DETERMINATION REPORT

OJSC "OBLTEPLOCOMUNENERGO"

DETERMINATION OF THE LANDFILL GAS CAPTURE AND UTILIZATION AT CHERNIHIV MSW LANDFILL

REPORT NO. URRAINE-DET/0143/2010

REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Date of first issue:	Organizational unit:
21/07/2011	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
OJSC "Oblteplocomunenergo"	Yuriy Barbarov

Summary:

Bureau Veritas Certification has made the determination of the "Landfill gas capture and utilization at Chernihiv MSW landfill" project of OJSC "Oblteplocomunenergo" located in Chernihiv Region in the Northern part of Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The determination scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final determination report and opinion. The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the determination process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology developed according the Guidance on Criteria for Baseline Setting and Monitoring and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.:	Subject Group:
UKRAINE-det/0143/2010	JI

Project title:
Landfill gas capture and utilization at Chernihiv MSW landfill

Work carried out by:
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Date of this revision:	Rev. No.:	Number of pages:
16/08/2011	02	62

Indexing terms

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1 INTRODUCTION

OJSC "Oblteplocomunenergo" has commissioned Bureau Veritas Certification to determine its JI project "Landfill gas capture and utilization at Chernihiv MSW landfill" (hereafter called "the project") in Chernihiv Region in the Northern part of Ukraine.

This report summarizes the findings of the determination of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The determination serves as project design verification and is a requirement of all projects. The determination is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are determined in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emissions reductions units (ERUs).

UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

1.2 Scope

The determination scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

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

1.3 Determination team

The determination team consists of the following personnel:

Oleg Skoblyk
Bureau Veritas Certification Team Leader, Climate Change Verifier

Iuliia Pylnova

Bureau Veritas Certification Climate Change Verifier

Igor Kachan

Bureau Veritas Certification Climate Change Verifier

Denys Pishchalov
Bureau Veritas Certification Financial Specialist

This determination report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal reviewer

Pavlo Rosen
Bureau Veritas Certification Technical Specialist

2 METHODOLOGY

The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a determination protocol was customized for the project, according to the version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of determination and the results from determining the identified criteria. The determination protocol serves the following purposes:

- It organizes, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent determination process where the determiner will document how a particular requirement has been determined and the result of the determination.

The completed determination protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The Project Design Document (PDD) submitted by Institute of Engineering Ecology and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for users of the joint

implementation project design document form, Approved CDM methodology and/or Guidance on criteria for baseline setting and monitoring, Kyoto Protocol, Clarifications on Determination Requirements to be Checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Institute of Engineering Ecology revised the PDD and resubmitted it on 04/07/2011.

The determination findings presented in this report relate to the project as described in the PDD versions 03, 04, 05, 06, 07.

2.2 Follow-up Interviews

On 09/11/2010 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Institute of Engineering Ecology and OJSC "Oblteplocomunenergo" were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
OJSC "Oblteplocomunenergo", LLC "Styx Oil"	Organizational structure Responsibilities and authorities Roles and responsibilities for data collection and processing Installation of equipment Data logging, archiving and reporting Metering equipment control Metering record keeping system, database IT management Training of personnel Quality management procedures and technology Internal audits and check-ups
Institute of Engineering Ecology	Baseline methodology Revised monitoring plan Monitoring report

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

Corrective Action Request (CAR) is issued, where:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;

(b) The JI requirements have not been met;

(c) There is a risk that emission reductions cannot be monitored or calculated.

The determination team may also issue Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable JI requirements have been met.

The determination team may also issue Forward Action Request (FAR), informing the project participants of an issue that needs to be reviewed during the verification.

To guarantee the transparency of the determination process, the concerns raised are documented in more detail in the determination protocol in Appendix A.

3 PROJECT DESCRIPTION

The main goal of the project is reduction of the GHG (methane) emission into the atmosphere by means of collection and utilization of energy potential of the landfill gas (LFG) which is generated due to anaerobic decomposition of organic waste at Chernihiv municipal solid waste (MSW) landfill.

Uncontrolled landfill gas emissions into the environment generate the negative effect both of global and of local character. At the global level, the landfill gas is one of the strongest factors of green-house effect at the planet. At the local level, the LFG is the reason of increased fire and explosion danger at landfills, it presses the vegetation development in the area of its location, has the ability to fill the underground communications and by such a way to create the danger for human life.

Chernihiv city is a regional center of Chernihiv Region in Ukraine, with population of about 300 ths inhabitants, and nearly 30 large and a lot of average and small enterprises. The total amount of waste is delivered and stored at the Chernihiv municipal solid waste landfill, which operates since 1961. The landfill belongs to the category of highly loaded, the way of waste stowage is high-rise.

The landfill owner is Chernihiv community, represented by the Chernihiv District State Administration. According to the Decree of Chernihiv District State Administration № 263 from 30.04.2003, the land of total area

30.18 ha under the MSW landfill and its administrative bildings situated at the territory of Novy Bilous village council is given for permanent use to the Department of Municipal Household of the Chernihiv City Council for waste abolishment (governmental act to the right of permanent use of land series II-ЧН No. 001945 dated 03.10.2003). Chernihiv MSW landfill is operated by PE “Granplast”.

The authorities on re-cultivation of the landfill, LFG collection and utilization at the MSW landfill are delegated to the OJSC “Oblteplocomunenergo” by agreement with the Department of Municipal Household of the Chernihiv City Council (No. 616 dated 16.12.2009, with Additional agreement No. 1 dated 19.02.2010), and confirmed by the Decree of Chernihiv District State Administration No. 67 dated 11.03.2010.
The MSW abolishment through their burial at the landfills has been the only country strategy during many years. An anaerobic decomposition of municipal solid waste happens at the landfill with permanent methane emission, which decreases slowly with time without volley or escape emissions. The technology for the LFG capture and utilization of its energy potential is widely used in the world practice, however, it is quite new for Ukraine, and actually there is no experience of its implementation.
The namely landfill area takes 14 ha. Filling of the landfill with waste has been done by the way of local working charts with the operation areas of 1.5 to 3.5 ha. The waste storage was implemented by layers (with the thickness of 2 to 3 meters) with leveling and compression by heavy bulldozer. Such operation method has provided the landfill widening to the lateral directions and its gradual height increasing. In the result of this, the oval-like in plan body was created with the thickness of 6 to 20 m, in the average of 15 m.
At present the area for waste placing at the landfill is practically exhausted, the landfill is already almost fully filled and is subject to be closed in the nearest years, however the project for a new landfill is not ready so far, and exploitation of the old landfill obviously will be continued for some time (in reality at least up to 2012).
The project foresees construction of the landfill gas collection system for the LFG capture. Collected LFG through the local transport system and processing system will be supplied to the boiler-house of OJSC “Oblteplocomunenergo” to the new energy complex (EC) which will consist of four gas-turbine units (GTU) C65-ICHP produced by Capstone corporation (USA) and exhaust gases heat exchanger, with the total electric capacity of 260 kW and total heat capacity of 296 kW, as well as to the existing boilers for replacement (partly or completely) the natural gas for heat generation in form of hot water for the heating and hot water supply purposes. Electric power generated by this EC will be used for supplying the equipment of the boiler-house, heat energy – for preliminary heating of return network water. The local flaring system HOFGAS-Ready

800 for possible excess and emergency LFG combustion at the landfill site is designed as well.

The monitoring equipment will include flow meter and gas analyzer of LFG content which will register the gas amount, composition and parameters. The enterprise will have the ability for daily monitoring of LFG collection and utilization process.

Project implementation will enable to achieve:
1) Reduction of the GHG methane emission into the atmosphere from Chernihiv MSW landfill and receiving of additional investments to the project from the ERUs selling at least for the first commitment period according to the Kyoto Protocol.
2) Improvement of the fire safety of landfill operation.
3) Improvement of the atmospheric air conditions and general sanitary state at the territories situated around the MSW landfill.
4) Saving of the non-renewable energy sources due to LFG consumption for electricity production by CHP.
5) Saving of the non-renewable energy source - natural gas due to LFG consumption instead of the natural gas for heat production by boiler-house of the Chernihiv heat supply enterprise OJSC "Oblteplocomunenergo", with additional emission reduction.

Saving of the fossil energy sources consumed for the electricity and heat energy production will favour the economical attractiveness of the project implementation as well. Calculated project annual GHG emission reduction will be about 160 ths t CO_2e up to the end of the first commitment period as compared to the situation "business-as-usual".

Social impact of the project will be positive due to creation of the new work places.

The environmental impact of the project upon Chernihiv district is expected to be very positive since:
- The potential risk of waste self-firing at the MSW landfill will be reduced and gradually
eliminated that contributes to essential reduction of its operation danger;
- The environmental conditions around the landfill will become partially normal due to reduction of organoleptic, sanitary and migratory-air indicators of harmful substances ingress to the atmosphere and ground water;
- Proposed monitoring system will provide the clear measuring of results of the scheduled nature protection activity implementation;
- Contribution will be made to the implementation of the country commitments in accordance with the regulations of Kyoto Protocol to the UNFCCC.

Therefore, construction and operation of the LFG collection and utilization system at the Chernihiv MSW landfill, under conditions of the proper nature protection measures implementation and following the technical regulations, will have the environmental impact within the valid sanitary norms and will improve the living conditions of the population.

Technology of LFG capture and flaring and/or utilization is already widely used throughout the world. However, in Ukraine such technology is not spread due to financial barriers and absence of mandatory regulatory requirements for its implementation at old landfills. Only with the arising of possibility to use the JI mechanism for such projects, the real possibilities for implementation of this technology appeared in Ukraine.

The identified areas of concern as to Project description, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR 01, CAR 02, CL 01, CAR 07, CL 02, CL 06).

4 DETERMINATION CONCLUSIONS

In the following sections, the conclusions of the determination are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Determination Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 12 Corrective Action Requests, 13 Clarification Requests, and 1 Forward Action Request.

The number between brackets at the end of each section correspond to the DVM paragraph

4.1 Project approvals by Parties involved (19-20)

The National Environmental Investment Agency of Ukraine has issued the Letter of Endorsement for the JI Project "Landfill gas capture and utilization at Chernihiv MSW landfill" (No. 181/23/7 dated 03.03.2010).

The LoAs by Parties involved are expected to be issued after the project determination.

As the project has no approvals by the Parties involved, CAR 13 remains pending and will be closed after report finalizing (refer to the Appendix A).

4.2 Authorization of project participants by Parties involved (21)

The official authorization of each legal entity listed as project participant in the PDD by Parties involved will be provided in the written project approvals (refer to 4.1 above).

4.3 Baseline setting (22-26)

The PDD explicitly indicates that the approved consolidated baseline methodology ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities" (version 11, May 2009) and "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" (version 05.1.0, June 2011) were the selected approach for identifying the baseline.

The PDD uses the most recent determined version of the approved CDM methodology (ACM0001) when the PDD was submitted for publication on the UNFCCC JI website, allowing for a grace period of two months.

The PDD provides a description of why the referenced approved CDM methodology is applicable to the project.

The approved consolidated baseline methodology ACM0001 is applicable to landfill gas capture project activities, where the baseline scenario is the partial or total atmospheric release of the landfill gas and the project activities include situations such as:

(a) The captured gas is flared; and/or

(b) The captured gas is used to produce energy (e.g. electricity/thermal energy), including where the LFG displaces use of fossil fuel either in a boiler or in an air heater; and/or

(c) The captured gas is used to supply consumers through natural gas distribution network.

The project scenario foresees collection and utilization of the landfill gas for thermal energy production in the boiler-house, with replacing the corresponding amount of natural gas;

In excess and emergency cases the LFG will be flared.

Therefore, the project meets the applicability criteria of consolidated baseline methodology ACM0001.

The Bureau Veritas Certification hereby confirms that the selected baseline and monitoring methodology ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities" (version 11, May 2009) and "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" (version 05.1.0, June

2011) are previously approved by the CDM Executive Board, and are applicable to the project activity, which, complies with all the applicability conditions therein.

All explanations, descriptions and analyses pertaining to the baseline in the PDD are made in accordance with the referenced approved CDM methodology and the baseline is identified appropriately.

The identified areas of concern as to Baseline setting, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR 04, CAR 05, CL 04).

4.4 Additionality (27-31)

The PDD provides the title, reference number and version of the baseline and monitoring methodology used (ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities" (version 11, May 2009), as per item 4.3 above.

The PDD provides a description of why and how the referenced approved CDM methodology is applicable to the project, as per item 4.3 above.

All explanations, descriptions and analyses with regard to additionality are made in accordance with the selected methodology.

Additionality proofs are provided.

According to ACM0001, project additionality is demonstrated and assessed with using the «Tool for the demonstration and assessment of additionality» (version 5.2)

There are four steps of additionality test described below.
Step 1. Identification of alternatives to the project activity consistent with current laws and regulations (Alternative #1: Continuation of the current situation (no project activity or other alternatives undertaken); LFG is released into atmosphere, no LFG capture; thermal energy is produced by existing natural gas fired boiler-house, and electric energy for boiler-house needs is completely supplied from the power grid. Alternative #2: Extraction of LFG from the MSW landfill and its flaring with the purpose of methane emission reduction (without JI mechanism). Utilization of the LFG for electricity and thermal energy production is absent, electricity is taken from grid, thermal energy is produced by existing natural gas fired boiler-house. Alternative #3: Extraction and collection of LFG from the MSW landfill and its utilization in the Energy Complex for production of electricity and heat energy, and in existing boiler-house for production of heat energy and hot water-supply (the proposed project activity without JI

mechanism); there is substitution of fossil fuel (natural gas) by a renewable energy source – LFG, and substituting for electricity, that a boiler house consumes and electricity production to the grid).
Step 2. Investments analysis (benchmark analysis, calculation and comparison of financial indicators and sensitivity analysis).
Step 3. Barrier analysis (analysis of investment, technological, and organizational barriers).
Step 4: Common practice analysis
All steps of additionality test are satisfied, it is possible to make conclusion that the project activity is additional.

Therefore, additionality is demonstrated appropriately as a result of the steps mentioned above.

The identified areas of concern as to Additionality, project participants response and BV Certification's conclusion are described in Appendix A (refer to CL 10, CL 11, CAR 08, CAR 09, CAR 10, CL 11, CL 12, CAR 11, CAR 12).

4.5 Project boundary (32-33)

Bureau Veritas Certification determined the project boundary by assessment of the documentation (see the documents of Category 2 of References); observations during site-visit (09/11/2010); analysis of the usage of equipment (foreseen by project scenario) provided in the PDD version 07.

Based on the above assessment, the Bureau Veritas Certification hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which real action of the project began, and the starting date is 14/10/2009, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 16 years 6 months or 198 months.

The PDD states the length of the crediting period in years and months, which is 16 years and 6 months (the crediting period during first commitment period is 1,5 years or 18 months; the crediting period during the post-first commitment period is 15 years or 180 months), and its starting date as 01/07/2011, which is on the date the first emission reductions generated by the project.

The PDD states that the crediting period for the issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project.

The PDD states that the extension of its crediting period beyond 2012 is subject to the host Party approval, and the estimates of emission reductions are presented separately for those until 2012 and those after 2012 in all relevant sections of the PDD.

The identified areas of concern as to Crediting period, project participants response and BV Certification's conclusion are described in Appendix A (refer to CL 05).

4.7 Monitoring plan (35-39)

The PDD, in its monitoring plan section, explicitly indicates that approved CDM methodology approach ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities" (version 11, May 2009) was the selected.

The PDD provides the title, reference number and version of the baseline and monitoring methodology used, as mentioned above.

The PDD provides a description of why and how the referenced approved CDM methodology is applicable to the project, as per item 4.3 above.

All explanations, descriptions and analyses pertaining to monitoring in the PDD are made in accordance with the selected methodology.

The monitoring plan is established appropriately as a result.

The identified areas of concern as to Monitoring plan, project participants response and BV Certification's conclusion are described in Appendix A (refer to FAR 01, CL 07, CL 08).

4.8 Leakage (40-41)

The leakage and the procedure for its estimation are defined in accordance with the approved CDM methodology.
According to the methodology ACM0001 (version 11), no leakage effects need to be accounted under this methodology.

4.9 Estimation of emission reductions (42-47)

The estimation of emission reductions or enhancements of net removals is made in accordance with the approved CDM methodology ACM0001.

The estimates referred to above are given:

(a) On annual basis;

(b) From 01.07.2011 to 31.12.2027, covering the whole crediting period;

(c) On a source-by-source basis;

(d) For each GHG gas (in tonnes of CO_2 equivalent)

(e) In tonnes of CO_2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol;

Total emission reductions for the whole crediting period are 785 212 tonnes of CO_2 equivalent (emission reductions for the first commitment period are 125 006 tonnes of CO_2 equivalent).

The formulas used for calculating the estimates referred above, which are mentioned below, are consistent throughout the PDD.

According to the methodology ACM0001 “Consolidated baseline and monitoring methodology for landfill gas project activities” (version 11), emission reductions are calculated as follows:

$ER_y = BE_y - PE_y$

where:

ER_y - Emission reductions in year y, tCO_2e;

BE_y - Baseline emissions in year y, tCO_2e;

PE_y - Project emissions in year y, tCO_2e.

$BE_y = (MD_{project.y} – MD_{BL.y}) * GWP_{CH4} + EL_{LFG,y} * CEF_{elec,BL,,y} + ET_{LFG,y} * * CEF_{thermal,BL,y\ y}$

where:

BE_y - Baseline emissions in year y, tCO_2e;

$MD_{project,y}$ - The amount of methane that would have been destroyed/combusted during the year y, in project scenario, tCH_4;

$MD_{BL,y}$ - The amount of methane that would have been destroyed/combusted during the year in the absence of the project due to regulatory and/or contractual requirement, tCH_4;

GWP_{CH4} - Global Warming Potential value for methane, for the first commitment period is 21 tCO_2e/tCH_4;

$EL_{LFG,y}$ - Net quantity of electricity produced using LFG, which in the absence of the project activity would have been produced by power plants connected to the grid or by an on-site/off-site fossil fuel based captive power generation, during year y, MWh;

$CEFelec,_{BL,y}$ - Carbon emission factor of the baseline source of electricity displaced in Ukraine, tCO_2e/MWh;

$ET_{LFG,y}$ - The quantity of thermal energy produced utilizing the landfill gas, which in the absence of the project activity would have been produced from the fossil fuel fired boiler, during the year y, GJ;

$CEF_{ther,BL,y}$ - CO_2 emissions intensity of the fuel used by boiler to produce thermal energy which is displaced by LFG based thermal energy production, tCO_2e/GJ.

$MD_{BL.y} = MD_{project,y} * AF$

According to the baseline chosen, in the absence of the project activity no destroying / combustion of methane will take place, thus Adjustment Factor AF = 0, and $MD_{BL,y} = 0$.

$MD_{project,y}$ will be determined ex post by metering the actual quantity of methane captured and combusted to produce electricity and thermal energy once the project activity is operational.

According to the project, the whole captured methane will be completely combusted at the boiler-house to produce electricity and thermal energy, with emergency flaring.

$MD_{project,y} = MD_{flared,y} + MD_{electricity,y} + MD_{thermal,y} + MD_{PL,y}$

where:

$MD_{project.y}$ - quantity of methane captured and destroyed during the year y, tCH_4;

$MD_{flared,y}$ - quantity of methane destroyed by flaring during the year y, tCH_4;

$MD_{electricity,y}$ - quantity of methane destroyed for the generation of electricity during the year y, tCH_4;

$MD_{thermal,y}$ - quantity of methane destroyed for the production of thermal energy during the year y, tCH_4.

$MD_{PL,y\ y}$ - quantity of methane sent to the pipeline for feeding to the natural gas distribution network during the year y, tCH_4.

$MD_{flared,y} = (LFG_{flared,y} * w_{CH4,y} * D_{CH4}) – (PE_{flare,y} / GWP_{CH4})$

where:

$MD_{flared,y}$ - quantity of methane destroyed by flaring during the year y, tCH_4;

$LFG_{flared,y}$ - quantity of landfill gas fed to the flare during the year y, (m^3);

$w_{CH4,y}$ - average methane fraction of the landfill gas as measured during the year and expressed as a fraction, m^3CH_4/m^3 LFG;

D_{CH4} - methane density expressed in tonnes of methane per cubic meter of methane, tCH4/m³CH_4, at standard temperature and pressure (0 degree Celsius and 1.013 bar) the density of methane is 0.0007168 tCH_4/m³CH_4);

$PE_{flare,y}$ - project emissions from flaring of the residual gas stream in year y (tCO_2e), determined following the procedure described in the "Tool to determine project emissions from flaring gases containing methane";

GWP_{CH4} - Global Warming Potential value for methane, valid for the relevant commitment period (for the first commitment period is 21 tCO_{2e}/tCH_4).

$MD_{electricity,y} = LFG_{electricity,y} * w_{CH4,y} * D_{CH4}$

$MD_{electricity,y}$ - quantity of methane destroyed by generation of electricity during the year y, tCH_4;

$LFG_{electricity,y}$ - quantity of landfill gas fed to electricity generator (CGTU) during the year y, m³;

$w_{CH4,y}$ - average methane fraction of the landfill gas as measured during the year and expressed as a fraction, m³ CH_4/m³ LFG;

D_{CH4} - methane density expressed in tonnes of methane per cubic meter of methane, tCH_4/m³CH_4, at standard temperature and pressure (0 degree Celsius and 1.013 bar) the density of methane is 0.0007168 tCH_4/m³CH_4);

$MD_{thermal,y} = LFG_{thermal,y} * w_{CH4,y} * D_{CH4}$

where:

$MD_{thermal,y}$ - quantity of methane destroyed for the production of thermal energy during the year y, tCH_4;

$LFG_{thermal,y}$ - quantity of landfill gas fed into the boiler for the production of thermal energy during the year y, m³;

$w_{CH4,y}$ - average methane fraction of the landfill gas as measured during the year and expressed as a fraction, m³ CH_4/m³ LFG;

D_{CH4} - methane density expressed in tonnes of methane per cubic meter of methane, tCH_4/m³CH_4, at standard temperature and pressure (0 degree Celsius and 1.013 bar) the density of methane is 0.0007168 tCH_4/m³CH_4).

$CEF_{thermal,BL,y} = EF_{fuel,BL} / (\varepsilon_{boiler} * NCV_{fuel,\ BL})$

$CEF_{thermal,BL}$ - CO_2 emissions intensity of the fuel used by boiler to produce thermal energy which is displaced by LFG based thermal energy production, tCO_2e/GJ;

$EF_{fuel,BL}$ - emission factor of the fuel used in the boiler to produce thermal energy in the absence of the project activity, tCO_2/ths. m³;

ε_{boiler} - efficiency of the boiler used to produce thermal energy in the absence of the project activity;

$NCV_{fuel,\ BL}$ - net calorific value of fuel used in the boiler to produce thermal energy in the absence of the project activity (GJ / ths.m³).

$MD_{PL,y} = 0$

The ex ante estimation of the amount of methane that would have been destroyed/combusted during the year, in tonnes of methane ($MD_{project,y}$), is done with the approved "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" (version 05.1.0), considering the following additional equation:

$$MD_{project,y} = BE_{CH4,SWDS,y} / GWP_{CH4}$$

$$BE_{CH4,SWDS,y} = \varphi \cdot (1-f) \cdot GWP_{CH4} \cdot (1-OX) \cdot 16/12 \cdot F \cdot DOC_f \cdot MCF \cdot \sum_{x=1}^{y} \sum_{j} W_{j,x} \cdot DOC_j \cdot (e^{-k(y-x)} \cdot (1-e^{-k_j}))$$

where:

$BE_{CH4,SWDS,y}$ - methane emissions avoided during the year y from waste disposal at the landfill (SWDS) during the period from the start of the project activity to the end of the year y, tCO_2e;

φ - model correction factor to account for model uncertainties, 0.9;

f - fraction of methane captured at the landfill and flared, combusted or used in another manner (in our case 0);

GWP_{CH4} - Global Warming Potential for methane, valid for the relevant commitment period (for the first commitment period is 21 tCO_2e/tCH_4);

OX - oxidation factor (reflecting the amount of methane from landfill that is oxidized in the soil or other material covering the waste (in our case 0);

F - fraction of methane in the landfill gas (volume fraction), 0.5;

DOC_f - fraction of degradable organic carbon (DOC) that can decompose, 0.5;

MCF - methane correction factor (in our case 0.8);

$W_{j,x}$ - amount of organic waste type j disposed at the landfill in the year x, tons;

DOC_j - fraction of degradable organic carbon (by weight) in the waste type j;

k_j - decay rate for the waste type j;

j - waste type category (index);

x - year during the crediting period: x runs from the first year of the first crediting period (x = 1) to the year y for which avoided emissions are calculated (x = y);

y - year for which methane emissions are calculated.

$MD_{project,y}$ will be determined ex-post by measuring the actual amount of the methane (LFG) captured and utilized in result of the project activity.

According to the project, the whole captured methane will be completely combusted at the boiler-house to produce electricity and thermal energy.

Project emissions will be calculated as:

$$PE_y = PE_{EC,y} + PE_{FC,J,y}$$

where

$PE_{EC,y}$ - emissions from power consumption in the project scenario;

$PE_{FCj,y}$ - emissions from heat energy consumption produced from fossil fuel, in the project scenario;

Consumption of the heat energy produced from fossil fuel, in not included into the project boundaries, thus $PE_{EC,y} = 0$.

According to the project scenario, emissions are taking place from:

- combustion of LFG in the closed flare at the first stage of project execution, flaring efficiency is to be determined according to the "Tool to determine project emissions from flaring gases containing methane" (version 1). This Tool provides, in absence of continuous monitoring of the LFG flaring efficiency, using of 90% value, which is used in calculations;

- combustion of the natural gas in the boiler-house.

Thus, project emissions are calculated as:

$PE_{FC,J,\ y} = PE_{FC,f,y} + PE_{FC,b,y}$

where:

$PE_{FCf,y}$ - emissions from LFG flaring in the project scenario;

$PE_{FC,b,y}$ - emissions from natural gas combustion in the boiler-house in the project scenario.

For the preliminary estimation, project emissions PE_y are considered as equal to 0.

In case of consumption of electric power produced with the use of fossil fuel in project activity, the project emissions will include the emissions of CO_2e from production of this power. It will be taken into account during monitoring.

The emission reduction in the project will be controlled by means of direct measuring of the amount of methane actually captured and destroyed.

The estimates referred to above are consistent throughout the PDD.

The annual average of estimated emission reductions over the crediting period is calculated by dividing the total estimated emission over the crediting period by the total months of the crediting period, and multiplying by twelve.

The identified areas of concern as to Estimation of emission reductions, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR 03, CL 09).

4.10 Environmental impacts (48)

The PDD lists and attaches documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party.

In Ukraine the basic mechanisms directed on the account of ecological consequences of the planned activity at acceptance of decisions is the state ecological expertise (EE) and Environmental Impact Assessment (EIA).

The legislative requirements to EIA materials content are enshrined in the Article 36 of the Law of Ukraine «On ecological expertise». Requirements to the structure, composition and content of the EIA sections are enshrined in the state building norms of Ukraine DBN A.2.2-1-2003 “Composition and content of the Environmental Impact Assessment (EIA) materials at designing and construction of enterprises, buildings and premises”. Requirements to the content of documents being applied for the state ecological expertise are provided in Instruction on implementation of the state ecological expertise. Requirements to the content of ecological expertise conclusions are provided in the Article 43 of the Law of Ukraine «On ecological expertise».

By the order of the OJSC “Oblteplocomunenergo” that implements this project “Landfill gas capture and utilization at Chernihiv MSW landfill”, the company “Stics-Oil”, Ltd. has performed the Environmental Impact Assessment (EIA) of this project activity in accordance with Ukrainian regulations.

The PDD provides conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party (Ukraine).

The project activity will have no local or region negative environmental impact, the project will have general positive effect on the environment.

The identified areas of concern as to Environmental impacts, project participants response and BV Certification’s conclusion are described in Appendix A (refer to CAR 02, CAR 03, CL 03, CAR 04, CAR 05, CL 04, CAR 06, CL 05).

4.11 Stakeholder consultation (49)

Briefing of acting vice-chairman of the Chernihiv regional state administration Olexander Belsky on the subject "Participation of the Chernihiv region in the process of landfill gases discharge into the atmosphere reduction within the frames of Kyoto protocol" was held on 19.06.2007, at which journalists and all participants were informed about ecological projects, that will improve the Chernihiv region ecological situation and also make profits to the region, in particular about the project on landfill gas collection at the Chernihiv MSW landfill and utilization of this gas for the thermal energy production for heating and hot water-supply of Chernihiv population (*http://monitor.chernigov.net/arhiv-novin/u-planah-znachne-pokraschennya-ekologichnogo-stanu-ta-otrimannyavid-tsogo-do-2.html*).

The JI project “Landfill gas capture and utilization at Chernihiv MSW landfill” was represented at International conferences “Problems of ecology and exploitation of energy objects”, XVII (Yalta, June 5-9, 2007) and XVIII (Yalta, June 10-14, 2008), where it was comprehensively discussed by the participants of conference.

The report about intention was published in newspaper «Desnianska pravda» dated 11.01.2011 №2 (28116). Department of municipal economy of Chernihiv city council as well as other executive branches of the city council as to 15.02.2011 did not received any remarks or objections from the public in relation to intentions of implementation of the project “Landfill gas capture and utilization at Chernihiv MSW landfill”,

Since the project activity does not foresee any negative environmental impact and any negative social effect, there were no special consultations with stakeholders.

The identified areas of concern as to Stakeholder consultation, project participants response and BV Certification’s conclusion are described in Appendix A (refer to CAR 02, CAR 03, CL 03, CAR 04, CAR 05, CL 04, CAR 06, CL 05).

5 SUMMARY AND REPORT OF HOW DUE ACCOUNT WAS TAKEN OF COMMENTS RECEIVED PURSUANT TO PARAGRAPH 32 OF THE JI GUIDELINES

No comments, pursuant to paragraph 32 of the JI Guidelines, were received.

6 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of “Landfill gas capture and utilization at Chernihiv MSW landfill” project in Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The determination consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides barrier analysis and investment analysis and common practice analysis, to determine that the project activity itself is not the baseline scenario.

Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the

project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The determination revealed the pending issue related to the current determination stage of the project (the issue of the written approval of the project and the authorization of the project participant by the host Party). If the written approval and the authorization by the host Party are awarded, it is our opinion that the project as described in the Project Design Document, Version 07 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

The review of the project design documentation (version 07) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

The determination is based on the information made available to us and the engagement conditions detailed in this report.

7 REFERENCES

Category 1 Documents:
Documents provided by the Institute of Engineering Ecology that relate directly to the GHG components of the project.

/1/ PDD “Landfill gas capture and utilization at Chernihiv MSW landfill”, version 03 of 19.07.2010.
/2/ PDD “Landfill gas capture and utilization at Chernihiv MSW landfill”, version 04 of 17.09.2010.
/3/ PDD “Landfill gas capture and utilization at Chernihiv MSW landfill”, version 05 of 28.12.2010.
/4/ PDD “Landfill gas capture and utilization at Chernihiv MSW landfill”, version 06 of 21.06.2011.
/5/ PDD “Landfill gas capture and utilization at Chernihiv MSW landfill”, version 07 of 08.08.2011.
/6/ Excel file_PDD_ Landfill Gas Capture _Appendix A, B_2011.
/7/ Letter of endorsement #181/23/7 dated 03/03/2010 of "Landfill gas capture and utilization at Chernihiv MSW landfill" JI project

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/1/ Glossary of JI terms, version 03, JISC.
/2/ Guidance on Criteria for Baseline Setting and Monitoring, version 02, JISC.

/3/ Statement dated 01/11/2010 of commission concerning the place option of railway and middle pressure pipeline crossing in the area of Chernihiv-Pivnichnyi station
/4/ Conclusion #02-32/77-168 dated 12/04/2010 on land plot option (assigning) for building
/5/ Conclusion #09/843 dated 26/03/2010 on "Landfill gas capture and utilization at Chernihiv MSW landfill" project location (on the territory of Chernihiv region Novyi Bilous village council) agreement
/6/ Extract from Decision on building #85 dated 19/04/2010
/7/ Chernihivski Vidomosti newspaper, article under the heading: Announcement of competition on "Landfill gas capture and utilization at Chernihiv MSW landfill" project implementation executor
/8/ Chernihivski Vidomosti newspaper, article under the heading: Announcement of competition results on "Landfill gas capture and utilization at Chernihiv MSW landfill" project implementation executor
/9/ License #479048 dated 19/05/2009 on business activity connected with architectural objects erection
/10/ Civil construction regulations and land plot building restrictions #205 dated 07/07/2010
/11/ Regulation on competition rules on "Landfill gas capture and utilization at Chernihiv MSW landfill" project implementation
/12/ Protocol #2 on competition commission session on choosing of "Landfill gas capture and utilization at Chernihiv MSW landfill" project implementation executor
/13/ Boiler house reconstruction. Project stage. General clarification note. Drawings. 15-2007-ОПЗ; ТМ; ЭМ; АТМ; ГСВ; НВК. Volume 1.
/14/ Order #67 dated 11/03/2010 on Agreement of Civil Construction Regulations and Land Plot Building Restrictions. Annex 1 to the order, Civil Construction Regulations and Land Plot Building Restrictions
/15/ Power loading calculation
/16/ Land Survey for Landfill Gas Capture and Utilization System Implementation at Chernihiv MSW Landfill technical report, 2010
/17/ Engineer and Geological Survey for Landfill Gas Capture and Utilization System Implementation at Chernihiv MSW Landfill results technical report #19\04-2010-ІГ, 2010
/18/ Energy saving and energy efficiency technical requirements for project design documentation on objects building reconstruction and expanding, 25-013 dated 20/04/2010
/19/ Technical conditions #15 dated 13/04/2010 on fire safety
/20/ Technical conditions #84-10 dated 09/07/2010 on electricity network connection
/21/ Landfill Gas Capture and Utilization System Implementation at

Chernihiv MSW Landfill. Volume 1. Landfill degassing. Part 1. General clarification note

/22/ Landfill Gas Capture and Utilization System Implementation at Chernihiv MSW Landfill. Volume 1. Landfill degassing. Part 2. Drawing

Persons interviewed:

List persons interviewed during the determination or persons that contributed with other information that are not included in the documents listed above.

/1/ R. Zhylkovskyi – director of LLC “Styx Oil”

/2/ V. Usatenko - chief engineer of LLC “Styx Oil”

/3/ O.Teterya – deputy operational chairman

/4/ S. Korolenko - chief engineer of POE “Granplast”

/5/ D. Paderno – deputy director of the Institute of Engineering Ecology

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DETERMINATION PROTOCOL

Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
General description of the project				
Title of the project				
-	Is the title of the project presented?	The title of the project "Landfill gas capture and utilization at Chernihiv MSW landfill" is presented.	OK	OK
-	Is the sectoral scope to which the project pertains presented?	Yes. Sectoral scope 13: Waste handling and disposal.	OK	OK
-	Is the current version number of the document presented?	The current version nember of the document is presented.	OK	OK
-	Is the date when the document was completed presented?	8 August 2011 is the date of the document completion.	OK	OK
Description of the project				
-	Is the purpose of the project included with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	Description of the situation existing prior to the starting date, baseline, and project scenario is presented in the section A.2 of the PDD. **CL 01.** Please, revise in the section A.2 information concerning economical attractiveness of the project implementation (Kyoto protocol projects should not be economically attractive).	CL 01	OK
-	Is the history of the project (incl. its JI component) briefly summarized?	**CL 02.** Please, describe brief history of JI component of the project.	CL 02	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	Parties involved are listed in the section A.3 of the PDD. **CAR 01.** Please, make the format of the A.3 table correct. **CAR 02.** Please, define the Party involved other than Host country, or indicate in the A.3 table that the Party involved to be defined.	CAR 01 CAR 02	OK OK
-	Is the data of the project participants presented in tabular format?	The data of the project participants is presented in the tabular format.	OK	OK
-	Is contact information provided in Annex 1 of the PDD?	Contact information is provided in Annex 1 of the PDD.	OK	OK
-	Is it indicated, if it is the case, if the Party involved is a host Party?	Party involved Ukraine is a host Party.	OK	OK
Technical description of the project				
Location of the project				
-	Host Party(ies)	Ukraine is a host Party.	OK	OK
-	Region/State/Province etc.	Chernihiv Region.	OK	OK
-	City/Town/Community etc.	Chernihiv city	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page).	Detail of the physical location of the project is indicated in the section A.4.1.4 of the PDD.	OK	OK
Technologies to be employed, or measures, operations or actions to be implemented by the project				
-	Are the technology(ies) to be employed, or measures, operations or actions to be implemented by the project, including all relevant technical data and the implementation schedule described?	The technologies to be employed and measures to be implemented are described in the implementation schedule of the PDD section A.4.2.	OK	OK
Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances				
-	Is it stated how anthropogenic GHG emission	In the section A.4.3, it is stated how anthropogenic GHG	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	reductions are to be achieved? (This section should not exceed one page)	emission reductions are to be achieved.		
-	Is it provided the estimation of emission reductions over the crediting period?	**CAR 03.** The total estimated emission reduction over post-first commitment period is inaccurately calculated. Please, make necessary amendments.	CAR 03	OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO_2e?	The estimated annual reduction for the chosen credit period in tCO_2e is provided in the section A.4.3.1.	OK	OK
-	Are the data from questions above presented in tabular format?	The data from questions above are presented in tabular format.	OK	OK
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period indicated?	**CL 05.** Please, indicate in the section C.3 not only duration of the first commitment period, but also duration of post-first commitment period (please, pay attention that duration of the crediting period in the PDD section A.4.3.1 should coincide with the duration in the PDD section C.1).	CL 05	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO_2 equivalent provided?	See CAR 03 of this table.	See CAR 03	OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	**CAR 13.** There are no letters of approval from Parties involved.	CAR 13	Pending
19	Does the PDD identify at least the host Party as a "Party involved"?	The PDD identifies the host Party as a Party involved.	OK	OK
19	Has the DFP of the host Party issued a written project approval?	See CAR 13 of this table.	See CAR 13	OK
20	Are all the written project approvals by Parties involved unconditional?	Yes. All the written project approvals by Parties involved will be unconditional.	OK	OK
Authorization of project participants by Parties involved				
21	Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD,	**CAR 07.** Please, delete empty table of the Annex 1 of the PDD.	CAR 07	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	through: − A written project approval by a Party involved, explicitly indicating the name of the legal entity? or − Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?	**CL 03.** Please indicate if the person/entity is also a project participant listed in Annex 1.	CL 03	OK
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline? − JI specific approach − Approved CDM methodology approach	PDD indicates that approved CDM methodology ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities" (version 11, May 2009), and "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" (version 05.1.0, June 2011) are used for identifying the baseline.	OK	OK
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	N/A	N/A	N/A
23	Does the PDD provide justification that the baseline is established: (a) By listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one? (b) Taking into account relevant national and/or sectoral policies and circumstance? − Are key factors that affect a baseline taken into account? (c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, date sources and key factors?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(d) Taking into account of uncertainties and using conservative assumptions? (e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure? (f) By drawing on the list of standard variables contained in appendix B to "Guidance on criteria for baseline setting and monitoring", as appropriate?			
24	If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements or combinations together with the elements supplementary developed by the project participants in line with 23 above?	N/A	N/A	N/A
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	N/A	N/A	N/A
Approved CDM methodology approach only				
26 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	The PDD provides the title, reference number and version of the approved CDM methodology used.	OK	OK
26 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	The approved CDM methodology is the most recent valid version when the PDD is submitted for publication.	OK	OK
26 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	The PDD section B.1 provides a description of why the approved CDM methodology ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities" (version 11, May 2009) is applicable to the project.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
26 (c)	Are all explanations, descriptions and analyses pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?	There are no deviations (in the PDD) from the referenced approved CDM methodology. **CAR 05.** Please, fill up all the necessary lines of tables (section B.1 of the PDD) with data and parameters (for example, lines "source of data"). **CL 04.** Please, clarify the situation with dividing waste into several types. During the site-visit verifiers found out the fact that there is no waste sorting at the Chernihiv municipal solid waste; but in the PDD different waste types are described (please, see section B.1 of the PDD). **CL 06.** Please, indicate not only the version of "Tool to determine project emissions from flaring gases containing methane, but also the date".	 CAR 05 CL 04 CL 06	 OK OK OK
26 (d)	Is the baseline identified appropriately as a result?	The baseline is appropriately identified.	OK	OK
Additionality				
JI specific approach only				
28	Does the PDD indicate which of the following approaches for demonstrating additionality is used? (a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be)	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	implemented under comparable circumstances has additionality; (c) Application of the most recent version of the "Tool for the demonstration and assessment of additionality. (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board".			
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	N/A	N/A	N/A
29 (b)	Are additionality proofs provided?	N/A	N/A	N/A
29 (c)	Is the additionality demonstrated appropriately as a result?	N/A	N/A	N/A
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	N/A	N/A	N/A
Approved CDM methodology approach only				
31 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	The PDD provides the title, reference number and version of the approved CDM methodology used.	OK	OK
31 (b)	Does the PDD provide a description of why and how the referenced approved CDM methodology is applicable to the project?	The PDD section B.1 provides a description of why the approved CDM methodology ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities" (version 11, May 2009) is applicable to the project.	OK	OK
31 (c)	Are all explanations, descriptions and analyses with regard to additionality made in accordance with the selected methodology?	**CL 10**. Please, note that according to the Tool for the demonstration and assessment of additionality, investment analysis shall be based on the information available to investor as of the project decision date. Taking into account that the project has been started in October 2009, it looks reasonable to use the rates available as of September 2009	CL 10	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		or earlier.		
		CL 11. Please, pay attention that the calculations are made in EUR, therefore the loans denominated in foreign currency would be more appropriate.	CL 11	OK
		CAR 08. The long term financial model requires adjustment for inflation. Please, do it either by adjusting values for each year by some inflation factor or (it is best) deriving real IRR benchmark from the nominal rate.	CAR 08	OK
		CAR 10. Sensitivity analysis contains mistakes in calculation of the IRR values for deviation scenarios. In particular IRR formulas in Excel table Appendix B refer to shorter period than 2010-2027. Please, correct.	CAR 10	OK
		CL 13. Please, indicate whether tariffs, costs and investment values are indicated with VAT included or not.	CL 13	OK
		CAR 11. Please, provide the reference for the source of electricity and natural gas price data.	CAR 11	OK
31 (d)	Are additionality proofs provided?	**CAR 09.** Please, remove the reference to the “alternative scenario 2” IRR calculations in the text of PDD and appendix B as well as they are not used for the additionality prove.	CAR 09	OK
		CL 12. Please, making the investment analysis, please, include the fair value of the assets at the end of assessment period to the cash flow for the final year of financial model.	CL 12	OK
		CAR 12. The Appendix B has submitted in Ukrainian version only. Please, note that English version of the document shall be submitted as well as it constitutes integral part of the PDD.	CAR 12	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
31 (e)	Is the additionality demonstrated appropriately as a result?	Generally, the additionality is demonstrated appropriately as a result.	OK	OK
Project boundary (applicable except for JI LULUCF projects				
JI specific approach only				
32 (a)	Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?	N/A	N/A	N/A
32 (b)	Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above?	N/A	N/A	N/A
32 (c)	Are the delineation of the project boundary and the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	N/A	N/A	N/A
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified?	N/A	N/A	N/A
Approved CDM methodology approach only				
33	Is the project boundary defined in accordance with the approved CDM methodology?	The project boundary is appropriately defined in PDD section B.3.	OK	OK
Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began?	**CAR 06.** Please, give documentary evidence of the project starting date	CAR 06	OK
34 (a)	Is the starting date after the beginning of 2000?	The starting date is after the beginning of 2000.	OK	OK
34 (b)	Does the PDD state the expected operational	See section C.2 of the PDD.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	lifetime of the project in years and months?			
34 (c)	Does the PDD state the length of the crediting period in years and months?	Yes. The PDD states the length of the crediting period in years and months. See CL 05 of this table.	See CL 05	OK
34 (c)	Is the starting date of the crediting period on or after the date of the first emission reductions or enhancements of net removals generated by the project?	The starting date of the crediting period is on the date of the first emission reductions generated by the project.	OK	OK
34 (d)	Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project?	The PDD states that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project.	OK	OK
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of emission reductions or enhancements of net removals presented separately for those until 2012 and those after 2012?	The estimates of emission reductions are presented separately for those until 2012 and those after 2012.	OK	Ok
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? − JI specific approach − Approved CDM methodology approach	Monitoring methodology of the project in accordance with approved consolidated baseline methodology ACM0001 “Consolidated baseline methodology for the projects activity from landfill gas” (version 11) is based on the direct measurement of the amount of captured and destroyed landfill gas.	OK	OK
JI specific approach only				
36 (a)	Does the monitoring plan describe: − All relevant factors and key characteristics that will be monitored? − The period in which they will be monitored? − All decisive factors for the control and	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	reporting of project performance?			
36 (b)	Does the monitoring plan specify the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	N/A	N/A	N/A
36 (b)	If default values are used: − Are accuracy and reasonableness carefully balanced in their selection? − Do the default values originate from recognized sources? − Are the default values supported by statistical analyses providing reasonable confidence levels? − Are the default values presented in a transparent manner?	N/A	N/A	N/A
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	N/A	N/A	N/A
36 (b) (ii)	For other values, − Does the monitoring plan clearly indicate the precise references from which these values are taken? − Is the conservativeness of the values provided justified?	N/A	N/A	N/A
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	N/A	N/A	N/A
36 (b) (iv)	Are International System Unit (SI units) used?	N/A	N/A	N/A
36 (b) (v)	Does the monitoring plan note any parameters, coefficients, variables, etc. that are used to	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	calculate baseline emissions or net removals but are obtained through monitoring?			
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	N/A	N/A	N/A
36 (c)	Does the monitoring plan draw on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring"?	N/A	N/A	N/A
36 (d)	Does the monitoring plan explicitly and clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored throughout the crediting period?	N/A	N/A	N/A
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	N/A	N/A	N/A
36 (f)	Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	emission reductions from the project, leakage, as appropriate?			
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	N/A	N/A	N/A
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	N/A	N/A	N/A
36 (f) (iii)	Are all equations numbered?	N/A	N/A	N/A
36 (f) (iv)	Are all variables, with units indicated defined?	N/A	N/A	N/A
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	N/A	N/A	N/A
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	N/A	N/A	N/A
36 (f) (vi)	Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline ensured?	N/A	N/A	N/A
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	N/A	N/A	N/A
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	N/A	N/A	N/A
36 (f) (vii)	Are references provided as necessary?	N/A	N/A	N/A
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	N/A	N/A	N/A
36 (f) (vii)	Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	N/A	N/A	N/A
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the calculation of emission reductions or enhancements of net removals provided?			
36 (g)	Does the monitoring plan identify a national or international monitoring standard if such standard has to be and/or is applied to certain aspects of the project? Does the monitoring plan provide a reference as to where a detailed description of the standard can be found?	N/A	N/A	N/A
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	N/A	N/A	N/A
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	N/A	N/A	N/A
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	N/A	N/A	N/A
36 (k)	Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? If it is a JI LULUCF project, is the good practice guidance developed by IPCC applied?	N/A	N/A	N/A
36 (l)	Does the monitoring plan provide, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources but not including data that are calculated with	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	equations?			
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project?	N/A	N/A	N/A
37	If selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants in line with 36 above?	N/A	N/A	N/A
Approved CDM methodology approach only				
38 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	The PDD provides the title, reference number and version of the approved CDM methodology used.	OK	OK
38 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	The approved CDM methodology is the most recent valid version when the PDD is submitted for publication.	OK	OK
38 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	The PDD section B.1 provides a description of why the approved CDM methodology ACM0001 “Consolidated baseline and monitoring methodology for landfill gas project activities” (version 11, May 2009) is applicable to the project.	OK	OK
38 (c)	Are all explanations, descriptions and analyses pertaining to monitoring in the PDD made in accordance with the referenced approved CDM methodology?	There are no deviations (in the PDD) from the referenced approved CDM methodology. **CL 07.** Please, in the table of section D.1.2.1, fill up cells which were left blank (please, see point 19 of the table).	CL 07	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CL 08. Please, clearly explain why section D.1.5 of the PDD is not applicable to the project.	CL 08	OK
38 (d)	Is the monitoring plan established appropriately as a result?	Generally, the monitoring plan is appropriately established as a result.	OK	OK
Applicable to both JI specific approach and approved CDM methodology approach				
39	If the monitoring plan indicates overlapping monitoring periods during the crediting period: (a) Is the underlying project composed of clearly identifiable components for which emission reductions or enhancements of removals can be calculated independently? (b) Can monitoring be performed independently for each of these components (i.e. the data/parameters monitored for one component are not dependent on/effect data/parameters to be monitored for another component)? (c) Does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met? (d) Does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned in (a)-(c) are met?	The monitoring plan does not indicate overlapping monitoring periods during the crediting period.	OK	OK
Leakage				
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	be neglected?			
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	N/A	N/A	N/A
Approved CDM methodology approach only				
41	Are the leakage and the procedure for its estimation defined in accordance with the approved CDM methodology?	**CL 09.** Please, indicate in the section E.3 that sum of the project emissions and leakages is equal to project emissions, because leakages = 0.	CL 09	OK
Estimation of emission reductions or enhancements of net removals				
42	Does the PDD indicate which of the following approaches it chooses? (a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions	The PDD indicates that direct assessment of emission reductions is the approach chosen.	OK	OK
43	If the approach (a) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emissions or net removals for the project scenario (within the project boundary)? (b) Leakage, as applicable? (c) Emissions or net removals for the baseline scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?	N/A	N/A	N/A
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emission reductions or enhancements of net removals (within the project boundary)? (b) Leakage, as applicable? (c) Emission reductions or enhancements of net removals adjusted by leakage?	PDD provides ex ante estimates of emission reductions. According to the methodology ACM0001, no leakage effects need to be accounted under this methodology. See CL 09 of this table.	See CL 09	OK
45	For both approaches in 42 (a) Are the estimates in 43 or 44 given:	The estimates of emission reductions are given on a periodic basis; from the beginning until the end of the crediting		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(i) On a periodic basis? (ii) At least from the beginning until the end of the crediting period? (iii) On a source-by-source/sink-by-sink basis? (iv) For each GHG? (v) In tones of CO_2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol? (b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD? (c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as appropriate? (d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent? (e) Are emission factors (including default emission factors) if used for calculating the estimates in 43 or 44 selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice? (f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner? (g) Are the estimates in 43 or 44 consistent throughout the PDD?	period; The formula used for calculating emission reductions are consistent throughout the PDD. **CAR 04.** Please, give references (in the PDD) to the 1996 IPCC Guidelines for National Greenhouse Gas Inventories not to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. For the present, 1996 IPCC Guidelines is the only one approved. Emission factors used for calculating emission reductions are selected by carefully balancing accuracy and reasonableness. The estimations of emission reductions are based on conservative assumptions.	CAR 04	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(h) Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?	The annual average of estimated emission reductions is calculated by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve. **FAR 01.** Please, note (in the PDD) that data to be monitored and required for determination are to be kept for two years after the last transfer of ERUs for the project. Also the order concerning the procedure for keeping monitoring data should be issued.	FAR 01	The issue will be checked during the first verification
46	If the calculation of the baseline emissions or net removals is to be performed ex post, does the PDD include an illustrative ex ante emissions or net removals calculation?	PDD includes an illustrative ex ante emissions calculation.	OK	OK
Approved CDM methodology approach only				
47 (a)	Is the estimation of emission reductions or enhancements of net removals made in accordance with the approved CDM methodology?	The estimation of emission reductions made in accordance with the approved CDM methodology.	OK	OK
47 (b)	Is the estimation of emission reductions or enhancements of net removals presented in the PDD: − On a periodic basis? − At least from the beginning until the end of the crediting period? − On a source-by-source/sink-by-sink basis? − For each GHG? − In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol? − Are the formula used for calculating the	The estimates of emission reductions are given on a periodic basis; from the beginning until the end of the crediting period; The formula used for calculating emission reductions are	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	estimates consistent throughout the PDD? − Are the estimates consistent throughout the PDD? − Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?	consistent throughout the PDD. The annual average of estimated emission reductions is calculated by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve.		
Environmental impacts				
48 (a)	Does the PDD list and attach documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	See section F.1 of the PDD.	OK	OK
48 (b)	If the analysis in 48 (a) indicates that the environmental impacts are considered significant by the project participants or the host Party, does the PDD provide conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party?	Environmental Impact Assessment is directed on determination of scales and levels of the project activity impact on an environment, on development of measures for prevention or reduction of this impact, on estimation of acceptability of project decisions from the ecological point of view. The EIA is inalienable part of project documentation of any economical activity, but does not influence on the process of economic decisions acceptance. The EIA is conducted under the strict requirements. The legislative requirements to EIA materials content are enshrined in the Article 36 of the Law of Ukraine «On ecological expertise». Requirements to the structure, composition and content of the EIA sections are enshrined in the state building norms of Ukraine DBN A.2.2-1-2003 “Composition and content of the Environmental Impact Assessment (EIA) materials at designing and construction of enterprises, buildings and premises”. Requirements to the	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		content of documents being applied for the state ecological expertise are provided in Instruction on implementation of the state ecological expertise. Requirements to the content of ecological expertise conclusions are provided in the Article 43 of the Law of Ukraine «On ecological expertise». Also see section F.2 of the PDD.		
Environmental impacts				
49	If stakeholder consultation was undertaken in accordance with the procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom comments on the projects have been received, if any? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?	See section G.1 of the PDD.	OK	OK
Determination regarding small-scale projects (additional elements for assessment)				
50	Does the PDD appropriately specify and justify the SSC project type(s) and category(ies) that fall under: (a) One of the types and thresholds of JI SSC projects as defined in Provisions for joint implementation small-scale projects? If the project contains more than one JI SSC project type component, does each component meet the relevant threshold criterion? (b) One of the SSC project categories defined in the most recent version of appendix B of annex II to decision 4/CMP.1, or an additional project category approved by the JISC in accordance with the relevant provision in "Provisions for joint implementation small-scale projects"?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
51	Does the SSC PDD confirms and shows that the proposed JI SSC project is not a debundled component of a large project by explaining that there does not exist a JI (SSC) project with a publicly available determination in accordance with paragraph 34 of the JI guidelines: (a) Which has the same project participants; and (b) Which applies the same technology/measure and pertains to the same project category; and (c) Whose determination has been made publicly available in accordance with paragraph 34 of the JI guidelines within the previous 2 years; and (d) Whose project boundary is within 1 km of the project boundary of the proposed JI SSC project at the closest point?	N/A	N/A	N/A
Applicable to bundled JI SSC projects only				
52 (a)	Do all projects in the bundle: (i) Have the same crediting period? (ii) Comply with the provisions for JI SSC projects defined in "Provisions for joint implementation small-scale projects", in particular the thresholds referred to in 50 (a) above? (iii) Retain their distinctive characteristics (i.e. location, technology/measure etc.)?	N/A	N/A	N/A
52 (b)	Does the composition of the bundle not change over time?	N/A	N/A	N/A
52 (c)	Has the AIE received (from the project participants): (i) Information on the bundle using the form	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	developed by the JISC (F-JI-SSCBUNDLE)? (ii) A written statement signed by all project participants indicating that they agree that their individual projects are part of the bundle and nominating one project participant to represent all project participants in communicating with the JISC? (iii) Indication by the Parties involved that they are aware of the bundle in their project approvals referred to in 19 above?			
53	If the project participants prepared a single SSC PDD for the bundled JI SSC projects, do(are) all the projects: (a) Pertain to the same JI SSC project category? (b) Apply the same technology or measure? (c) Located in the territory of the same host Party?	N/A	N/A	N/A
54	If the project participants prepared separate SSC PDDs for the bundled JI SSC projects, do(are) all the projects: (a) Have SSC PDDs been prepared for all JI SSC projects in the bundle? (b) Does each SSC PDD contain a single JI SCC project in the bundle?	N/A	N/A	N/A
55	If the projects in the bundle use the same baseline, does the F-JI-SSC-BUNDLE provide an appropriate justification for the use of the same baseline considering the particular situation of each project in the bundle?	N/A	N/A	N/A
56	Does the PDD indicate which of the following approaches is used for establishing a monitoring plan?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(a) By preparing a separate monitoring plan for each of the constituent projects; (b) By preparing an overall monitoring plan including a proposal of monitoring of performance of the constituent projects on a sample basis, as appropriate.			
56 (b)	If the approach 57 (b) above is used, (i) Are all the JI SSC projects located in the territory of the same host Party? (ii) Do all the JI SSC projects pertain to the same project category? (iii) Do all the JI SSC projects apply the same technology or measure? (iv) Does the overall monitoring plan reflect good monitoring practice appropriate to the bundled JI SSC projects and provide for collection and archiving of the data needed to calculate the emission reductions achieved by the bundled projects?	N/A	N/A	N/A
Applicable to all JI SSC projects				
57	Is the leakage only within the boundaries of non-Annex I Parties considered?	N/A	N/A	N/A
Determination regarding land use, land-use change and forestry projects (additional/alternative elements for assessment)				
58	Does the PDD appropriately specify how the LULUCF project conforms to: (a) The definitions of LULUCF activities included in paragraph 1 of the annex to decision 16/CMP.1, applying good practice guidance for LULUCF as decided by the CMP, as appropriate? (b) In the case of afforestation, reforestation and/or forest management projects, the	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	definition of "forest" selected by the host Party, which specifies: (i) A single minimum tree crown cover value (between 10 and 30 per cent)? and (ii) A single minimum land area value (between 0.05 and 1 hectare)? and (iii) A single minimum tree height value (between 2 and 5 metres)?			
JI specific approach only				
59	Baseline setting - in addition to 22-26 above Does the PDD provide an explanation how the baseline chosen: − Takes into account the good practice guidance for LULUCF, developed by the IPCC? − Ensures conformity with the definitions, accounting rules, modalities and guidelines under Article 3, paragraphs 3 and 4, of the Kyoto Protocol?	N/A	N/A	N/A
60	Project boundary - alternative to 32-33 (a) Does the project boundary geographically delineate the JI LULUCF project under the control of the project participants? (a) If the JI LULUCF project contains more than one discrete area of land, (i) Does each discrete area of land have a unique geographical identification? (ii) Is the boundary defined for each discrete area? (ii) Does the boundary not include the areas in between these discrete areas of land? (b) Does the project boundary encompass all anthropogenic emissions by sources and removals by sinks of GHGs which are:	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(i) Under the control of the project participants; (ii) Reasonably attributable to the project; and (iii) Significant? (c) Does the project boundary account for all changes in the following carbon pools: − Above-ground biomass; − Below-ground biomass; − Litter; − Dead wood; and − Soil organic carbon? (c) Does the PDD provide: (i) The information of which carbon pools are selected? (ii) If one or more carbon pools are not selected, transparent and verifiable information that indicates, based on conservative assumptions, that the pool is not a source? (d) Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria in (b) above?			
61 (a)	Project boundary - alternative to 32-33 (cont.) Are the delineation of the project boundary and the gases and sources/sinks included appropriately described and justified in the PDD?	N/A	N/A	N/A
61 (b)	Project boundary - alternative to 32-33 (cont.) Are all gases and sources/sinks included explicitly stated, and the exclusions of any sources/sinks related to the baseline or the LULUCF project appropriately justified?	N/A	N/A	N/A
62	Monitoring plan - in addition to 35-39 Does the PDD provide an appropriate description of the sampling design that will be used for the	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	calculation of the net anthropogenic removals by sinks occurring within the project boundary in the project scenario and, in case the baseline is monitored, in the baseline scenario, including, inter alia, stratification, determination of number of plots and plot distribution etc.?			
63	Does the PDD take into account only the increased anthropogenic emissions by sources and/or reduced anthropogenic removals by sinks of GHGs outside the project boundary?	N/A	N/A	N/A
Approved CDM methodology approach only				
64 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	N/A	N/A	N/A
64 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	N/A	N/A	N/A
64 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	N/A	N/A	N/A
64 (c)	Are all explanations, descriptions and analyses made in accordance with the referenced approved CDM methodology?	N/A	N/A	N/A
64 (d)	Are the baseline, additionality, project boundary, monitoring plan, estimation of enhancements of net removals and leakage established appropriately as a result?	N/A	N/A	N/A
Determination regarding programmes of activities (additional/alternative elements for assessment)				
66	Does the PDD include:	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(a) A description of the policy or goal that the JI PoA seeks to promote? (b) A geographical boundary for the JI PoA (e.g. municipality, region within a country, country or several countries) within which all JPAs included in the JI PoA will be implemented? (c) A description of the operational and management arrangements established by the coordinating entity for the implementation of the JI PoA, including: − The maintenance of records for each JPA? − A system/procedure to avoid double counting (e.g. to avoid including a new JPA that has already been determined)? − Provisions to ensure that persons operating JPAs are aware and have agreed to their activity being added to the JI PoA? (d) A description of each type of JPAs that will be included in the JI PoA, including the technology or measures to be used? (e) The eligibility criteria for inclusion of JPAs to the JI PoA for each type of JPA in the JI PoA?			
67	*Project approvals by Parties involved - additional to 19-20* Are all Parties partly or entirely within the geographical boundary for the JI PoA listed as "Parties involved" and indicated as host Parties in the PDD?	N/A	N/A	N/A
68	*Authorization of project participants by Parties involved - additional to 21* Is the coordinating entity presented in the PDD authorized by all host Parties to coordinate and			

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	manage the JI PoA?			
69	*Baseline setting - additional to 22-26* Is the baseline established for each type of JPA?	N/A	N/A	N/A
70	*Additionality - additional to 27-31* Does the PDD indicate at which of the following levels that additionality is demonstrated? (a) For the JI PoA (b) For each type of JPA	N/A	N/A	N/A
71	*Crediting period - additional to 34* Is the starting date of the JI PoA after the beginning of 2006 (instead of 2000)?	N/A	N/A	N/A
72	*Monitoring plan - additional to 35-39* Is the monitoring plan established for each technology and/or measure under each type of JPA included in the JI PoA?	N/A	N/A	N/A
73	Does the PDD include a table listing at least one real JPA for each type of JPA?	N/A	N/A	N/A
73	For each real JPA listed, does the PDD provide the information of: (a) Name and brief summary of the JPA? (b) The type of JPA? (c) A geographical reference or other means of identification? (d) The name and contact details of the entity/individual responsible for the operation of the JPA? (e) The host Party(ies)? (f) The starting date of the JPA? (g) The length of the crediting period of the JPA? (h) Confirmation that the JPA meets all the	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	eligibility requirements for its type, including a description of how these requirements are met? (i) Confirmation that the JPA has not been determined as a single JI project or determined under a different JI PoA?			

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
CL 01. Please, revise in the section A.2 information concerning economical attractiveness of the project implementation (Kyoto protocol projects should not be economically attractive).	-	Of course, Kyoto protocol projects should not be economically attractive. However, now there are no words in the section A.2 on that the project is economically attractive. Only the fact that will favour the economical attractiveness of the project is pointed out, without any conclusions, etc. The wording is changed in PDD v.07.	Based on the explanation received, the issue is closed.
CAR 01. Please, make the format of the A.3 table correct.	-	Format of the A.3 table is corrected in PDD v.07.	Due to the corrections made, CAR 01 is closed.

CAR 02. Please, define the Party involved other than Host country, or indicate in the A.3 table that the Party involved to be defined.	-	In the A.3 table in PDD v.07 it is indicated that the second Party involved is Estonia.	The issue is closed based on the amendments made in the PDD.
CL 02. Please, describe brief history of JI component of the project.	-	This information was provided in section A.5, and is added into the section C.1 of the PDD v.07.	Based on the information added, CL 02 is closed.
CAR 03. The total estimated emission reduction over post-first commitment period is inaccurately calculated. Please, make necessary amendments.	-	The total estimated emission reduction over the post-first commitment period in table in section A.4.3.1 is provided according to calculations in Appendix A, and the values are rounded to the integers. This may cause the apparent but not actual inaccuracy in the table. This is indicated in the section A. 4.3.1 of the PDD v.07.	The issue is closed based on the information provided to the verifier and the amendments made in the PDD.
CAR 13. There are no letters of approval from Parties involved.	19	The LoAs are expected.	Pending.

CAR 04. Please, give references (in the PDD) to the 1996 IPCC Guidelines for National Greenhouse Gas Inventories not to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. For the present, 1996 IPCC Guidelines is the only one approved.	45	According to the CAR 04, in the PDD v.07, the references to the 1996 IPCC Guidelines for National Greenhouse Gas Inventories are given. But it should be noted that in UNFCCC documents, for example in Methodological tool "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" (Version 05.1.0), the references namely to the IPCC 2006 Guidelines for National Greenhouse Gas Inventories are given.	The explanation for closing CAR 04 is now provided to the verifier and taken into account.
CAR 05. Please, fill up all the necessary lines of tables (section B.1 of the PDD) with data and parameters (for example, lines "source of data").	26c	This is now made in the PDD v.07	Based on the information added to the PDD, the issue is closed.
CL 03. Please indicate if the person/entity is also a project participant listed in Annex 1.	21	Necessary corrections are made.	The issue is closed.

CL 04. Please, clarify the situation with dividing waste into several types. During the site-visit verifiers found out the fact that there is no waste sorting at the Chernihiv municipal solid waste; but in the PDD different waste types are described (please, see section B.1 of the PDD).	26 c	Response #1 There is really no waste sorting at the Chernihiv landfill, however dividing waste into several types in Excel sheets and in tables of section B.1 of the PDD is made according to information provided by Chernihiv city administration. The division is adjusted to the "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" version 05.1.0. Response #2 The required information is provided to the verifier.	Conclusion on response #1 The explanation is received. Please, provide the information source on waste sorting given by Chernihiv city administration. Conclusion on response #2 Based on the file provided the issue is closed.

CAR 06. Please, give documentary evidence of the project starting date.	34 (a)	Response #1 Agreement between the OJSC "Oblteplocomunenergo" and the Institute of Engineering Ecology on development of the Joint Implementation Project on Green House Gas Emissions Reduction from Chernihiv MSW landfill (No. 668 dated 14.10.2009), that is accepted as the project starting date, may be provided by the project owner on request. Response #2 The evidence of the agreement signings is provided to the verifier.	Conclusion on response #1 Please, provide the copy of the agreement to the verifier. Conclusion on response #2 Based on the information received, the issue is closed.
CL 05. Please, indicate in the section C.3 not only duration of the first commitment period, but also duration of post-first commitment period (please, pay attention that duration of the crediting period in the PDD section A.4.3.1 should coincide with the duration in the PDD section C.1).	-	This is indicated in the section C.3 of the PDD v.07.	CL 05 is closed due to the amendments made in the PDD.
FAR 01. Please, note (in the PDD) that data to be monitored and required for determination are to be kept for two years after the last transfer of ERUs for the project. Also the order concerning the procedure for keeping monitoring data should be issued.	45	This is indicated in the Annex 3 of the PDD v.07.	Based on the information added to the Annex 3 of the PDD, the issue is closed.

CL 06. Please, indicate not only the version of "Tool to determine project emissions from flaring gases containing methane, but also the date".	26 c	This is indicated in the section D.1 of the PDD v.07.	CL 06 is closed due to the amendments made in the PDD.
CL 07. Please, in the table of section D.1.2.1, fill up cells which were left blank (please, see point 19 of the table).	38 c	This is provided in the table of section D.1.2.1 of the PDD v.07.	The issue is closed based on the information added to the PDD.
CL 08. Please, clearly explain why section D.1.5 of the PDD is not applicable to the project.	38 c	The corresponding information is added in the section D.1.5 of the PDD v.07.	Based on the amendments made in the PDD, CL 08 is closed.
CL 09. Please, indicate in the section E.3 that sum of the project emissions and leakages is equal to project emissions, because leakages = 0.	41	This is indicated in the section E.3 of the PDD v.07.	The issue is closed due to the amendments made in the PDD.
CAR 07. Please, delete empty table of the Annex 1 of the PDD.	21	The empty table of the Annex 1 is deleted in the Annex 3 of the PDD v.07.	CAR 07 is closed based on the corrections made in the PDD.
CL 10. Please, note that according to the Tool for the demonstration and assessment of additionality, investment analysis shall be based on the information available to investor as of the project decision date. Taking into account that the project has been started in October 2009, it looks reasonable to use the rates available as of September 2009 or earlier.	31 c	Response #1 This is provided in the section B of the PDD v.07. Response #2 Now necessary corrections are made.	Conclusion on response #1 Please, correct the line in section B2 Sub-Step 2b "This value of 7.9 % is considered as the benchmark value for the benchmark comparative analysis of this project". Conclusion on response #2 The issue is closed.

CL 11. Please, pay attention that the calculations are made in EUR, therefore the loans denominated in foreign currency would be more appropriate.	31 c	This is provided in the section B of the PDD v.07.	The issue is closed due to the amendments made.
CAR 08. The long term financial model requires adjustment for inflation. Please, do it either by adjusting values for each year by some inflation factor or (it is best) deriving real IRR benchmark from the nominal rate.	31 c	This is provided in the section B of the PDD v.07.	CAR 08 is closed due to corrections made in the section B of the PDD.
CAR 09. Please, remove the reference to the "alternative scenario 2" IRR calculations in the text of PDD and appendix B as well as they are not used for the additionality prove.	31 d	<u>Response #1</u> Alternative scenario 2 is used for setting the baseline scenario thus it cannot be removed completely. The reference to the "alternative scenario 2" IRR calculations are removed from the text of PDD and Appendix B in the PDD v.07. <u>Response #2</u> Now necessary amendments are made.	<u>Conclusion on response #1</u> Please correct the IRR and NPV values for the project scnario indicated on pages 26-27 in order they could match the values in Excel table. <u>Conclusion on response #2</u> The issue is closed.
CAR 10. Sensitivity analysis contains mistakes in calculation of the IRR values for deviation scenarios. In particular IRR formulas in Excel table Appendix B refer to shorter period than 2010-2027. Please, correct.	31 c	Calculation of all the IRR values for investment analysis is made for the same period – project lifetime, 2010-2027, in the PDD v.07.	Based on the corrections made, the issue is closed.

CL 12. Please, making the investment analysis, please, include the fair value of the assets at the end of assessment period to the cash flow for the final year of financial model.	31 d	The fair value of the assets at the end of assessment period is included to the cash flow for the final year of financial model in the Appendix B of PDD v.07.	Due to the amendments made, CL 12 is closed.
CL 13. Please, indicate whether tariffs, costs and investment values are indicated with VAT included or not.	31 c	Tariffs, costs and investment values are indicated with VAT excluded.	Now required corrections are made. The issue is closed.
CAR 11. Please, provide the reference for the source of electricity and natural gas price data.	31 c	This is provided in the Appendix B of the PDD v.07.	CAR 11 is closed.
CAR 12. The Appendix B has submitted in Ukrainian version only. Please, note that English version of the document shall be submitted as well as it constitutes integral part of the PDD.	31 d	Appendix B is submitted in bi-language (Ukrainian + English) version.	Required translation is made. The issue is closed.