDM degassing plant. Training certificates were provided for the personnel responsible for the operation of the LFG collection and flaring station.
/**TS**/	Themocouple-Jumo-Specification

Reference	Document
/**TS-GA**/	LFG gas analyzer PID H-10376: A141, Serial# F09-123070-001
/**TS-Gen**/	Technical specification of the LFG based power plant UMG-60 No. 20072249
/**TS-LG**/	Technological scheme of landfill gas at the Lviv landfill
/**TS-PA**/	Technical specification of the extraction and flaring station Hofstetter Umwelttechnik AG. DEGASSING UNIT HOFGAS®- Ready 2000c CDM
/**XLS**/	Summary of the emission reduction calculation results provided in the excel workbook. This file contains: • All weekly values, monthly and annual values of the Emission Reductions from flaring; weekly/monthly/annual amounts of used fossil fuel (diesel) and resulting annual Project Emissions from the fossil fuel consumption; and finally the Net Emission Reductions (ERy) for the year "y": 2009 (Partial year from 01 April to 31 December); 2010 (full year from 01 January to 31 December); and 2011 (Partial year from 01 January till 28 February); and total for the monitoring period (from 2009-04-01 to 2011-02-28). • Summary Tables A.1.1, A.1.2, and A.1.3 that are provided in the Annex 1 to this Monitoring report.

Table 6-2: Background investigation and assessment documents

Reference	Document
/**B-1**/	Turning a Liability into an Asset: the Importance of Policy in Fostering Landfill Gas Use Worldwide, IEA January 2009
/**B-2**/	Report on implementation of the landfill directive in the 15 member states of the European Union, European Commission, October 2005
/**B-3**/	National Communication of Ukraine
/**B-4**/	Ukrainian's report on the demonstrable progress under the Kyoto Protocol, Kiiv 2006
/**B-5**/	Joint Implementation Handbook for Ukrainian companies, German Energy-Agency (Deutsche Energie-Agentur GmbH (dena) 2007
/**B-6**/	Cabinet of Ministers of Ukraine. Decree of 4 March 2004 No. 265 "On confirming the Programme of municipal solid waste disposal".

Reference	Document
/**B-7**/	Status and prospects of biogas energy use in Ukraine, Institute of Engineering Thermophysics, Scientific centre "Biomass"
/**B-8**/	The costs for supplying renewable energy a report by Enviros Consulting Ltd, 2005 prepared for Ministerial Correspondence Unit Department for Business, Innovation & Skills, London.
/**DBN**/	National Construction Standard DBN V.2.4-2-2005 Basics of Sites Design
/**DBN-1**/	List of regulations referred in Annex B of DBN V.2.4-2-2005
/**JI-G**/	JI Guidelines: UNFCCC/Kyoto Protocol requirements, in particular, the requirements of the JI as set out in decision 9/CMP.1 (Marrakech Accords), the present annex, and relevant decisions by COP/MOP & JI Supervisory Committee
/**H-1**/	Order Nr. 718, dated 10 August 2008. On Approval of the Procedure of Drafting, Review, Approval and Implementation of Projects Aimed at Reduction of Anthropogenic Emissions of Greenhouse Gases.
/**H-2**/	Order Nr. 341, dated 17.07.2006. On approval of the Requirements to the documents in which the volumes of anthropogenic emissions and absorption of greenhouse gases are substantiated for the receiving of the Letter of Endorsement by the owner of the emissions source, where the implementation of the joint introduction project is intended to be.
/**H-3**	Order Nr. 342, dated 17.07.2006. On approval of requirements to preparation of the joint implementation projects.
/**H-4**/	Decree Nr. 206, dated February 22, 2006. Cabinet of Ministers of Ukraine, "On Approval of the Procedure of Drafting, Review, Approval and Implementation of Projects Aimed at Reduction of Anthropogenic Emissions of Greenhouse Gases"
/**H-5**/	Order Nr. 33, dated June 25, 2008. National Environmental Investment Agency of Ukraine, "On approval of Requirements to preparation of the joint implementation projects"
/**GJI**/	Guidelines for the implementation of Article 6 of the Kyoto Protocol as per 9/CMP.1
/**IPCC-GP**/	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000

Reference	Document
/**IPPC-RM**/	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual
/**KP**/	Kyoto Protocol (1997)
/**Meth**/	ACM0001 Consolidated baseline and monitoring methodology for landfill gas project activities: Version 11
/**T-EC**/	"Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (Version 01)
/**T-ME**/	"Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site" version 05
/**T-PE**/	"Tool to determine project emissions from flaring gases containing methane" version 01 EB 28, Annex 13
/**MA**/	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))
/**TA**/	Tool for the demonstration and assessment of additionality (Ver.4 – Ver. 5.2).
/**DVM**/	Validation and Verification Manual (Version 1, JISC 19 Annex 4)

Table 6-3: Websites used

Reference	Link	Organisation
/**dfp**/	http://www.neia.gov.ua/nature/control/uk/index	National Environmental Investment Agency of Ukraine
/**epa**/	http://www.epa.gov/ttn/chief/ap42/ch02/index.html	U.S. Environmental Protection Agency AP 42, Fifth Edition, Volume I Chapter 2: Solid Waste Disposal
/**hfst**/	http://www.hofstetter-uwt.com/web/hofstetter/en/solutions/landfill/ready_readyc.html	Hofstetter (Swiss Gas Conversion Technology Plant engineering for gas treatment and gas conversion systems)
/**unfccc**/	http://cdm.unfccc.int	UNFCCC

Table 6-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function
/**IM01**/	V	☒ Mr. ☐ Ms	Serhiy M. Porovskyy	Consultant to CARBON CAPITAL MARKETS Ltd. / QA/QC Manager
/**IM01**/	V	☐ Mr. ☒ Ms	Natalia P. Kovalchuk	Chief Operational Officer "Gafsa" LLC / JI Monitoring Manager
/**IM01**/	V	☒ Mr. ☐ Ms	Jaroslav A. Kukhar	Director „Gafsa" LLC
/**IM01**/	V	☒ Mr. ☐ Ms	Igor E. Kovalchuk	Technical Director „Gafsa" LLC
/**IM01**/	V	☒ Mr. ☐ Ms	Igor G. Tsukornik	Main technical expert "Gafsa" LLC
/**IM01**/	V	☒ Mr. ☐ Ms	Sergej Trefanjuk	Technical expert "Gafsa" LLC

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

ANNEX

A1: Verification Protocol

A2: Appointment / Authorisation statements

ANNEX 1: VERIFICATION PROTOCOL

Table A-1: GHG calculation procedures and management control testing / detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
Raw data generation				
• Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of	• Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspect-ions of installed equip-ment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment	• Inadequate installation / operation of the monitoring equipment • Inadequate exchange of equipment • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system procedures	• Site – visit (maintenance dept., gas supplier) • Check of equipment • Check of technical data sheets • Check of suppliers information / guarantees • Check of calibration records, if applicable • Check of maintenance records • Counter-check of raw data and commercial data • Check of JI manage-ment system	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
technology • Accuracy of values supplied by Third Parties	• Stand-by duty is organized • Training • Internal audit procedures • Internal check of QA/QC measures of involved Third Parties	• Insufficient accuracy • Inappropriate QA/QC measures of Third Parties	• Check of JI related procedures • Application of JI management system procedures • Check of trainings • Check of responsibilities • Check of QA/QC documentation / evidences of involved Third Parties	
Raw data collection and data aggregation				
• Wrong data transfer from raw data to daily and monthly aggregated reporting forms • IT Systems • Spread sheet programming • Manual data transmission	• Cross-check of data • Plausibility checks of various parameters. • Appropriate archiving system • Clear allocation of responsibilities • Application of JI Management system procedures	• Unintended usage of old data that has been revised • Incomplete documentation • Ex-post corrections of records • Ambiguous sources of information • Non-application of management system procedures	• Check of data aggregation steps • Counter-calculation • Data integrity checks by means of graphical data analysis and calculation of specific performance figures • Check of management system certification	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
• Data protection • Responsibilities	• Usage of standard software solutions (Spreadsheets) • Limited access to IT systems • Data protection procedures	• Manual data transfer mistakes • Unintended change of spread sheet programming or data base entries • Problems caused by updating/upgrading or change of applied software	• Check of data archiving system • Check of application of Management system procedures	
Other calculation parameters				
• Emission factors, oxidation factors, coefficients	• The values and data sources applied are defined in the PDD and monitoring plan	• Unintended or intended Modification of calculation parameters • Wrong application of values • Misinterpretations of the applied methodology and/ or the PDD • Missing update of applicable regulatory framework (e.g. IPCC values)	• Update-check of regulatory framework • Countercheck of the applied MP in the MR against the approved version	• **See Table A-2**
Calculation Methods				

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
• Applied formulae • Miscalculation • Mistakes in spread-sheet calculation	• Advanced calculation and reporting tools • A JI coordinator is in charge of the JI related calculations • Usage of tested / counterchecked Excel spreadsheets • Involvement of external consultants	• The danger of miscal-culation can only be minimized.	• Countercheck on the basis of own calculation. • Spread sheet walk-trough. • Plausibility checks • Check of plots	• **See Table A-2**
Monitoring reporting				
• Data transfer to the author of the monitoring report • Data transfer to the monitoring report • Unintended use of outdated versions	• An experienced JI consultant is responsible for monitoring reporting. • JI QMS procedures are defined	• The danger of data transfer mistakes can only be minimized • Inappropriate application of QMS procedures	• Counter check with evidences provided. • Audit of procedure application	• **See Table A-2**

Table A-2: (Project specific) Periodic Verfication Checklist

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
A	***Project Approvals by Parties involved***					
A.1	*DVM § 90* Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	*Description:* This is the first verification. The Letter of Approval of the Host Country/HCA/ (Ukraine) and the Letter of Approval of the Investor Country (United Kingdom)/LoA/ have been issued in 2011 by the corresponding DFPs. *Means of determination:* Host Country Approval (Ukraine) could be verified based on the written approval of the Host Country for the JI project activity: "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine" issued by the National Environmental Investment Agency of Ukraine on 20.04.2011/HCA/. The Approval of the Investor Country (United Kingdom) involved in the project activity could be verified based on the written approval of UK designated focal point: "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine" issued by the Department of Energy & Climate Change UK on 07.06.2011/LoA/. As evident from the both approvals/HCA//LOA/ all private project	PDD /LoA/ /HCA/			OK

[3] JISC 19 Annex 4

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		participants have been authorized by the involved Parties. *Conclusion:* The requirement is fulfilled.				
A.2	*DVM § 91* Are all the written project approvals by Parties involved unconditional?	*Description:* Yes all written project approvals are unconditional. *Means of determination:* This is evident from the provided approvals/HCA//LoA/. *Conclusion:* The requirement is fulfilled.	/HCA/ /LoA/			OK
B	***Project implementation***					
B.1	*DVM § 92* Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	*Description:* The project has been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website. *Means of determination:* This was verified by means of the document review and observations made during the onsite assessment. In particular, the on-site assessment was performed and it could be confirmed that the Project is located in the Lviv Region in Ukraine, at the municipal landfill of the City of	/PDD/ /TS-PA/ /CR/ /RUM /TS-Gen/ /TR/ /hfst/	~~CAR C1~~	~~CAR C1~~	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		Lviv. The landfill is located close to the Grybovychy village of Zhovkivsky District. It is about 5 km north of the City of Lviv. The same location is indicated in the PDD. **The LFG collection system** is constructed in accordance with the description given in the PDD. It could be verified that the wells are connected with the flaring station a through a network of horizontal underground pipes. The pipe network consists of a header, sub-headers and laterals installed within the Landfill and around its perimeter. **Integrated booster and gas flaring station** Based on the observation during the on-site assessment it could be confirmed that an integrated booster and gas flaring station was constructed. As evident from the notations on the installed equipment the project activity uses Hofstetter *"HOFGAS - Ready C*" – technology. The HOFGAS - Ready C is a complete extraction and flaring station of the enclosed type. It consists mainly of a manifold for the incoming pipes, flow control valves, gas blower and pressure boosting pumps, enclosed high-temperature flare stack and continuous gas monitoring and analysis system.				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		The technical specification of the applied equipment/TS-PA/ incl. gas flare, gas blower, generators was crosscheck against the notations evident on the equipment itself and found consistent. The same is in line with the information provided in the monitoring report. The same was mentioned in the PDD. **LFG generator and back-up power supply for the Project** Finally based on the on-site inspection it could be confirmed that project power demand is covered by the two LFG fired generators installed on site. As per the technical specification of the LFG based power plant/TS-Gen/ the installed capacity is 60 kW. The power capacity of the power plant is in line with the capacity mentioned in the PDD. The proper implementation of the project activity could be further supported by commissioning reports related to the various stages of the project implementation, which also evidence the project starting date. Finally, based on the license/RUM/ it could be evidenced that the project received all necessary approvals and is allowed to operate. Also the measuring equipment (i.e. scale) was inspected and its notations (esp. type, serial number) was found				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		consistent with the data given in the monitoring report/MR/. Please refer to the section E.2 of this annex. The general information about the applied technology was crosschecked with the information provided on the manufacturer website/hfst/ and found consistent. By means of the document review and the interviews with the operational personnel it was evidenced, that no significant operation modes were changed during the monitoring period. No changes in the project and the monitoring plan have been identified. Based on the provided training certificates/TR/ it could be evidenced that personnel responsible for the operation of the LFG collection and flaring station has underwent a corresponding training provided by the manufacturer. *Conclusion: T*aking the above mentioned into account, it could be concluded that the project has been implemented in accordance with the PDD and the requirement is fulfilled.				
B.2	*DVM § 93* What is the status of operation of the project during the monitoring period?	*Description:* The project activity was operational during the monitoring period. No significant deviations have been observed. *Means of determination:* The same could be concluded by considering the main	/IM01/ /MR/			OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		operation parameters of the project. The PDD assumed average methane content of 50%. However during the operation the methane content decreased and is now approx 40%. The decrease of the methane content is widely observed in many JI and CDM projects. *Conclusion:* The requirement is fulfilled.				
C	***Compliance with monitoring plan***					
C.1	*DVM § 94* Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	*Description:* The monitoring occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final. *Means of determination:* **General aspects of the monitoring** The relevant provisions of the monitoring plan have been defined in internal monitoring procedure/Mt-Pr/, which was issued in order to ensure the proper GHG data management. The monitoring procedure has been reviewed by the verification team. It could be verified that the it specifies the main issues that are relevant for the project	/PDD/ /FDR/ /MR/ /MR/ /XLS/	~~CAR C1~~ ~~CAR C2~~ ~~CAR C3~~	~~CAR C1~~ ~~CAR C2~~ ~~CAR C3~~	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		monitoring like: • Responsibility • Description of monitored parameters • Description of the monitoring process • Data QA/QC • Data storage • Emission reduction calculation • Malfunction procedure In the course of the verification it could be verified that data flow and data management corresponds to the introduced internal procedure/Mt-Pr/. This could be verified through the crosscheck of the provided reports with handwritten notices and protocols available on site. The information about the data collection and processing as presented in the monitoring report is in line with the procedures for data management/Mt-Pr/ defined in the PDD. **Roles and Responsibilities**				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		Roles and positions of personnel involved in the GHG data management process are clearly defined in the "JI procedure for data collecting and processing/Mt-Pr/. The verification team has reviewed the procedures for the • data collection, • data recording • data reporting • QA/QC procedures and compiling • internal approval of the final monitoring report and was able to conclude that all roles and positions of the personnel in the GHG data management process starting with completion of the raw data to submission of the final data are specified in the "JI procedure for data collecting and processing/Mt-Pr/. The introduced procedure reflects the requirements of the registered monitoring plan. The responsible personnel have been interviewed and sufficient confidence has been gained that the involved staff is well aware about their roles and responsibilities within the project monitoring. As per the registered PDD/PDD/ the **starting date of the**				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		crediting period is 2009-04-01. The same date is evident from the monitoring report. Therefore the starting date of the monitoring period is appropriate. **Project boundaries** the landfill site where the LFG is extracted and destroyed is in line with the boundaries defined in the registered PDD/PDD/. It could be verified that the formulae to calculate the baseline, project emissions as well as the emission reductions are entered into the project database/XLS/. The calculation algorithm is based on the formulae as defined in chapter D (esp. D.1.1.2 and D.1.1.4.) of the PDD/PDD/. Also the applied default values are based on the values defined in the Annex 2 of the PDD/PDD/. **Monitoring report** – Finally, the performance of this project is summarized in the monitoring report, which prepared by PP. **Data Collection and Processing** The information about the data collection and processing as described in the monitoring report could be verified as follows:				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		During the on-site assessment it could be observed that the Hofstetter LFG collection and flaring station is equipped with Memograph (PLC), which automatically records all project operation data including the monitoring parameters as required by the monitoring plan. As per the monitoring report *"Stored on-site in SD memory card, placed in the PLC memory-slot; the SD card used has capacity to store data for the entire lifetime of the Project"*. The same was shown and explained by PP to the verification team. As per the monitoring report "*Stored by the Site Manager/Responsible (trained) Operator directly from the PLC into the JI Monitoring Manager's password protected computer or transferred to it via a password protected flash-drive. The data is stored in RSD format, which protects data from any alteration and can be opened only with special software supplied by the Equipment manufacturer and only at the 'Project registered' computer (computer that is registered with the particular Project code used by the software)"*. The project performance data incl. monitored data such as flow rate, gas composition, flare temperature etc. as well as information about faults and stops of the system is recorded by the Memograph. The same was observed during the on-site assessment and confirmed				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		within the interviews. All the operational and monitoring parameters for every operational minute are automatically and simultaneously recorded. This is in line with the information provided by involved personnel within the interviews carried out during the on-site assessment. The format of the stored data is in line with the format of the particular reports provided by PP in the course of the verification. As per the monitoring report "*The Site Manager/Responsible (trained) Operator also prepares a Weekly Monitoring Report and submits it to the JI Monitoring Manager*". This is in line with the information provided within the interviews As per the monitoring report "*The JI Monitoring Manager collects a) Raw Gas data, b) Plant Events Log (both obtained from RSD file and converted into Excel spreadsheet) together with c) an on-site Registry log and d) a Weekly Monitoring Report. The JI Monitoring Manager performs a cross-check and review*". This is in line with the information provided by involved personnel within the interviews carried out during the on-site assessment. The format of the stored data is in line with the format of the particular reports provided by PP in the course of the verification. Based on the provided documents it could be				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		verified that reported data is crosschecked by at least two people following the four eye principle. As per the monitoring report "*JI Monitoring Manager stores both RSD cumulative file and all Excel raw data spreadsheets, checks the data and prepares a Weekly data set – a RAR archive which contains raw data spreadsheets, registry log, and a Weekly Monitoring Report*". This is in line with the information provided by involved personnel within the interviews carried out during the on-site assessment. The format of the stored data is in line with the format of the particular reports provided by PP in the course of the verification. As per the monitoring report "*Weekly data sets are submitted to QA/QC Manager (via email), stored by the QA/QC Manager (Consultant to CCM; CC: to CCM designated e-mail), and backed-up onto the CCM's protected server. The weekly data sets are processed by the QA/QC Manager (Consultant to CCM) in accordance with the ERU calculation procedure*". This is in line with the information provided by involved personnel within the interviews carried out during the on-site assessment. The format of the stored data is in line with the format of the particular reports provided by PP in the course of the verification.				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		The emission reduction calculation was checked by the verification team and it could be confirmed that it is based on the formulae specified in the chapter D, E (esp. D.1.2.2) of the PDD/PDD/. *Conclusion:* The requirement is fulfilled.				
C.2	*DVM § 95a)* For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	*Description:* The key factors, which influence the baseline emissions are: • Volumetric flow rate of residual gas in dry basis at normal conditions in the minute "m", in m^3/h including the data about the Temperature and pressure of the landfill gas • Volumetric fraction of CH_4, O_2, and CO_2 in the residual gas in the minute "m", in % Vol. • Temperature of the exhaust gas of the enclosed flare, in °C • Operation of the LFGTE generating unit, hours • Quantity of fossil fuel (diesel) used by the start-up generator in year *y*, in Litres Other Flare Parameters:	/PDD/ /MR/ /TS/ /XLS/ /Meth/ /T-EC/ /T-ME/ /T-PE/			OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		• Automatic continuous monitoring of the operational status of the flare • Automatic continuous monitoring of the operational conditions of the flare • Automatic continuous monitoring of the operational conditions of the flare plant system • Automatic continuous monitoring of the operational status of the flare plant system Calculated Parameters: • Volumetric fraction of CH_4, O_2, CO_2, and N_2 in the residual gas in the minute “m” • Project Emissions from flaring the residual gas stream in the minute “m”, week “w”, month “mon” and year “y”, in tCO_2e • Project emissions from electricity consumption produced by start-up diesel generator in the year “y”, in tCO_2e • Average Net Calorific Value of the fossil fuel used by the start-up generator in the year “y”, $TJ/10^3t$ *Means of determination:* The above mentioned key factors have been crosschecked				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		with the values defined in the PDD and found consistent. For the detailed description please refer to the section C.3 of this table (the section below). As evident from various LFG projects in Ukraine, which were developed as JI projects LFG flaring/utilization is still not enforced and LFG release into atmosphere represents the baseline scenario. *Conclusion:* Considering the above mentioned it was concluded that the requirement is fulfilled.				
C.3	*DVM § 95b)* Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	The measured parameters are summarized below: • ***Volumetric flow rate of residual gas in dry basis at normal conditions in the minute "m", in m^3/h*** • ***Volumetric fraction of CH_4, O_2, and CO_2 in the residual gas in the minute "m", in % Vol.*** • ***Volumetric fraction of CH_4 and O_2 in the exhaust gas in the minute "m" on dry basis at NTP, in % Vol.*** • ***Temperature of the landfill gas (main), in °C*** • ***Pressure of the landfill gas (main), in mbar*** • ***Temperature of the exhaust gas of the enclosed flare, in °C***	/MP/ /XLS/ /PDD/ /MR/ /CGFM/ /MR/ /GCI-1/ /GCI-2/ /GCI-3/ /GCI-4/	~~CAR C1~~ ~~CAR C2~~ ~~CAR C3~~	~~CAR C1~~ ~~CAR C2~~ ~~CAR C3~~	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		• ***Operation of the LFG_{TE} generating unit, hours*** • ***Quantity of fossil fuel (diesel) used by the start-up generator in year y, in Litres*** Further measured parameters related to the flare operation: • ***Automatic continuous monitoring of the operational status of the flare*** • ***Automatic continuous monitoring of the operational conditions of the flare*** • ***Automatic continuous monitoring of the operational conditions of the flare plant system*** • ***Automatic continuous monitoring of the operational status of the flare plant system*** The monitored data is measured and recorded continuously by the corresponding meters. This is done for all parameters except for the quantity of fossil fuel (diesel) used by the start-up generators and operation time of the generating units, which is inserted in the emission reduction calculation spreadsheet by the responsible project managers. The monitored data of all other parameters is submitted automatically to the memograph, where the continuously measured data is recorded. Subsequently this data is used	/GCI-5/ /GCI-6/ /TS-GA/ /XLS/ /PDD/ /TS/ /CCT/ /CT/			

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		for subsequent emission reduction calculation. **Measurement equipment** The applied measurement equipment was assessed as follows: • ***Volumetric flow rate of residual gas in dry basis at normal conditions in the minute "m", in m3/h*** • ***Temperature of the landfill gas (main), in °C*** • ***Pressure of the landfill gas (main), in mbar*** The amount of LFG captured is measured continuously by the flow meter. Data is measured continuously and automatically transferred to the memograph. The applied flow meter measures the flow rate and automatically reports in normalized cubic meters (Nm^3). The correction is done based on the information coming from the temperature and pressure sensors connected to the meter's calculation unit. The physical installation of the flow meter including the temperature and pressure sensors could be verified during the on-site inspection. The place of the installation is before the flow separation to supply gas generator and the flare. It				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		is subject to the purpose of the measurement. It could be confirmed that the type, serial number and the last calibration dates as indicated on the meter is in line with information given in the monitoring report. The indicated type, serial number and the calibration dates are in line with provided technical specification and calibration certificates. Please refer to section E.2. It was observed the installed meter is operating and is in a good working condition. Therefore it was concluded that the measurement equipment is in line with the monitoring plan/PDD/. • ***Volumetric fraction of CH_4, O_2, and CO_2 in the residual gas in the minute "m", in % Vol.*** The methane fraction in the landfill gas is measured by the continuous gas analyzer. Data is measured continuously and automatically transferred to the memograph. The physical installation of the gas analyzer could be verified during the on-site inspection. The gas analyser is installed at the main pipeline and measures the concentration of the LFG collected from the landfill. It could be verified that the type, serial number and the last calibration dates as indicated on the meter are in line with				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		information given in the in the monitoring report. Please refer to the section E.2. of this annex. LFG Gas Analyzer is calibrated weekly. The calibration is performed on-site, using recommended calibration (test) gas. This test gas is checked/replaced every year /GCI-1/ /GCI-2/ /GCI-3/ /GCI-4/ /GCI-5/ /GCI-6/. During the on-site assessment it was observed that appropriate calibration gas is stored on-site and is obviously used for gas analyzer calibration. • ***Temperature of the exhaust gas of the enclosed flare, in °C*** Temperature of the exhaust gas from the enclosed flare is measured by thermocouples. Data is measured continuously and automatically transferred to the memograph. This is in line with the monitoring plan. Two thermocouples /CCT/ /CT/ are applied in the project. The technical specification including the calibration and replacement requirements is included in the technical specification of the entire collection and flaring station. Please refer to section E.2 of this annex. Based on the provided technical specification of the applied thermocouples it could be verified that the measurement equipment is in line with the monitoring plan /PDD/.				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		• ***Volumetric fraction of CH_4 and O_2 in the exhaust gas in the minute "m" on dry basis at NTP, in % Vol.*** Is applicable in case of continuous monitoring of the flare efficiency. Since a default approach was selected by PP this parameter is not relevant within the considered monitoring period. • ***Operation of the LFG_{TE} generating unit, hours*** This parameter is monitored in order to ensure that methane destruction in biogas generator is claimed only when it is operational. This parameter is measured continuously but recorded on a weekly basis. The recordings are done in the emission reduction calculation spreadsheet. This is in line with registered monitoring plan. • ***Quantity of fossil fuel (diesel) used by the start-up generator in year y, in Litres*** Fossil fuel is required for start-up generator. After start-up				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		the generators are operating on the LFG. Due to this the amount of diesel consumed by the project activity is relatively low. Nevertheless the consumption of the fossil fuel (diesel) was measured by means of the meter (scale) in accordance with the requirements of the monitoring plan/PDD/. • ***Automatic continuous monitoring of the operational status of the flare*** • ***Automatic continuous monitoring of the operational conditions of the flare*** • ***Automatic continuous monitoring of the operational conditions of the flare plant system*** • ***Automatic continuous monitoring of the operational status of the flare plant system*** Finally there are four further measured parameters that are related to the flare operation. All these four parameter are continuously measured by the control system of the LFG collection and flare station and recorded by memograph. The continuous monitoring is evident from the reports in the emission reduction calculation spreadsheets.				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		Presentation of the monitoring results In accordance with the introduced "Data collection and processing procedure"/MT-Pr/ data files together with a Weekly Monitoring Report and a weekly technical Registry file are submitted by JI Monitoring Manager to the QA/QC Manager. As per the monitoring report "*Each Weekly Data Set has been named as "LVIV YYYYMMDD-YYYYMMDD", where YYYYMMDD-YYYYMMDD indicates a start and an end date of the reported week*". Furthermore the monitoring report explains that "*The ERU Calculation results are presented as Excel workbooks with files named "LVIV ERUCalc-DEFAULT-YYYYMMDD-YYYYMMDD", where YYYYMMDD-YYYYMMDD indicates a start and an end date of the reported week. Each weekly ERU Calculation workbook has an explanation of its structure and the assumptions used in the ERU Calculation procedure. This explanation is provided in the "Read Me" spreadsheet*". The PP has provided all weekly data sets as well as the corresponding emission reduction (ER) calculations performed on a weekly basis. It could be confirmed that provided weekly ER calculations include the monitoring data				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		of all monitoring parameters. The names of the provided files correspond to the explanation provided in the monitoring report. The monitoring report explains that "*The raw data is transferred from the Raw Data Gas file, which corresponds to the calculated week, into the "Raw Gas Data" worksheet*". This is correct and corresponds to the structure and functioning of the introduced monitoring/recording system. As evident from the provided ER calculations the accumulated weekly values $PE_{flare,w}$ and ER_w are also shown in the ER calculation spreadsheet. As result the verification team confirms that the explanation provided in the section 4.3 with regards to the presentation of the monitoring results is correct and corresponds to systematic procedure for data management introduced by PP. Due to the continuous monitoring approach the project monitoring results in a large amount of the monitored data. Considering this large amount the systematic approach developed (mainly) by the technology supplier (Hofstetter) and applied by the PP was assessed as accurate and in line with the monitoring plan. The verification team observed that all files are stored and named in appropriate manner in				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		accordance with the introduced procedure. All monitored data (all weekly reports, including the raw data sets) was provided to the verification team. This data was checked and found plausible. No significant inconsistencies were observed. Therefore the provided data source/XLS/ was assessed as credible and reliable. Please also refer to the section C.5 of this annex.				
C.4	*DVM § 95c)* Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the	*Description:* The default factors used for calculating the emission reductions were assessed as follows:: 1. Global Warming Potential value for methane for the first commitment period (21 tCO_2e/tCH_4)/ This is in line with the IPCC value. 2. Methane density expressed in tonnes of methane per cubic meter of methane (0.0007168 $tCH4/m^3CH_4$). This	/MR/ /XLS/ /PDD/ /TS/			OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	choice?	is the density of methane at standard temperature and pressure. 3. Average CO2 emission factor of fossil fuel (73,000kg/TJ). This is in line with the IPCC value. 4. The Universal ideal gas constant (R_u) taken as 8,314.472 Pa.m^3/kmol.K is in line with PDD. 5. The Molecular mass of methane (MM_CH4) taken as 16.04kg/kmol is in line with PDD. 6. The Molecular mass of oxygen (MM_O2) taken as 32.00 kg/kmol is in line with PDD. 7. The Molecular mass of carbon dioxide (MM_CO2) taken as 44.01kg/kmol is in line with PDD. 8. The Molecular mass of nitrogen (MM_N2) taken as 28.02kg/kmol is in line with PDD. 9. The Atomic mass of carbon (AM_c) taken as 12.00 kg/kmol is in line with PDD. 10. The Atomic mass of oxygen (AM_o) taken as 16.00 kg/kmol is in line with PDD. 11. The Atomic mass of hydrogen (AM_H) taken as 1.01 kg/kmol is in line with PDD. 12. The Atomic mass of nitrogen (AM_N) taken as 14.01				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		kg/kmol is in line with PDD. 13. The Density of methane gas at normal conditions (ρ_(CH4,n)) taken as 0.716kg/m^3 is in line with PDD. 14. The Atmospheric pressure at normal conditions (P_n) taken as 101,325 Pa is in line with PDD. 15. The Temperature at normal conditions (T_n) taken as 273.15 K is in line with PDD. 16. Net calorific value of diesel fuel (42.7 TJ/thousand tonnes). This is in line with the IPCC value. 17. CO_2 emission factor for diesel fuel 74.1 TCO_2/TJ. This value is also in line with IPCC value. 18. Average Net Calorific Value for Diesel (NCV) (43,33 TJ/103t). Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Workbook. 19. Density for Diesel (0,837 kg/L). "Units & Conversions Fact Sheet", MIT Energy Club, Massachusetts Institute of Technology. *Means of determination:* The above mentioned default values have been crosschecked with the values defined in the PDD and found consistent.				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		Conclusion: The requirement is fulfilled.				
C.5	*DVM § 95d)* Is the calculation of emission reductions or enhancements of net removals calculated based on conservative assumptions and the most plausible scenarios in a transparent manner?	*Description:* The calculation of the emission reduction has been carried out in accordance with the requirements of the monitoring plan as defined in the PDD/PDD/. *Means of determination:* The emission reduction calculation performed by PP within the weekly ER reports as well as within the aggregated ER calculation files (monthly/annual) was crosschecked by the verification team and found appropriate. In particular, the verification team was able to confirm that formulae and calculation approach applied by PP is in accordance with the requirements specified in the registered PDD. The formulae are consistently applied in all ER calculation files. *Conclusion:* Considering the above said, it was concluded that the requirement is fulfilled.	/PDD/ /MR/ /XLS/			OK
	Applicable to JI SSC projects only					
C.6	*DVM § 96*	Not applicable, since the project activity is a large scale JI project.	/PDD/			OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?					
	Applicable to bundled JI SSC projects only					
C.7	*DVM § 97a)* Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	Not applicable, since the project activity is a large scale JI project.	/PDD/			OK
C.8	*DVM § 97b)* If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	Not applicable, since the project activity is a large scale JI project.	/PDD/			OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
C.9	*DVM § 98* If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, Are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?	Not applicable, since the project activity is a large scale JI project.	/PDD/			OK
D	***Revision of monitoring plan***					
	Applicable only if monitoring plan is revised by project participants					
D.1	*DVM § 99a)* Did the project participants provide an appropriate justification for the proposed revision?	Not applicable because the monitoring occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final.	/PDD/ /MR/ /XLS/			OK
D.2	*DVM § 99b)*	Not applicable because no deviations from the monitoring plan have been introduced.	/PDD/			OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?		/MR/ /XLS/			
E	***Data management***					
E.1	*DVM § 101a)* Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	*Description:* Project participant has appropriately implemented the procedures for the data management and the processing within the particular stages of the monitoring. The system includes double check procedures and is based on the four-eye principle. The monitoring of the emission reductions has been implemented by "Gafsa", LLC in accordance with the corresponding internal procedure/MR/ *"The JI monitoring procedures for the project activity "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine"".* *Means of determination:* The internal procedure/Mt-Pr/ for the GHG data management	/MR/ /MR/ /PDD/ /Mt-Pr/			OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		within the project activity has been provided. Based on this it could be concluded that the relevant tasks and responsibilities within the monitoring were clearly defined and are allocated to the personnel. The involved personnel are familiar with monitoring procedures and with the technology applied. According to the QA/QVC procedures each week JI Monitoring Manager prepares raw data files together with a weekly monitoring report and a weekly technical registry file and submits such weekly data set to the QA/QC manager. The main task of the QA/QC manager is to ensure that weekly recorded data is complete (i.e. there are no gaps) and is plausible with regard to the project operation performance. Based on the provided documents it could be verified that reported data is crosschecked by at least two people following the four eye principle. Finally the monitoring reports, which are submitted for verification are checked and approved by the project managers and responsible representatives of the PP. In particular, a sufficient confidence has been gained that the introduced two stage quality assurance system provides procedures and provisions for an accurate and appropriate monitoring of the generated emission reductions. Please also refer to the section C.1 with regards to the roles				

<table>
<tr><th>No.</th><th>DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)</th><th>Initial Finding (Means and results of assessment)</th><th>Ref.</th><th>Action requested to PPs (CAR, CL, FAR)</th><th>Review of PP´s action</th><th>Con-clu-sion</th></tr>
<tr><td></td><td></td><td>and responsibilities as well as to the section C.3 with regard to the presentation of the monitoring results.
Conclusion:
The procedures for data collections and QA/QC procedures have been checked and found appropriate and in line with provisions of the monitoring plan.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>E.2</td><td>DVM § 101b)
Is the function of the monitoring equipment, including its calibration status, is in order?</td><td>Description:
The PP has introduced procedures for ensuring the timely calibration of the applied monitoring equipment. The information related for the calibration of the applied equipment is included in the monitoring report.
Means of determination:
In the course of the onsite assessment the calibration certificates have been checked. The calibration dates as indicated in the monitoring report were found consistent with dates given in the corresponding calibration certificates. The tables below summarize the main technical data of the applied measurement device including the information about the accuracy and the calibration dates.
<u>LFG Gas Analyzer</u>
<table>
<tr><th>Measurement device</th><th>Relevant information</th><th>Name of supporting document</th></tr>
</table></td><td>/MP/
/XLS/
/PDD/
/MR/
/CGFM/
/MR/
/GCI-1/
/GCI-2/
/GCI-3/
/GCI-4/
/GCI-5/
/GCI-6/
/TS-GA/</td><td></td><td></td><td>OK</td></tr>
</table>

<table>
<tr><th>No.</th><th>DVM[3] paragraph / Checklist Item
(incl. guidance for the determination team)</th><th>Initial Finding
(Means and results of assessment)</th><th>Ref.</th><th>Action requested to PPs
(CAR, CL, FAR)</th><th>Review of PP´s action</th><th>Con-clu-sion</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Name of the measurement device</td><td colspan="2">LFG Gas Analyzer HOFGAS-Assay (ExTox)</td><td>Test Certificate IMC</td></tr>
<tr><td>Type /Number</td><td colspan="2">F09-123070-001</td><td>Test Certificate IMC</td></tr>
<tr><td rowspan="3">Accuracy class</td><td>CH4</td><td>+/- 1.0 %</td><td rowspan="3">Operating Instructions HOFGAS®- Ready 2000c CDM</td></tr>
<tr><td>(CO2 optional)</td><td>+/- 1.0 %</td></tr>
<tr><td>O2</td><td>+/- 1.0 %</td></tr>
<tr><td>Calibration frequency</td><td colspan="2">all 4 weeks</td><td>Operating Instructions HOFGAS®- Ready 2000c CDM</td></tr>
<tr><td>Calibration dates</td><td colspan="2">20-02-2009 (Initial calibration or data of commissioning)

From 02-2009 to 02-2011 every week

28-02-2011 (Date of the last calibration for the 1st Monitoring Period)</td><td>Test Certificate IMC</td></tr>
</table>
<u>Calibration gas mix. CH4+CO2+N2</u>
<table>
<tr><th>Measurement device</th><th>Relevant information</th><th>Name of supporting document</th></tr>
<tr><td>Measurement device</td><td>Landfill Gas Analyser The gas mixture CH4-N2</td><td>Passport # 252A-44/09</td></tr>
<tr><td>Type /Number</td><td>calibration gas cylinder # 25365</td><td>Passport # 252A-44/09</td></tr>
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/PDD/
/TS/
/CCT/
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No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion

Accuracy class	CH4	+/- 0.04 %	Passport # 252A-44/09
	N2	-	
Calibration frequency	every year		Passport # 252A-44/09
Calibration dates	from 16.04.2009 to 16.04.2010		Passport # 252A-44/09
Measurement device	Landfill Gas Analyser **The gas mixture N2-CO2-CH4**		Passport # 251A-44/09
Type /Number	calibration gas cylinder # 17908		Passport # 251A-44/09
Accuracy class	N2	+/- 0.2 %	Passport # 251A-44/09
	CO2	+/- 0.3 %	
	CH4	-	
Calibration frequency	every year		Passport # 251A-44/09
Calibration dates	from 16.04.2009 to 16.04.2010		Passport # 251A-44/09
Measurement device	Landfill Gas Analyser **The gas mixture O2-N2**		Passport # 248A-44/09
Type /Number	calibration gas cylinder # 14602		Passport # 248A-44/09
Accuracy class	O2	+/- 0.1 %	Passport # 248A-44/09
	N2	-	
Calibration frequency	every year		Passport # 248A-44/09
Calibration dates	from 16.04.2009 to 16.04.2010		Passport # 248A-44/09

<table>
<tr><th>No.</th><th>DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)</th><th>Initial Finding (Means and results of assessment)</th><th>Ref.</th><th>Action requested to PPs (CAR, CL, FAR)</th><th>Review of PP´s action</th><th>Con-clu-sion</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Measurement device</th><th colspan="2">Relevant information</th><th>Name of supporting document</th></tr>
<tr><td>Measurement device</td><td colspan="2">Landfill Gas Analyser The gas mixture CH4-N2</td><td>Certificate for the CBC # 1370-44/10</td></tr>
<tr><td>Type /Number</td><td colspan="2">calibration gas cylinder # 9601</td><td>Certificate for the CBC # 1370-44/10</td></tr>
<tr><td rowspan="2">Accuracy class</td><td>CH4</td><td>+/- 0.04 %</td><td rowspan="2">Certificate for the CBC # 1370-44/10</td></tr>
<tr><td>N2</td><td>-</td></tr>
<tr><td>Calibration frequency</td><td colspan="2">every year</td><td>Certificate for the CBC # 1370-44/10</td></tr>
<tr><td>Calibration dates</td><td colspan="2">from 24.04.2010 to 24.04.2011</td><td>Certificate for the CBC # 1370-44/10</td></tr>
<tr><td>Measurement device</td><td colspan="2">Landfill Gas Analyser The gas mixture CO2-N2--CH4</td><td>Certificate for the CBC # 1372-44/10</td></tr>
<tr><td>Type /Number</td><td colspan="2">calibration gas cylinder # 66596</td><td>Certificate for the CBC # 1372-44/10</td></tr>
<tr><td rowspan="3">Accuracy class</td><td>N2</td><td>-</td><td rowspan="3">Certificate for the CBC # 1372-44/10</td></tr>
<tr><td>CO2</td><td>+/- 0.3 %</td></tr>
<tr><td>CH4</td><td>+/- 0.4 %</td></tr>
<tr><td>Calibration frequency</td><td colspan="2">every year</td><td>Certificate for the CBC # 1372-44/10</td></tr>
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<table>
<tr><th>No.</th><th>DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)</th><th>Initial Finding (Means and results of assessment)</th><th>Ref.</th><th>Action requested to PPs (CAR, CL, FAR)</th><th>Review of PP´s action</th><th>Con-clu-sion</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Calibration dates</td><td colspan="2">from 24.04.2010 to 24.04.2011</td><td>Certificate for the CBC # 1372-44/10</td></tr>
<tr><td>Measurement device</td><td colspan="2">Landfill Gas Analyser
The gas mixture O2-N2</td><td>Certificate for the CBC # 1371-44/10</td></tr>
<tr><td>Type /Number</td><td colspan="2">calibration gas cylinder # 59577</td><td>Certificate for the CBC # 1371-44/10</td></tr>
<tr><td rowspan="2">Accuracy class</td><td>O2</td><td>+/- 0.1 %</td><td rowspan="2">Certificate for the CBC # 1371-44/10</td></tr>
<tr><td>N2</td><td>-</td></tr>
<tr><td>Calibration frequency</td><td colspan="2">every year</td><td>Certificate for the CBC # 1371-44/10</td></tr>
<tr><td>Calibration dates</td><td colspan="2">from 24.04.2010 to 24.04.2011</td><td>Certificate for the CBC # 1371-44/10</td></tr>
</table>
<u>Thermocouple</u>
<table>
<tr><th>Measurement device</th><th>Relevant information</th><th>Name of supporting document</th></tr>
<tr><td>Measurement device</td><td>Thermocouple Jumo TISAH 81.25</td><td>Calibration certificate # 2008-853</td></tr>
<tr><td>Type /Number</td><td># S 5885-00</td><td>Calibration certificate # 2008-853</td></tr>
<tr><td>Accuracy class</td><td>600 °C – 1000 °C = ± 0.9 °C</td><td>Calibration certificate # 2008-853</td></tr>
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No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion

	1000 °C – 1300 °C = ± 1.7 °C	
Calibration frequency	6 month >=3 yr.	Calibration certificate # 2008-853
Calibration dates	08.04.2008 10.02.2010 (exchange)	Calibration certificate # 2008-853 Confirmation of the primary calibration Ther mocouple # 6 on 10.02.2010

LFG Turbine Gas Flow Counter

Measurement device	Relevant information	Name of supporting document
Measurement device	LFG Turbine Gas Flow Counter Elster-Instromet AG	Calibration certificate # M07.26012 from 2009-01-16
Type /Number	PID H-10376: FIRT61.1: PIR61.1 TIR61.1 FIR61.1 Serial# 10510214	Calibration certificate # M07.26012 from 2009-01-16
Accuracy class	FIR61.1 =± 0.25 %	Calibration certificate # M07.26012 from 2009-01-16
Calibration frequency	Every 3 Years	EN Standard
Calibration	PIR61.1- 16.01.2009	Calibration

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		dates: TIR61.1- 16.01.2009, FIR61.1 - 16.01.2009; certificate # M07.26012 from 2009-01-16 *Conclusion:* Considering the above written, it was concluded that the requirement is fulfilled.				
E.3	*DVM § 101c)* Are the evidence and records used for the monitoring maintained in a traceable manner?	*Description:* The PP has implemented procedures for GHG data management, which specify the recording and the reporting form. *Means of determination:* The provided documented evidences comply with the internal requirements related to the form of the data recording and reporting. The evidences and records used for the monitoring are maintained in a traceable manner. It was observed that all relevant documentation is archived in hard copy and in the electronic form (in Word, Excel and WinRAR files). *Conclusion:* The requirement is fulfilled.	/MR/ /XLS/ /IM01/ /PDD/ /TS/ /MR/			OK
E.4	*DVM § 101d)* Is the data collection and	*Description:* The data collection and management system are in line with	/IM01/ /PDD/			OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	management system for the project in accordance with the monitoring plan?	provisions of the monitoring plan. *Means of determination:* The QA/QC procedures including the procedures for calibration have been assessed and found appropriate. The methodologies used in the monitoring report are consistent with those in the PDD/PDD/. For further details please refer to the section C.1 and C.3 of this Annex. *Conclusion:* The requirement is fulfilled.	/TS/ /MR/			
F	***Verification regarding programmes of activities (additional elements for assessment)***					
F.1	*DVM § 102* Is any JPA that has not been added to the JI PoA not verified?	Not applicable, since the project activity is a large scale JI project.				OK
F.2	*DVM § 103* Is the verification based on the monitoring reports of all JPAs to be verified?	Not applicable, since the project activity is a large scale JI project.				OK
F.3	*DVM § 103* Does the verification ensure the accuracy and conservativeness	Not applicable, since the project activity is a large scale JI project.				OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	of the emission reductions or enhancements of removals generated by each JPA?					
F.4	*DVM § 104* Does the monitoring period not overlap with previous monitoring periods?	Not applicable, since the project activity is a large scale JI project.				OK
F.5	*DVM § 105* *If the AIE learns of an erroneously included JPA,* has the AIE informed the JISC of its findings in writing?	Not applicable, since the project activity is a large scale JI project.				OK
	Applicable to sample-based approach only					
F.6	*DVM § 106* *Does the sampling plan prepared by the AIE:* *(a) Describe its sample selection, taking into account that:* *(i) For each verification that uses a sample-based approach,*	Not applicable, since the project activity is a large scale JI project.				OK

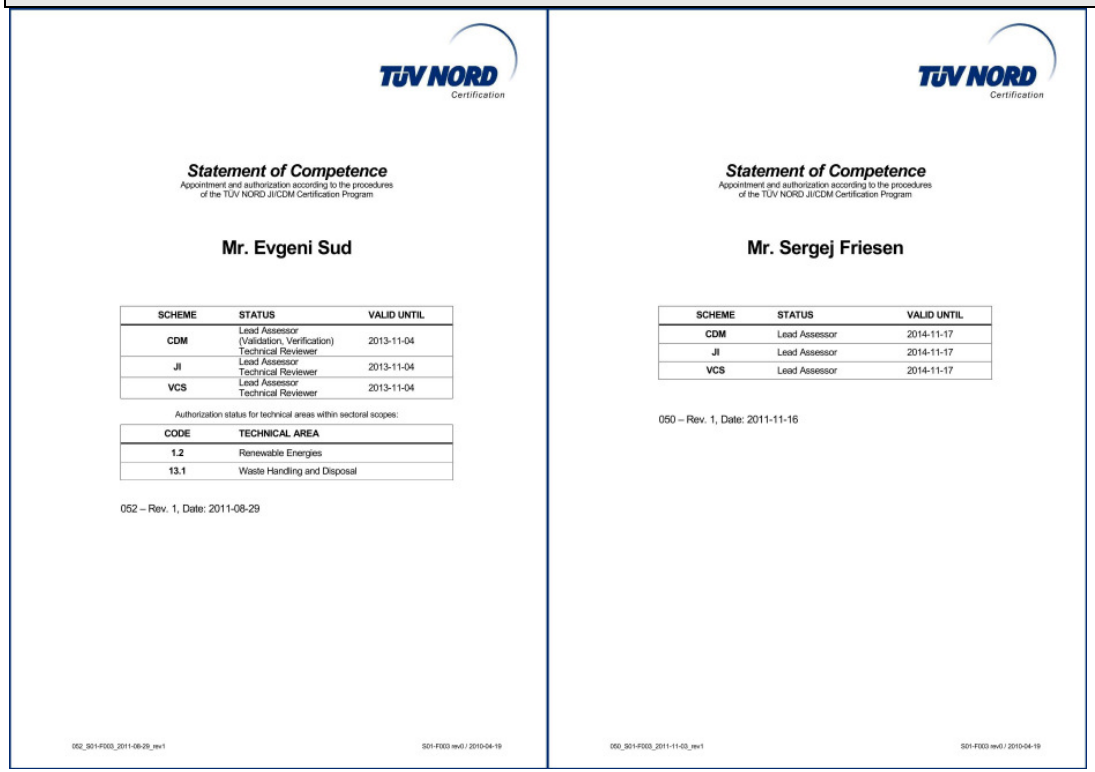
No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as: *− The types of JPAs;* *– The complexity of the applicable technologies and/or measures used;* *– The geographical location of each JPA;* *– The amounts of expected emission reductions of the JPAs being verified;* *– The number of JPAs for which emission reductions are being verified;* *– The length of monitoring periods of the JPAs being verified; and*					

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	– The samples selected for prior verifications, if any? *(ii) If, in its sample selection, the AIE does not identify and take into account such differences among JPAs, then (does the sampling plan) provide a reasonable explanation and justification for not doing so?* *(b) Provide a list of JPAs selected for site inspections, based on a statistically sound selection of sites for inspection in accordance with the criteria listed in (a) (i) above?*					
F.7	*DVM § 107* *Is the sampling plan ready for publication through the secretariat along with the*	*Please refer to F.6.*				OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	verification report and supporting documentation?					
F.8	*DVM § 108* *Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?*	*Please refer to F.6.*				OK
F.9	*DVM § 109* *Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)*	*Please refer to F.6.*				OK
	Applicable to both sample based and non-sample based approaches					
F.10	*DVM § 110*	*Please refer to F.6.*				OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?					

ANNEX 2: STATEMENTS OF COMPETENCE OF TEAM MEMBERS



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Evgeni Sud

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification) Technical Reviewer	2013-11-04
JI	Lead Assessor Technical Reviewer	2013-11-04
VCS	Lead Assessor Technical Reviewer	2013-11-04

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energies
13.1	Waste Handling and Disposal

052 – Rev. 1, Date: 2011-08-29

052_S01-F003_2011-08-29_rev1 S01-F003 rev0 / 2010-04-19

TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Sergej Friesen

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor	2014-11-17
JI	Lead Assessor	2014-11-17
VCS	Lead Assessor	2014-11-17

050 – Rev. 1, Date: 2011-11-16

050_S01-F003_2011-11-03_rev1 S01-F003 rev0 / 2010-04-19

TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Ulrich Walter

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification) Technical Reviewer	2014-12-08
JI	Lead Assessor Technical Reviewer	2014-12-08
VCS	Lead Assessor Technical Reviewer	2014-12-08

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.1	Thermal Energy Generation	
1.2	Renewable Energies	
2.1	Electricity Distribution	
2.2	Heat Distribution	
5.1	Chemical Process Industries	
11.1	Chemical Process Industries	
12.1	Chemical Process Industries	
13.1	Waste Handling and Disposal	13.1.1 Waste Management 13.1.2 Waste Water Management
13.2	Animal Waste Management	
15.2	Animal Waste Management	

149 - Rev. 3, Date: 2012-02-27

149_S01-F003_2012-02-27_rev3.doc S01-F003 rev1 / 2011-08-02

TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Rainer Winter

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2013-07-03
JI	Senior Assessor Technical Reviewer	2013-07-03
VCS	Senior Assessor Technical Reviewer	2013-07-03

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.1	Thermal Energy Generation	
1.2	Renewable Energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Tidal
4.1	Cement Sector	
4.3	Iron and Steel	
4.5	Waste Heat Recovery	
5.1	Chemical Process Industries	
9.1	Metal Production	
11.1	Chemical Process Industries	
11.2	GHG Capture and Destruction	
12.1	Chemical Process Industries	
13.1	Waste Handling and Disposal	13.1.1 Waste Management

003 – Rev. 5, Date: 2011-08-01

003_S01-F003_2011-08-01_rev5 S01-F003 rev0 / 2010-04-19