



VALIDATION REPORT  
**CARBON DEVELOPMENT  
AND TRADING LTD.**  
VALIDATION OF THE  
**METHANE UTILISATION AND  
DESTRUCTION PROGRAMME  
FROM INDUSTRIAL WASTEWATER  
IN DPR KOREA**

REPORT No. **BVC/CHINA-VAL/6230/2012**  
REVISION No. 01

BUREAU VERITAS CERTIFICATION

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## VALIDATION REPORT



Date of first issue: 05/06/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Carbon Development and Trading Ltd.	Client ref.: Ms. Jacqueline Wai Ying Luke
<p>Summary:</p> <p>Bureau Veritas Certification has made the validation of the programme of activities (PoA) named Methane Utilisation and Destruction Programme from Industrial Wastewater in DPR Korea on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.</p> <p>The validation scope is defined as an independent and objective review of the PoA-DD, generic CPA-DD, the baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the PoA design and the baseline and monitoring plan; ii) follow-up interviews with stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report &amp; Opinion, was conducted using Bureau Veritas Certification internal procedures.</p> <p>The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the Coordinating/Managing Entity revised its PoA design documents.</p> <p>In summary, it is Bureau Veritas Certification's opinion that the PoA correctly applies the baseline and monitoring methodology AMS-III.H and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.</p>	

Report No.: BVC/China-Val/6230/2012	Subject Group: CDM
Project title: Methane Utilisation and Destruction Programme from Industrial Wastewater in DPR Korea	
Work carried out by: Ms. Katherine Zhang Ying, Team Leader Mr. Wang Zhenning, Team Member	
Internal Technical Review carried out by: Mr. Liao Ling	
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## Indexing terms

Work approved by:

Mr. Flavio Gomes

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## 1 INTRODUCTION

Carbon Development and Trading Ltd. (the coordinating/management entity, hereafter called “the CME”) has commissioned Bureau Veritas Certification to validate its CDM project named Methane Utilisation and Destruction Programme from Industrial Wastewater in DPR Korea (hereafter called “the PoA”) in Democratic People’s Republic of Korea (hereafter called “DPRK”).

This report summarizes the findings of the validation 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 validation serves as programme design verification and is a requirement of all programmes’. The validation is an independent third party assessment of the programme design. In particular, the PoA’s baseline, the monitoring plan (MP), and the programme’s compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the programme design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is a requirement for all CDM programmes and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

### 1.2 Scope

The validation scope is defined as an independent and objective review of the programme design documents, the PoA’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 validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the programme design.

### 1.3 Validation team

The validation team and internal technical reviewer consist of the following personnel:

FUNCTION	NAME	CODE HOLDER	TASK PERFORMED*
Team Leader	Katherine Zhang Ying	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input checked="" type="checkbox"/> RI
Team Member	Wang Zhenning	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input type="checkbox"/> RI
Technical Specialist	N.A.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Internal Technical Reviewer (ITR)	Liao Ling	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Specialist supporting ITR	N.A.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI

\*DR = Document Review; SV = Site Visit; RI = Report issuance



## 2 METHODOLOGY

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

In order to ensure transparency, a validation protocol was customized for the project, according to the version 01.2 of the Clean Development Mechanism Validation and Verification Manual issued by the Executive Board at its 55th meeting on 30/07/2010 (Ref-1) version 04.1 of Procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities dated 02/08/2010 (EB55 Annex38) (Ref-2) and version 01.0 of Stand for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities (EB65 Annex3) (Ref-3). The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

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

### 2.1 Review of Documents

The PoA-DD /1/ and generic CPA-DD /2/ submitted by Carbon Development and Trading Ltd. and additional background documents related to the project design and baseline, i.e. country Law, PoA-DD form, CPA-DD form, Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Carbon Development and Trading Ltd. revised the PoA-DD and generic CPA-DD and resubmitted it on 07/12/2012.

The validation findings presented in this report relate to the project as described in the PoA-DD version 08 /3/ dated 07/12/2012 and generic CPA-DD version 03 /4/ dated 07/12/2012.

### 2.2 Follow-up Interviews

On 06/03/2012 Bureau Veritas Certification performed interviews with stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of name of the CME and the General Bureau for Cooperation with International Organizations (GBCIO)<sup>1</sup> were interviewed (see References). The main topics of the interviews are summarized in Table 1.

<sup>1</sup> The General Bureau for Cooperation with International Organizations (GBCIO) has been tasked by the government of the DPRK to promote the implementation of CDM Projects in the DPR Korea. In this PoA, the GBCIO supports and CME on an ongoing basis with the implementation of the CPAs.

**Table 1 Interview topics**

Interviewed organization	Interview topics
Carbon Development and Trading Ltd. (the CME)	<ul style="list-style-type: none"> <li>➤ Project background information and CDM consideration</li> <li>➤ PoA technology, general operating and implementation framework, maintenance and monitoring capability</li> <li>➤ Government policies related to wastewater treatment projects</li> <li>➤ Confirmation that the proposed PoA is a voluntary action</li> <li>➤ Operation and management arrangement of the PoA(incl. recording, CPA operation, avoiding double accounting )</li> <li>➤ PoA/CPA monitoring and management plan</li> <li>➤ Stakeholder consultation process</li> <li>➤ PoA/CPA environment impact</li> <li>➤ Biogas projects development in the area</li> </ul>
Stakeholders	<ul style="list-style-type: none"> <li>➤ Project background in details</li> <li>➤ Stakeholder comments</li> <li>➤ Social and environmental impact of the Project</li> <li>➤ Baseline information in DPRK</li> </ul>
General Bureau for Cooperation with International Organizations (GBCIO)	<ul style="list-style-type: none"> <li>➤ Applicability of selected methodology</li> <li>➤ Baseline determination</li> <li>➤ Eligibility criteria for CPA inclusion</li> <li>➤ Emission reductions calculation</li> <li>➤ Monitoring plan</li> </ul>

## 2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation 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 programme design.

Corrective Action Requests (CAR) is issued, where:

- (a) The CME/project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- (b) The applicable CDM requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

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

The validation team may also raise a forward action request (FAR) during validation to identify issues related to programme implementation that require review during the first verification of the CPA under the PoA.

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

## 2.4 Internal Technical Review

The validation report underwent an Internal Technical Review (ITR) before requesting registration of the programme.



The ITR is an independent process performed to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as internal Bureau Veritas Certification procedures.

The Team Leader provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.

The review encompasses all aspects related to the project which includes PoA design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the CME as well as the PoA, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the validation exercise, review of sample documents.

The reviewer compiles clarification questions for the Team Leader and Validation Team and discusses these matters with Team Leader.

After the agreement of the responses on the 'Clarification Request' from the Team Leader as well as the PP(s) the finalized validation report is accepted for further processing such as uploading on the UNFCCC webpage.

### 3 VALIDATION CONCLUSIONS

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

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

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in **5** Corrective Action Requests (CARs) and **11** Clarification Requests (CLs).

The CARs and CLs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

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

#### 3.1 Approval

The PoA is unilateral and the letter of approval has been provided by CME and the following support documentation has been verified by Bureau Veritas Certification.

- ✎ The Designated National Authority (DNA) of DPRK has issued a Letter of Approval on 19/04/2012 /5/, authorizing Carbon Development and Trading Ltd. voluntary participating in and the PoA of Methane Utilisation and Destruction Programme from Industrial Wastewater in DPR Korea and coordinating and acting as the CME. The LoA also confirms the contribution to DPRK's Sustainable development.
- ✎ The Designated National Authority (DNA) of DPRK has issued a Letter of Approval on 31/01/2012 /6/, authorizing General Bureau for Cooperation with International Organizations (GBCIO) voluntary participating in the PoA of Methane Utilisation and Destruction





Programme from Industrial Wastewater in DPR Korea and confirms the contribution to DPRK's Sustainable development.

Bureau Veritas Certification received the letters of approval from the CME and does not doubt the letters' authenticity.

The letters of approval do not contain a specific version of both the design documents and the validation report.

The title and contents of the letters of approval refer to the precise proposed PoA title in the design documents being submitted for registration.

✎ Bureau Veritas Certification considers the letter of approval is in accordance with **Para. 45 - 48 /VVM** and **Para.10 of EB55 Annex38**.

### 3.2 Particip ation

The participation for the coordinating/managing entity has been approved by a Party of the Kyoto Protocol.

✎ Complying with **Para.54/VVM**, Bureau Veritas Certification hereby confirms that by referring to the information on UNFCCC website i.e.

<http://maindb.unfccc.int/public/country.pl?country=KP>.

### 3.3 Project design document

✎ Bureau Veritas Certification hereby confirms that the PoA design documents comply with the valid Small-Scale Programme of Activities Design Document Form (CDM-SSC-PoA-DD) version 01(Ref-4) and Small-scale CDM Programme Activity Design Document Form (CDM-SSC-CPA-DD) version 01 (Ref-5).

### 3.4 PoA description

The geographical boundary of the PoA is all areas of DPRK.

The PoA involves a series of small scale methane recovery and destruction and/or utilization project activities to mitigate GHG emissions generated from the industrial wastewater including but not limited to foodstuff, pulp & paper, fibre & textile by modifying the existing industrial wastewater treatment systems in medium sized factories mostly open lagoons to new ones, which equipped with biogas recovery and destruction and/or utilization facilities. Each CPA will either utilise the methane for electricity and/or heat generation or destroy the methane through flaring. The combustion of methane in a boiler and/or electricity generator and/or flare results in a significant emission reduction.

This programme is purely a voluntary initiative undertaken by Carbon Development and Trading Ltd. which is the CME of this PoA. There are no mandatory requirements in DPRK to utilize or destroy methane from industrial wastewater in the territory of the DPRK.

The length of the PoA is 28 years.

The validation team hereby confirms that the programme description in PoA-DD version 08 is accurate and complete in all respects.

### 3.5 Operational and management arrangements

A clear and transparent description of the operational and management arrangements have been established by the CME and stated in the PoA-DD. Please refer to Section 6.4.5 of Table in Appendix A for details.





☞ Complying with para.166/VVM and EB65 Annex 3 (Ref-3), Bureau Veritas Certification hereby concludes that the operational and management arrangements have been established by the coordinating/managing entity and are suitable for the PoA being validated. Bureau Veritas Certification considers that the arrangements are sufficient to ensure that the coordinating/managing entity will have control of all records and information related to the implementation of individual CPAs.

### 3.6 Eligibility criteria for inclusion a CPA in the PoA

Validation team has assessed the eligibility criteria for inclusion a CPA in the PoA in accordance with “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” (Ref-3). The eligibility criteria 1-4 fulfill the requirement of Para.14 (a-d) of EB65 Annex3 (Ref-3). The eligibility criteria 5, 12 and 13 fulfill the requirement of Para.14(e) of EB65 Annex3 and applied methodology (Ref-3) (Ref-6). The eligibility criteria 8-11 fulfill the requirement of Para.14 (g,h,k,l) and other CDM requirement i.e., Guidelines on assessment of de-bundling for SSC Project activities(EB54 Annex13) (Ref-7) and Glossary of CDM terms Version 06 (Ref-9). And the eligibility criterion 6 is required by local regulation and management system of the PoA. Thus validation team is able to conclude that the eligibility criteria listed below are reasonable and sufficient for CPA inclusion.

1. The geographic boundary of the CPA lies within the DPR Korea.
2. To meet the condition that avoid double counting of emission reductions, the proposed CPA under this PoA has not been and will not be either registered as a single CDM project activity or included as a CPA under another PoA. A unique identification number will be included in the specific CPA-DD for each industrial installation.
3. The CPA reduces GHG emissions by utilising methane from industrial wastewater for electricity and/or heat generation and/or destroying methane through flaring by adopting one or a combination of the following technologies or measures:
  - a) Substitution of aerobic wastewater or sludge treatment systems with anaerobic systems with biogas recovery and combustion;
  - b) Introduction of anaerobic sludge treatment system with biogas recovery and combustion to a wastewater treatment plant without sludge treatment;
  - c) Introduction of biogas recovery and combustion to a sludge treatment system;
  - d) Introduction of biogas recovery and combustion to an anaerobic wastewater treatment system such as anaerobic reactor, lagoon, septic tank or an on site industrial plant;
  - e) Introduction of anaerobic wastewater treatment with biogas recovery and combustion, with or without anaerobic sludge treatment, to an untreated wastewater stream;
  - f) Introduction of a sequential stage of wastewater treatment with biogas recovery and combustion, with or without sludge treatment, to an anaerobic wastewater treatment system without biogas recovery (e.g. introduction of treatment in an anaerobic reactor with biogas recovery as a sequential treatment step for the wastewater that is presently being treated in an anaerobic lagoon without methane recovery).
4. The starting date of the CPA is the earliest date at which either the implementation or construction or real action of a CDM project activity, and it cannot be prior to 22/01/ 2012,

the commencement of validation (date of beginning of the Global Stakeholder Process posted on the UNFCCC website).

5. The existing Approved CDM Methodology AMS-III.H. (Version 16) is applicable to the CPA. The applicability criteria are as follows:

(I) If a CPA adopts the measure/technology a) Substitution of aerobic wastewater or sludge treatment systems with anaerobic systems with biogas recovery and combustion, then the following applicability criteria have to be fulfilled:

Applicability to wastewater treatment technology/measure:	
Substitution of aerobic wastewater or sludge treatment systems with anaerobic systems with biogas recovery and combustion.	The CPA shall demonstrate that this measure/technology is being used in the specific CPA either on its own or in combination with other technologies/measures. This shall be clearly described in the CPA-DD.
Applicability to use of recovered biogas:	
Thermal or mechanical, electrical energy generation directly.	The CPA shall demonstrate whether the recovered biogas is used for thermal or mechanical, electrical energy generation directly. This shall be clearly described in the CPA-DD.
Applicability to other criteria:	
New facilities (Greenfield projects) and project activities involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system are only eligible to apply this methodology if they comply with the relevant requirements in the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed.	The CPA, if it is a new facility (Greenfield project) or a project activity involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system, then the CPA shall demonstrate that it complies with the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed. This shall be clearly described in the CPA-DD.
The location of the wastewater treatment plant as well as the source generating the wastewater shall be uniquely defined and described in the CPA-DD.	The CPA shall uniquely identify the location of the wastewater treatment plant as well as the source generating the wastewater and describe this in the CPA-DD. The location and source of wastewater shall be uniquely defined using GPS coordinates or confirmed by a competent authority in the DPR Korea.
Aggregate emissions reductions of less than or equal to 60 kt CO <sub>2</sub> equivalent annually.	The CPA shall demonstrate that its aggregate emission reductions are less than or equal to 60 kt CO <sub>2</sub> equivalent annually.

	This shall be clearly described in the CPA-DD.
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(II) If a CPA adopts the measure/technology b) Introduction of anaerobic sludge treatment system with biogas recovery and combustion to a wastewater treatment plant without sludge treatment, then the following applicability criteria have to be fulfilled:

Applicability to wastewater treatment technology/measure:	
Introduction of anaerobic sludge treatment system with biogas recovery and combustion to a wastewater treatment plant without sludge treatment.	The CPA shall demonstrate that this measure/technology is being used in the specific CPA either on its own or in combination with other technologies/measures. This shall be clearly described in the CPA-DD.

Applicability to anaerobic wastewater lagoons in the baseline scenario:	
The lagoons are ponds with a depth greater than two meters, without aeration. The value for depth is obtained from engineering design documents, or through direct measurement, or by dividing the surface area by the total volume. If the lagoon filling level varies seasonally, the average of the highest and lowest levels may be taken.	The CPA shall clearly demonstrate that anaerobic wastewater lagoons in the baseline scenario have a depth of more than two meters, without aeration. . This shall be clearly described in the CPA-DD.
Ambient temperature above 15°C, at least during part of the year, on a monthly average basis.	The CPA shall demonstrate that the ambient temperature is above 15°C, at least during part of the year, on a monthly average basis. This shall be clearly described in the CPA-DD.
The minimum interval between two consecutive sludge removal events shall be 30 days.	Each CPA shall demonstrate that the minimum interval between two consecutive sludge removal events shall be 30 days. This shall be clearly described in the CPA-DD.

Applicability to use of recovered biogas:	
Thermal or mechanical, electrical energy generation directly.	The CPA shall demonstrate whether the recovered biogas is used for thermal or mechanical, electrical energy generation directly. This shall be clearly described in the CPA-DD.

Applicability to other criteria:	
New facilities (Greenfield projects) and project activities involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to	The CPA, if it is a new facility (Greenfield project) or a project activity involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed

the designed capacity of the baseline treatment system are only eligible to apply this methodology if they comply with the relevant requirements in the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed.	capacity of the baseline treatment system, then the CPA shall demonstrate that it complies with the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed. This shall be clearly described in the CPA-DD.
The location of the wastewater treatment plant as well as the source generating the wastewater shall be uniquely defined and described in the CPA-DD.	The CPA shall uniquely identify the location of the wastewater treatment plant as well as the source generating the wastewater and describe this in the CPA-DD. The location and source of wastewater shall be uniquely defined using GPS coordinates or confirmed by a competent authority in the DPR Korea.
Aggregate emissions reductions of less than or equal to 60 kt CO <sub>2</sub> equivalent annually.	The CPA shall demonstrate that its aggregate emission reductions are less than or equal to 60 kt CO <sub>2</sub> equivalent annually. This shall be clearly described in the CPA-DD.

(III) If a CPA adopts the measure/technology c) Introduction of biogas recovery and combustion to a sludge treatment system, then the following applicability criteria have to be fulfilled:

Applicability to wastewater treatment technology/measure:	
Introduction of biogas recovery and combustion to a sludge treatment system.	The CPA shall demonstrate that this measure/technology is being used in the specific CPA either on its own or in combination with other technologies/measures. This shall be clearly described in the CPA-DD.

Applicability to anaerobic wastewater lagoons in the baseline scenario:	
The lagoons are ponds with a depth greater than two meters, without aeration. The value for depth is obtained from engineering design documents, or through direct measurement, or by dividing the surface area by the total volume. If the lagoon filling level varies seasonally, the average of the highest and lowest levels may be taken.	The CPA shall clearly demonstrate that anaerobic wastewater lagoons in the baseline scenario have a depth of more than two meters, without aeration. . This shall be clearly described in the CPA-DD.
Ambient temperature above 15°C, at least during part of the year, on a monthly average basis.	The CPA shall demonstrate that the ambient temperature is above 15°C, at least during part of the year, on a monthly average basis. This shall be clearly

	described in the CPA-DD.
The minimum interval between two consecutive sludge removal events shall be 30 days.	Each CPA shall demonstrate that the minimum interval between two consecutive sludge removal events shall be 30 days. This shall be clearly described in the CPA-DD.
<b>Applicability to use of recovered biogas:</b>	
Thermal or mechanical, electrical energy generation directly.	The CPA shall demonstrate whether the recovered biogas is used for thermal or mechanical, electrical energy generation directly. This shall be clearly described in the CPA-DD.
<b>Applicability to other criteria:</b>	
New facilities (Greenfield projects) and project activities involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system are only eligible to apply this methodology if they comply with the relevant requirements in the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed.	The CPA, if it is a new facility (Greenfield project) or a project activity involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system, then the CPA shall demonstrate that it complies with the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed. This shall be clearly described in the CPA-DD.
The location of the wastewater treatment plant as well as the source generating the wastewater shall be uniquely defined and described in the CPA-DD.	The CPA shall uniquely identify the location of the wastewater treatment plant as well as the source generating the wastewater and describe this in the CPA-DD. The location and source of wastewater shall be uniquely defined using GPS coordinates or confirmed by a competent authority in the DPR Korea.
Aggregate emissions reductions of less than or equal to 60 kt CO <sub>2</sub> equivalent annually.	The CPA shall demonstrate that its aggregate emission reductions are less than or equal to 60 kt CO <sub>2</sub> equivalent annually. This shall be clearly described in the CPA-DD.

(IV) If a CPA adopts the measure/technology d) Introduction of biogas recovery and combustion to an anaerobic wastewater treatment system such as anaerobic reactor, lagoon, septic tank or an on-site industrial plant, then the following applicability criteria have to be fulfilled:

**Applicability to wastewater treatment technology/measure:**



Introduction of biogas recovery and combustion to an anaerobic wastewater treatment system such as anaerobic reactor, lagoon, septic tank or an on-site industrial plant.	The CPA shall demonstrate that this measure/technology is being used in the specific CPA either on its own or in combination with other technologies/measures. This shall be clearly described in the CPA-DD.
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**Applicability to anaerobic wastewater lagoons in the baseline scenario:**

The lagoons are ponds with a depth greater than two meters, without aeration. The value for depth is obtained from engineering design documents, or through direct measurement, or by dividing the surface area by the total volume. If the lagoon filling level varies seasonally, the average of the highest and lowest levels may be taken.	The CPA shall clearly demonstrate that anaerobic wastewater lagoons in the baseline scenario have a depth of more than two meters, without aeration. . This shall be clearly described in the CPA-DD.
Ambient temperature above 15°C, at least during part of the year, on a monthly average basis.	The CPA shall demonstrate that the ambient temperature is above 15°C, at least during part of the year, on a monthly average basis. This shall be clearly described in the CPA-DD.
The minimum interval between two consecutive sludge removal events shall be 30 days.	Each CPA shall demonstrate that the minimum interval between two consecutive sludge removal events shall be 30 days. This shall be clearly described in the CPA-DD.

**Applicability to use of recovered biogas:**

Thermal or mechanical, electrical energy generation directly.	The CPA shall demonstrate whether the recovered biogas is used for thermal or mechanical, electrical energy generation directly. This shall be clearly described in the CPA-DD.
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**Applicability to other criteria:**

New facilities (Greenfield projects) and project activities involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system are only eligible to apply this methodology if they comply with the relevant requirements in the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment	The CPA, if it is a new facility (Greenfield project) or a project activity involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system, then the CPA shall demonstrate that it complies with the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed. This shall be
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replaced, as described in the general guidelines shall be followed.	clearly described in the CPA-DD.
The location of the wastewater treatment plant as well as the source generating the wastewater shall be uniquely defined and described in the CPA-DD.	The CPA shall uniquely identify the location of the wastewater treatment plant as well as the source generating the wastewater and describe this in the CPA-DD. The location and source of wastewater shall be uniquely defined using GPS coordinates or confirmed by a competent authority in the DPR Korea.
Aggregate emissions reductions of less than or equal to 60 kt CO <sub>2</sub> equivalent annually.	The CPA shall demonstrate that its aggregate emission reductions are less than or equal to 60 kt CO <sub>2</sub> equivalent annually. This shall be clearly described in the CPA-DD.

(V) If a CPA adopts the measure/technology e) Introduction of anaerobic wastewater treatment with biogas recovery and combustion, with or without anaerobic sludge treatment, to an untreated

Applicability to wastewater treatment technology/measure:	
Introduction of anaerobic wastewater treatment with biogas recovery and combustion, with or without anaerobic sludge treatment, to an untreated wastewater stream.	The CPA shall demonstrate that this measure/technology is being used in the specific CPA either on its own or in combination with other technologies/measures. This shall be clearly described in the CPA-DD.

Applicability to use of recovered biogas:	
Thermal or mechanical, electrical energy generation directly.	The CPA shall demonstrate whether the recovered biogas is used for thermal or mechanical, electrical energy generation directly. This shall be clearly described in the CPA-DD.

Applicability to other criteria:	
New facilities (Greenfield projects) and project activities involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system are only eligible to apply this methodology if they comply with the relevant requirements in the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general	The CPA, if it is a new facility (Greenfield project) or a project activity involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system, then the CPA shall demonstrate that it complies with the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed. This shall be clearly described in the CPA-DD.



guidelines shall be followed.	
The location of the wastewater treatment plant as well as the source generating the wastewater shall be uniquely defined and described in the CPA-DD.	The CPA shall uniquely identify the location of the wastewater treatment plant as well as the source generating the wastewater and describe this in the CPA-DD. The location and source of wastewater shall be uniquely defined using GPS coordinates or confirmed by a competent authority in the DPR Korea.
Aggregate emissions reductions of less than or equal to 60 kt CO <sub>2</sub> equivalent annually.	The CPA shall demonstrate that its aggregate emission reductions are less than or equal to 60 kt CO <sub>2</sub> equivalent annually. This shall be clearly described in the CPA-DD.

(VI) If a CPA adopts the measure/technology f) Introduction of a sequential stage of wastewater treatment with biogas recovery and combustion, with or without sludge treatment, to an anaerobic wastewater treatment system without biogas recovery (e.g. introduction of treatment in an anaerobic reactor with biogas recovery as a sequential treatment step for the wastewater that is presently being treated in an anaerobic lagoon without methane recovery), then the following applicability criteria have to be fulfilled:

Applicability to wastewater treatment technology/measure:	
Introduction of a sequential stage of wastewater treatment with biogas recovery and combustion, with or without sludge treatment, to an anaerobic wastewater treatment system without biogas recovery (e.g. introduction of treatment in an anaerobic reactor with biogas recovery as a sequential treatment step for the wastewater that is presently being treated in an anaerobic lagoon without methane recovery).	The CPA shall demonstrate that this measure/technology is being used in the specific CPA either on its own or in combination with other technologies/measures. This shall be clearly described in the CPA-DD.

Applicability to anaerobic wastewater lagoons in the baseline scenario:	
The lagoons are ponds with a depth greater than two meters, without aeration. The value for depth is obtained from engineering design documents, or through direct measurement, or by dividing the surface area by the total volume. If the lagoon filling level varies seasonally, the average of the highest and lowest levels may be taken.	The CPA shall clearly demonstrate that anaerobic wastewater lagoons in the baseline scenario have a depth of more than two meters, without aeration. . This shall be clearly described in the CPA-DD.
Ambient temperature above 15°C, at least during part of the year, on a	The CPA shall demonstrate that the ambient temperature is above 15°C, at least



monthly average basis.	during part of the year, on a monthly average basis. This shall be clearly described in the CPA-DD.
The minimum interval between two consecutive sludge removal events shall be 30 days.	Each CPA shall demonstrate that the minimum interval between two consecutive sludge removal events shall be 30 days. This shall be clearly described in the CPA-DD.

Applicability to use of recovered biogas:	
Thermal or mechanical, electrical energy generation directly.	The CPA shall demonstrate whether the recovered biogas is used for thermal or mechanical, electrical energy generation directly. This shall be clearly described in the CPA-DD.

Applicability to other criteria:	
New facilities (Greenfield projects) and project activities involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system are only eligible to apply this methodology if they comply with the relevant requirements in the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed.	The CPA, if it is a new facility (Greenfield project) or a project activity involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system, then the CPA shall demonstrate that it complies with the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed. This shall be clearly described in the CPA-DD.
The location of the wastewater treatment plant as well as the source generating the wastewater shall be uniquely defined and described in the CPA-DD.	The CPA shall uniquely identify the location of the wastewater treatment plant as well as the source generating the wastewater and describe this in the CPA-DD. The location and source of wastewater shall be uniquely defined using GPS coordinates or confirmed by a competent authority in the DPR Korea.
Aggregate emissions reductions of less than or equal to 60 kt CO <sub>2</sub> equivalent annually.	The CPA shall demonstrate that its aggregate emission reductions are less than or equal to 60 kt CO <sub>2</sub> equivalent annually. This shall be clearly described in the CPA-DD.

6. The proposed project activity has to be voluntary action by the industrial factories involved in one of the CPAs under the PoA and the implementation of the proposed project activity is not to fulfil any mandatory policy or regulation.
7. Additionality: In accordance with the "Guidelines on the demonstration of additionality of small-scale project activities" (version 09.0), the PoA chooses Option a) Investment



barrier to demonstrate additionality. To demonstrate that the CPA faces the investment barrier, the CPA should meet the following criteria:

That there is no legal requirement that is enforced for the CPA to be implemented; and

That there are no benefits to the CME besides CDM Revenue; and

That the CME will have to provide all capital for the implementation of the CPA and that such business framework for the implementation of CDM Programmes of Activities in the DPR Korea is equally applicable to all foreign investors.

8. The CPA has to perform a local stakeholder consultation before it may be included in the PoA.
  9. The CPA has to ensure that environmental analysis has been performed.
  10. The CME confirms in a written statement that no funding from an Annex 1 party is provided for the CPA.
  11. The proposed CPA project activity is not a debundled project activity. No other project activity may be within 1 km of the project boundary of the proposed small-scale activity at the closest point.
  12. For the purpose of determining baseline emissions, a CPA, in the pre-project scenario, released all methane into the atmosphere without destruction or utilisation.
  13. If the final sludge is not used for soil application in the baseline scenario and project scenario, then a CPA shall only be implemented at sites where the final sludge is disposed at a solid waste disposal site with a water table above the bottom of the solid waste disposal site in both the baseline and the project scenario.
- ✎ Complying with **Para.14, 15 and 16** of “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” (Ref-3), Bureau Veritas Certification confirms that the eligibility criteria are verifiable and the eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.
- ✎ Complying with **Para.167/VVM**, Bureau Veritas Certification hereby confirms that the specified eligibility criteria in the PoA-DD are sufficient to ensure that all CPAs would comply with the CDM requirement applicable to the PoA, which includes the means of demonstrating the additionality of the CPA and the applicability of the applied methodology.

### 3.7 Baseline and monitoring methodology

#### 3.7.1 APPLICABILITY OF THE SELECTED BASELINE AND MONITORING METHODOLOGY

The PoA uses the approved simplified baseline and monitoring methodologies AMS-III.H.

By reviewing the relevant documentation and interviewing the CME and stakeholders, Bureau Veritas Certification confirms that the CPAs to be included in the PoA will comply with the applicability conditions of combination of methodologies of AMS-III.H. version16 (Ref-6). Please refer to Section 10.2 of Table 1 in Appendix A for details.

#### 3.7.2 POA BOUNDARY

Boundary for the PoA in terms of geographical area is defined as all areas of DPRK.



Bureau Veritas Certification confirms that in establishing the boundary of the PoA, the project participants have taken into consideration all applicable national and/or sectoral policies and regulations within that chosen boundary.

### 3.7.3 BASELINE IDENTIFICATION

According to methodologies AMS-III.H. version16 (Ref-6), the baseline scenario is identified at PoA level properly as:

In the absence of the project activity, industrial wastewater is moved to an industrial wastewater facility, generally open lagoons, where methane is simply vented into the atmosphere.

Complying with **Para. 87 and 88/VVM**, Bureau Veritas Certification hereby confirms that:

- (a) All the assumptions and data used by the project participants are listed in the design documents, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the design documents;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- (d) Relevant national and/or sector policies and circumstances are considered and listed in the design documents;
- (e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

### 3.7.4 ALGORITHMS AND/OR FORMULAE USED TO DETERMINE EMISSION REDUCTIONS

The steps taken to assess the requirements outlined in **para.90-91/VVM** are described below:

As per baseline methodologies AMS-III.H. version16 (Ref-6), the emission reductions  $ER_y$  during the crediting period is the difference between baseline emissions, project emissions and leakage. These are:

1. Baseline emissions:

$$BE_y = \{BE_{power,y} + BE_{ww,treatment,y} + BE_{s,treatment,y} + BE_{ww,discharge,y} + BE_{s,final,y}\} \quad (1)$$

Where:

$BE_y$	Baseline emissions in year y (tCO <sub>2</sub> e)
$BE_{power,y}$	Baseline emissions from electricity or fuel consumption in year y (tCO <sub>2</sub> e)
$BE_{ww,treatment,y}$	Baseline emissions of the wastewater treatment systems affected by the project activity in year y (tCO <sub>2</sub> e)
$BE_{s,treatment,y}$	Baseline emissions of the sludge treatment systems affected by the project activity in year y (tCO <sub>2</sub> e)
$BE_{ww,discharge,y}$	Baseline methane emissions from degradable organic carbon in treated wastewater discharged into sea/river/lake in year y (tCO <sub>2</sub> e).
$BE_{s,final,y}$	Baseline methane emissions from anaerobic decay of the final

sludge produced in year y (tCO<sub>2</sub>e).

$$BE_{power,y} = BE_{EC,y} + BE_{FC,j,y} \quad (2)$$

Where:

$BE_{power,y}$	Baseline emissions from electricity or fuel consumption in year y (tCO <sub>2</sub> e)
$BE_{EC,y}$	Baseline emissions from electricity consumption in year y (tCO <sub>2</sub> e)
$BE_{FC,j,y}$	Baseline emissions from fossil fuel combustion in process j during the year y (tCO <sub>2</sub> e)

$$BE_{EC,y} = \sum_k \{EC_{BL,k,y} * EF_{EL,k,y} * (1 + TDL_{k,y})\} \quad (3)$$

Where:

$EC_{BL,k,y}$	Quantity of electricity that would be consumed by the baseline electricity consumption source k during the year y (MWh)
$EF_{EL,k,y}$	Emission factor for electricity generation for source k during the year y (tCO <sub>2</sub> /MWh)
$TDL_{k,y}$	Average technical transmission and distribution losses for providing electricity to source k during the year y
k	Sources of electricity consumption in the baseline scenario

$$BE_{FC,j,y} = \sum_i (FC_{i,j,y} * COEF_{i,y})$$

Where:

$FC_{i,j,y}$	Quantity of fuel type i combusted in process j during the year y (mass or volume unit)
$COEF_{i,y}$	CO <sub>2</sub> emissions coefficient of fuel type i during the year y (tCO <sub>2</sub> /mass or volume unit)
i	Are the fuel types combusted in process j during the year y

$$BE_{ww,treatment,y} = \sum_i (Q_{ww,i,y} * COD_{inflow,i,y} * \eta_{COD,BL,i} * MCF_{ww,treatment,BL,i}) * B_{o,ww} * UF_{BL} * GWP_{CH4} \quad (4)$$

Where:

$Q_{ww,j,y}$	Volume of wastewater treated in baseline wastewater treatment system i in year y (m <sup>3</sup> )
$COD_{inflow,i,y}$	Chemical oxygen demand of the wastewater inflow to the baseline treatment system i in year y (t/m <sup>3</sup> )
$\eta_{COD,BL,i}$	COD removal efficiency of the baseline treatment system i
$MCF_{ww,treatment,BL,i}$	Methane correction factor for baseline wastewater treatment systems i
i	Index for baseline wastewater treatment system

$B_{o,ww}$  Methane producing capacity of the wastewater  
 $UF_{BL}$  Model correction factor to account for model uncertainties  
 $GWP_{CH4}$  Global Warming Potential for methane

$$BE_{treatment,s,y} = \sum_j S_{j,BL,y} * MCF_{s,treatment,BL,j} * DOC_s * UF_{BL} * DOC_F * F * 16 / 12 * GWP_{CH4} \quad (5)$$

Where:

$S_{j,BL,y}$  Amount of dry matter in the sludge that would have been treated by the sludge treatment system j in the baseline scenario (t)  
 $j$  Index for baseline sludge treatment system  
 $DOC_s$  Degradable organic content of the untreated sludge generated in the year y (fraction, dry basis)  
 $MCF_{s,treatment,BL,y}$  Methane correction factor for baseline wastewater treatment systems i  
 $UF_{BL}$  Index for baseline wastewater treatment system  
 $DOC_F$  Fraction of DOC dissimilated to biogas  
 $F$  Fraction of CH<sub>4</sub> in biogas

If the sludge is composted, the following equation shall be applied:

$$BE_{s,treatment,y} = \sum_j S_{j,BL,y} * EF_{composting} * GWP_{CH4} \quad (6)$$

Where:

$EF_{composting}$  Emission factor for composting of organic waste (tCH<sub>4</sub>/t waste treated).  
 Emission factors can be based on facility/site-specific measurements, country specific values or IPCC default values.

$$BE_{ww,discharge,y} = Q_{ww,y} * GWP_{CH4} * B_{o,ww} * UF_{BL} * COD_{ww,discharge,BL,y} * MCF_{ww,BL,discharge} \quad (7)$$

Where:

$Q_{ww,y}$  Volume of treated wastewater discharged in year y (m<sup>3</sup>)  
 $UF_{BL}$  Model correction factor to account for model uncertainties  
 $COD_{ww,discharge,BL,y}$  Chemical oxygen demand of the treated wastewater discharged into sea, river or lake in the baseline situation in the year y (t/m<sup>3</sup>)  
 $MCF_{ww,BL,discharge}$  Methane correction factor based on discharge pathway in the baseline situation (e.g. into sea, river or lake) of the wastewater (fraction)

$$BE_{s,final,y} = S_{final,BL,y} * DOC_s * UF_{BL} * MCF_{s,BL,final} * DOC_F * F * 16 / 12 * GWP_{CH4} \quad (8)$$

Where:

$S_{\text{final,BL},y}$	Amount of dry matter in the final sludge generated by the baseline wastewater treatment systems in the year y (t)
$MCF_{s,BL,final}$	Methane correction factor of the disposal site that receives the final sludge in the baseline situation
$UF_{BL}$	Model correction factor to account for model uncertainties

Validation team has validated the equations for baseline emissions calculation as above and is able to conclude that:

✚ Baseline emissions ( $BE_y$ ) is calculated in accordance with para.18 of AMS III.H. version16.

Validation team has validated the values of parameters ex ante determined at PoA level, i.e.  $B_{o,ww}$  of 0.25 kgCH<sub>4</sub>/kgCOD,  $GWP_{CH_4}$  of 21,  $UF_{BL}$  of 0.89,  $DOC_s$  of 0.5 for domestic sludge and of 0.257 for industrial sludge, and  $DOC_F$  of 0.5, and confirms that the ex ante determined values of the parameters are fully consistent with the applied methodology AMS III.H..

## 2. Project emissions

$$PE_y = \left\{ \begin{array}{l} PE_{\text{power},y} + PE_{\text{ww,treatment},y} + PE_{\text{s,treatment},y} + PE_{\text{ww,discharge},y} + PE_{\text{s,final},y} + \\ PE_{\text{fugitive},y} + PE_{\text{biomass},y} + PE_{\text{flaring},y} \end{array} \right\} \quad (9)$$

Where:

$PE_y$	Project activity emissions in the year y (tCO <sub>2</sub> e)
$PE_{\text{power},y}$	Emissions from electricity or fuel consumption in the year y (tCO <sub>2</sub> e).
$PE_{\text{ww,treatment},y}$	Methane emissions from wastewater treatment systems affected by the project activity, and not equipped with biogas recovery, in year y (tCO <sub>2</sub> e).
$PE_{\text{s,treatment},y}$	Methane emissions from sludge treatment systems affected by the project activity, and not equipped with biogas recovery, in year y (tCO <sub>2</sub> e).
$PE_{\text{ww,discharge},y}$	Methane emissions from degradable organic carbon in treated wastewater in year y (tCO <sub>2</sub> e).
$PE_{\text{s,final},y}$	Methane emissions from anaerobic decay of the final sludge produced in year y (tCO <sub>2</sub> e).
$PE_{\text{fugitive},y}$	Methane emissions from biogas release in capture systems in year y
$PE_{\text{flaring},y}$	Methane emissions due to incomplete flaring in year y (tCO <sub>2</sub> e)
$PE_{\text{biomass},y}$	Methane emissions from biomass stored under anaerobic conditions

$PE_{\text{power},y}$  is determined as per the procedures described in the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” and “Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion”.



$PE_{ww,treatment,y}$  shall be calculated as per equation (2) above, using an uncertainty factor of 1.12 and data applicable to the project situation ( $MCF_{ww,treatment,PJ,k}$  and  $\eta_{PJ,k,y}$ ) and with the following changed definition of parameters:

$MCF_{ww,treatment,PJ,y}$  Methane correction factor for project wastewater treatment system k

$\eta_{PJ,k,y}$  Chemical oxygen demand removal efficiency of the project wastewater treatment system k in year y

$PE_{s,treatment,y}$  shall be calculated as equations (3) and (4) above, using an uncertainty factor of 1.12 and data applicable to the project situation ( $S_{l,PJ,y}$  and  $MCF_{s,treatment,l}$ ) and with the following changed definition of parameters:

$S_{l,PJ,y}$  Amount of dry matter in the sludge treated by the sludge treatment system l in the project scenario in year y (t)

$MCF_{s,treatment,l}$  Methane correction factor for the project sludge treatment system l

$PE_{ww,discharge,y}$  shall be calculated as equations (5) above, using an uncertainty factor of 1.12 and data applicable to the project situation ( $COD_{ww,discharge,PJ,y}$  and  $MCF_{ww,PJ,discharge}$ ) and with the following changed definition of parameters:

$COD_{ww,discharge,PJ,y}$  Amount of dry matter in the sludge treated by the sludge treatment system l in the project scenario in year y (t)

$MCF_{ww,PJ,discharge}$  Methane correction factor for the project sludge treatment system l

$PE_{s,final,y}$  shall be calculated as equations (6) above, using an uncertainty factor of 1.12 and data applicable to the project situation ( $MCF_{s,PJ,final}$  and  $S_{final,PJ,y}$ ) and with the following changed definition of parameters:

$MCF_{s,PJ,final}$  Methane correction factor of the disposal site that receives the final sludge in the project situation

$S_{final,PJ,y}$  Amount of dry matter in final sludge generated by the project wastewater treatment systems in the year y (t)

If the sludge is controlled combusted, disposed in a landfill with biogas recovery, or used for soil application in aerobic conditions in the project activity,  $PE_{s,final,y}$  shall be neglected, and the sludge treatment and/or use and/or final disposal shall be monitored during the crediting period.

$$PE_{fugitive,y} = PE_{fugitive,ww,y} + PE_{fugitive,s,y} \quad (10)$$

Where:

$PE_{fugitive,ww,y}$  Fugitive emissions through capture inefficiencies in the anaerobic wastewater treatment systems in the year y (tCO<sub>2</sub>e)

$PE_{fugitive,s,y}$  Fugitive emissions through capture inefficiencies in the anaerobic sludge treatment systems in the year y (tCO<sub>2</sub>e)

$$PE_{\text{fugitive,ww,y}} = (1 - CFE_{\text{ww}}) * MEP_{\text{ww,treatment,y}} * GWP_{\text{CH}_4} \quad (11)$$

Where:

$CFE_{\text{ww}}$  Capture efficiency of the biogas recovery equipment in the wastewater treatment systems

$MEP_{\text{ww,treatment,y}}$  Methane emission potential of wastewater treatment systems equipped with biogas recovery system in year y (t)

$$MEP_{\text{ww,treatment,y}} = Q_{\text{ww,y}} * B_{\text{o,ww}} * UF_{\text{PJ}} * \sum_k COD_{\text{removed,PJ,k,y}} * MCF_{\text{ww,treatment,PJ,k}} \quad (12)$$

Where:

$COD_{\text{removed,PJ,k,y}}$  The chemical oxygen demand removed by the treatment system k of the project activity equipped with biogas recovery in the year y (t/m<sup>3</sup>)

$MEP_{\text{ww,treatment,PJ,y}}$  Methane correction factor for the project wastewater treatment system k equipped with biogas recovery equipment

$UF_{\text{PJ}}$  Model correction factor to account for model uncertainties (1.12)

$$PE_{\text{fugitive,s,y}} = (1 - CFE_{\text{s}}) * MEP_{\text{s,treatment,y}} * GWP_{\text{CH}_4} \quad (13)$$

Where:

$CFE_{\text{s}}$  Capture efficiency of the biogas recovery equipment in the sludge treatment systems

$MEP_{\text{s,treatment,y}}$  Methane emission potential of wastewater treatment systems equipped with biogas recovery system in year y (t)

$$MEP_{\text{s,treatment,y}} = \sum_l (S_{\text{l,PJ,y}} * MCF_{\text{s,treatment,PJ,l}}) * DOC_{\text{s}} * UF_{\text{PJ}} * DOC_{\text{F}} * F * 16 / 12 \quad (14)$$

Where:

$S_{\text{l,PJ,y}}$  Amount of sludge treated in the project sludge treatment system l equipped with a biogas recovery system (on a dry basis) in year y (t)

$MCF_{\text{s,treatment,PJ,y}}$  Methane correction factor for the sludge treatment system equipped with biogas recovery equipment

$UF_{\text{PJ}}$  Model correction factor to account for model uncertainties

Optionally a default value of 0.05 m<sup>3</sup> biogas leaked/m<sup>3</sup> biogas produced may be used as an alternative to calculations per equation (8) to (12).

$PE_{\text{flaring,y}}$  will be determined by using “Project emissions from flaring” (Ref-10).

$PE_{\text{biomass,y}}$  will be determined by using “Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site” (Ref-11).

Validation team has validated the equations for project emissions calculation as above and is able to conclude that:



- ✚ Project emissions ( $PE_y$ ) is calculated in accordance with para. 13(8) of AMS III.H. version 16.
- ✚  $CH_4$  emission from incomplete flaring of biogas ( $PE_{flare,y}$ ) is calculated in accordance with "Project emissions from flaring".
- ✚  $CH_4$  emissions from biomass stored under anaerobic conditions ( $PE_{biomass,y}$ ) is calculated in accordance with "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site".

Validation team has validated the values of parameters ex ante determined at PoA level, i.e.  $CFE_{ww}$  of 0.9,  $CFE_s$  of 0.9,  $GWP_{CH_4}$  of 21 and  $UF_{PJ}$  of 1.12, and confirms that the ex ante determined values of the parameters are fully consistent with the applied methodology AMS III.H..

### 3. Leakage

If the technology is using equipment transferred from another activity, leakage effects at the site of the other activity are to be considered and estimated ( $LE_y$ ).

### 4. Emission reductions

*Ex-ante estimation:*

$$ER_{y,ex\ ante} = BE_{y,ex\ ante} - (PE_{y,ex\ ante} + LE_{y,ex\ ante})$$

*Ex-post calculation:*

For CPAs which adopt the measure/technology (a) Substitution of aerobic wastewater or sludge treatment systems with anaerobic systems with biogas recovery and combustion; and (e) Introduction of anaerobic wastewater treatment with biogas recovery and combustion, with or without anaerobic sludge treatment, to an untreated wastewater stream, the emission reduction achieved by the project activity (ex post) will be the difference between the baseline emissions and the sum of the project emissions and leakage, i.e.:

$$ER_{y,ex\ post} = BE_{y,ex\ post} - (PE_{y,ex\ post} + LE_{y,ex\ post})$$

For CPAs which adopt the measure/technology (b) Introduction of anaerobic sludge treatment system with biogas recovery and combustion to a wastewater treatment plant without sludge treatment; (c) Introduction of biogas recovery and combustion to a sludge treatment system; (d) Introduction of biogas recovery and combustion to an anaerobic wastewater treatment system such as anaerobic reactor, lagoon, septic tank or an onsite industrial plant; and (f) Introduction of a sequential stage of wastewater treatment with biogas recovery and combustion, with or without sludge treatment, to an anaerobic wastewater treatment system without biogas recovery, the emission reduction achieved by the project activity (ex post) will be based on the lowest value of the following:

(i) The amount of biogas recovered and fuelled or flared ( $MD_y$ ) during the crediting period, that is monitored ex post;

(ii) Ex post calculated baseline, project and leakage emissions based on actual monitored data for the project activity, i.e.:

$$ER_{y,ex\ post} = \min((BE_{y,ex\ post} - PE_{y,ex\ post} - LE_{y,ex\ post}), (MD_y - PE_{power,y} - PE_{biomass,y} - LE_{y,ex\ post}))$$

Complying with **para.92-93/VVM**, based on the above assessment, Bureau Veritas Certification hereby confirms that:

(a) All assumptions and data used by the project participants are listed in the PoA-DD, including their references and sources;



- (b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PoA-DD;
- (c) All values used in the PoA-DD are considered reasonable in the context of the proposed CDM project activity;
- (d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PoA-DD.

### 3.8 Start date of the PoA/CPA

The start date of the PoA is 22/01/2012. The eligibility criteria of the start date has been set as "the start date of the CPA is not before 22/01/2012".

Bureau Veritas Certification confirms that the start date of any CPA is not prior to the commencement of the validation of the PoA, which is the date of the CDM-PoA-DD is firstly published for global stakeholder consultation.

### 3.9 Additionality of a PoA

The steps taken and sources of information used, to cross-check the information contained in the PoA-DD on this matter are described below:

Additionality is demonstrated at CPA level.

As per "Guidelines on the demonstration of additionality of small-scale project activities" (version 09), the PoA choose a) Investment barrier to demonstrate additionality. To demonstrate that the CPA faces the investment barrier, the CPA should meet the criteria as follows:

That there is no legal requirement that is enforced for the CPA to be implemented; and

That there are no benefits to the CME besides CDM Revenue; and

That the CME will have to provide all capital for the implementation of the CPA and that such business framework for the implementation of CDM Programmes of Activities in the DPR Korea is equally applicable to all foreign investors.

The fulfillment of the criterion shall be evidenced through confirmation from competent authorities in the DPR Korea

If these criteria are met, then the CPA shall be able to demonstrate its additionality by using the simple cost analysis method. The CPA shall then demonstrate that a financially more viable alternative to the project would have led to higher emissions.

Validation team has assessed the additionality of a PoA in accordance with Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities and confirms that none of the implemented CPA would occur in the absence of CDM.

### 3.10 Monitoring plan

The CME has opted for verification of each CPA by DOE. Monitoring plan for each CPA will be developed according to the applied baseline and monitoring methodologies. The transparent system will be developed for monitoring, data collection and storage at PoA level.

Bureau Veritas Certification hereby confirms that the monitoring plan complies with the requirements of the methodologies.

The steps taken to assess whether the monitoring arrangements described in the monitoring plan are feasible within the project design are described below.

Table 2 DOE's Assessment on the parameters to be monitored

Parameter	Data source and measurement methods	Assessment
$Q_{ww,k,y}$	Continuously monitored using flow meters by the CPA implementers	The monitoring of the parameters complies with the requirements of AMS-III.H. version16.
$Q_{ww,discharge,PJ,y}$	The flow meters will be calibrated according to the manufacturer specifications	
$COD_{inflow,k,y}$	Measure the COD according to national or international standards. Samples and measurements shall ensure a 90/10 confidence/precision level. COD measurements are cross-checked at least once a year in an external laboratory to confirm onsite measurements.	
$COD_{outflow,y}$		
$COD_{ww,discharge,PJ,y}$		
$S_{l,PJ,y}$	Monitoring of 100% of the sludge amount through continuous or batch measurements and moisture content through representative sampling to ensure the 90/10 confidence/precision level. All weight measurement equipment used shall be calibrated and maintained in according to manufacturer specifications.	
$S_{final,PJ,y}$		
$w_{CH4,y}$	Continuously measured by a gas analyzer. All calibration gases must have a certificate provided by the manufacturer and must be under their validity period.	
$BG_{burnt,y}$	Continuously measured by flow meters. All flow meters used shall be calibrated and maintained in according to manufacturer specifications.	
$F_{CH4,EG,t}$	Measurements undertaken by a third party	The monitoring of the

	accredited entity on a bi-annual basis.	parameters complies with the Project emissions from flaring.
$M_{m,db}$	Continuously measured by a flow meter. Calibration and frequency of calibration is according to manufacturer's specifications.	
$T_m$	Continuously measured by the thermocouples. Calibration and frequency of calibration is according to manufacturer's specifications.	
$P_m$	Continuously measured by the pressure transducers. Periodic calibration against a primary device must be performed and records of calibration procedures must be kept available as well as the primary device and its calibration certificate.	
$V_{CH_4,m,db}$	Continuously measured by a gas analyser. All calibration gases must have a certificate provided by the manufacturer and must be under their validity period.	
$V_{N_2,m,db}$	Continuously measured by a gas analyser. All calibration gases must have a certificate provided by the manufacturer and must be under their validity period.	
$T_{EG,m}$	Measured by appropriate temperature measurement equipment once per minute. Temperature measurement equipment should be replaced or calibrated in accordance with their maintenance schedule.	
$Flame_m$	Measure using a fixed installation optical flame detector once per minute. Equipment shall be maintained and calibrated in accordance with manufacturer's recommendations.	
$Maintenance_y$	Measured annually by recording the date that maintenance events by the CPA implementer	The monitoring of the parameter complies with
$EC_{PJ,j,y}$	Continuously monitored by the electricity	



	meters installed at CPA site	the requirements of Tool to calculate baseline, project and/or leakage emissions from electricity consumption.
$FC_{k,l,y}$	Continuously monitored by the mass or volume meters by the CPA implementer	The monitoring of the parameters complies with the requirements of Tool to calculate project or leakage CO2 emissions from fossil fuel combustion
$w_{c,k,y}$	Values provided by the fuel supplier in an invoice (preferable source). If this is not available, then measurements by the CPA owner.	
$\rho_{c,k,y}$	Values provided by the fuel supplier in an invoice (preferable source). If this is not available, then measurements by the CPA owner	

All the records will be kept electronically during the crediting period plus 2 years. Validation team is of the opinion that the monitoring plan complies with the requirements of the methodologies.

Operational management for the project activity is comprehensively detailed in PoA-DD and it includes description of the responsibility, procedure reference, calibration frequency, maintenance needs, QA/QC procedure and data management system.

The steps taken to assess whether the monitoring arrangements described in the monitoring plan are feasible within the programme design.

### 3.11 Environmental impacts

The CME will undertake an analysis of environmental impacts at CPA level.

Currently, in accordance with host Party laws and regulations, it is unlikely that an environmental impact assessment (EIA) will be required for a typical CPA, which has been validated by validation team during the site visit.

### 3.12 Local stakeholder consultation

The CME will undertake the local stakeholder consultation at CPA level.

## 4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PoA-DD using methodologies AMS-III.H. version 16 was webhosted on the UNFCCC for global stakeholders comments as per CDM requirements. The programme was webhosted from 22/01/2012 – 20/02/2012.

No comments were received.





## 5 V ALIDATION OPINION

Bureau Veritas Certification has performed a validation of the PoA named Methane Utilisation and Destruction Programme from Industrial Wastewater in DPR Korea. The validation 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 validation consisted of the following three phases: i) a desk review of the design and the baseline and monitoring plan; ii) follow-up interviews with stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

By reviewing VVM, Procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities, Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities etc, Bureau Veritas Certification is of the opinion that management system of CME is robust and efficient to ensure eligibility and quality of CPAs. Eligibility criteria are sufficient so that the inclusion of CPAs could fulfill all requirements of EB rules. Emission reductions attributable to the CPA under the PoA are additional to any that would occur in the absence of the PoA, and hence are likely to be achieved.

The review of the PoA-DD version 08 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 PoA correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification concludes the PoA named Methane Utilisation and Destruction Programme from Industrial Wastewater in DPR Korea meets all stated criteria and thus requests registration of Methane Utilisation and Destruction Programme from Industrial Wastewater in DPR Korea as PoA.



## 6 REFERENCES

### Category 1 Documents:

Documents provided by Carbon Development and Trading Ltd. that relate directly to the GHG components of the PoA.

- /1/ PoA DD version 01 dated 15/01/2012 for GSP
- /2/ Generic CPA DD version 01 for GSP
- /3/ PoA DD version 08 dated 07/12/2012
- /4/ Generic CPA DD version 03 dated 07/12/2012
- /5/ Letter of approval (LoA) issued by DPRK's DNA on 19/04/2012
- /6/ Letter of approval (LoA) issued by DPRK's DNA on 31/01/2012
- /7/ Evidence of average temperature in DPRK
- /8/ MoC
- /9/ 2006 IPCC Guidelines
- /10/ Confirmation letter issued by the Department of Environment Protection, Ministry of Land and Environment Protection regarding the capture and/or utilization or destruction of methane from industrial wastewater
- /11/ Confirmation letter issued by the Carbon Development and Trading Ltd. regarding its voluntary participation in the PoA as the CME
- /12/ The environmental protection law of DPRK issued in 1986

### Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

- Ref-1 VVM version01.2 dated 30/07/2010(EB55 Annex02)
- Ref-2 Procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities dated 02/08/2010(EB55 Annex38)
- Ref-3 Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities(EB65 Annex03)
- Ref-4 CDM-SSC-PoA-DD form(EB33 Annex43)
- Ref-5 CDM-SSC-CPA-DD form(EB33 Annex44)
- Ref-6 AMS-III.H. Methane recovery in wastewater treatment (version16)
- Ref-7 Guidelines on assessment of de-bundling for SSC Project activities(EB54 Annex13)
- Ref-8 General Guidelines to SSC CDM methodologies(EB66 Annex23)
- Ref-9 Glossary of CDM terms version 06
- Ref-10 Project emissions from flaring (version 02.0.0)
- Ref-11 Tool to determine methane emissions avoided from disposal of waste at a solid



- waste disposal site
- Ref-12 Tool to calculate baseline, project and/or leakage emissions from electricity consumption”
- Ref-13 Tool to calculate project or leakage CO2 emissions from fossil fuel combustion



**Persons interviewed:**

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

- /1/. Mr. Jang Sun Yong, Local residents
- /2/. Mr. Kim Hyong Sam, Officer of Peoples Committee of North Pyongyang Province
- /3/. Ms. Kim Mi Son, Officer of Peoples Committee of North Pyongyang Province
- /4/. Mr. Song Jong Chol, Officer of GBCIO
- /5/. Mr. Ri Yang Nam, Officer of GBCIO
- /6/. Mr. Thomas, CDM Manager of Carbon Development and Trading Ltd.
- /7/. Mr. Pi Guang Un, Officer of Ministry of land and environmental protection



## 7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Ms. Katherine Zhang Ying	Bureau Veritas Certification, China	<p>Team Leader, Climate Change Lead Verifier</p> <p>She holds a Master Degree in Environmental Engineering. Before join BV in 2010, She gained over two years of CDM technical experience in energy and waste handling &amp; disposal sector in P. R. China. She obtained the certificate of CDM verifier.</p>
Mr. WANG Zhenning	Bureau Veritas Certification, China	<p>Team Member, Climate Change Lead Verifier</p> <p>He holds an MSc Degree in Environmental Technology and Bachelor Degree in Environmental Engineering. Before joining BV in 2010, he gained 4 years of technical experiences in the CDM industry in P.R China. He obtained the certificate of CDM Verifier in Nov 2010.</p>
Mr. Liao Ling	Bureau Veritas Certification, China	<p>Technical Reviewer, Climate Change Lead Verifier.</p> <p>He holds a Bachelor Degree in Atmosphere Science. Before joining BV in 2008, he gained 4 years experience of environmental assessment and 2 years of technical experience of CDM in P.R China. He obtained the certificate of CDM Lead Verifier and Lead Auditor for EMS ISO 14001 and 14064:2006.</p>

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## VALIDATION REPORT

## APPENDIX A: COMPANY CDM PROGRAMME VALIDATION PROTOCOL

**Table 1 Validation requirements of PoA**

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
<b>1. Global Stakeholder Consultation</b>						
1.1. Is there any comment on the SSC-PoA-DD of the proposed project activity received during Global Stakeholder Consultation process?	VVM	43	No.		OK	OK
1.2. If yes, have all comments been taken into account during the validation of the proposed project activity?	VVM	43	N.A.		OK	OK
1.3. If comments indicate that the proposed project activity does not comply with the CDM requirements and are not substantiated, is there any further clarification from the entity providing the comment?	VVM	42	N.A.		OK	OK
1.3.1. If yes, how comments received have been taken due account?	VVM	42	N.A.		OK	OK
1.3.2. If no, are the comments as originally provided proceeded to assess?	VVM	42	N.A.		OK	OK
<b>2. Approval</b>			<b>COUNTRY A (DPRK)</b>	<b>COUNTRY B (UK)</b>		
2.1. Have the letters of approval obtained from each host Party and Annex I Party which wishes to be involved in the PoA?	VVM EB55	45 9	CAR-1: The LoA from DNA of DPRK has not been provided.	CAR-2: The LoA from DNA of UK has not been	CAR-1 CAR-2	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
	Ann38		The LoA issued by DNA of DPRK on 19/04/2012 has been provided by the project participant and verified authentic by Bureau Veritas Certification.  Hence, CAR-1 is closed out.	<del>provided.</del>  PoA-DD version07 has been updated to reflect that the CME has obtained a LoA from DPRK and aims to register the PoA as a unilateral PoA. Thus it's not necessary to provide the LoA from DNA of UK.  Hence, CAR-2 is closed out.		
2.2. Are letters of approval issued in accordance with the guidance provided by the Board (EB 16 report, Annex 6)?  - The Party is a Party of the Kyoto Protocol  - The participation is voluntary  - In the case of the host Party, the proposed CDM programme contributes to the sustainable development of the country  - Refers to the precise proposed CDM project activity title in the SSC-PoA-DD being submitted for	VVM EB55 Ann38 EB16 Ann6	45 9	<del>Pending on CAR-1.</del>  DPRK has ratified the Kyoto Protocol on 27/04/2005. Please refer to:  <a href="http://maindb.unfccc.int/public/country.pl?country=KP">http://maindb.unfccc.int/public/country.pl?country=KP</a>  The LoA from DPRK confirms that the participation is	<del>Pending on CAR-2.</del>  N.A.	<del>Pending</del> g	OK





## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
registration			voluntary, and the PoA contributes to the sustainable development of the country. The LoA refers to the precise Project title in the SSC-PDD-DD.			
2.3. Is(are) the letter(s) of approval unconditional with respect to (2.2) above?	VVM	46	<del>Pending on CAR-1.</del> Yes. It is unconditional with respect to (1.2) above.	<del>Pending on CAR-2.</del> N.A.	<del>Pending</del> g	OK
2.4. Has(ve) the letter(s) of approval been issued by the respective Party's designated national authority (DNA) and is valid for the CDM project activity under validation?	VVM	47	<del>Pending on CAR-1.</del> There is no doubt about the LoA issued by DPRK DNA.	<del>Pending on CAR-2.</del> N.A.	<del>Pending</del> g	OK
2.5. Is there doubt with respect to the authenticity of the letter of approval?	VVM	48	<del>Pending on CAR-1.</del> No.	<del>Pending on CAR-2.</del> N.A.	<del>Pending</del> g	OK
2.6. If yes, was verified with the DNA that the letter of approval is authentic?	VVM	48	<del>Pending on CAR-1.</del> N.A.	<del>Pending on CAR-2.</del> N.A.	<del>Pending</del> g	OK
<b>3. Authorization</b>						
3.1. Is CDM project participation recorded only at the	EB55	8	Yes. CDM project participant is only		OK	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
PoA level while the operators of individual CPAs are not considered as project participants?	Ann38		recorded at the PoA level while the operators of individual CPAs are not considered as project participants.		
3.2. Has the coordinating/managing entity obtained letters of authorization of its coordination of the PoA from each host Party?	EB55 Ann38	10	<del>Pending on CAR 1.</del> The CME's coordination of the proposed PoA has been authorized in the LoA from DPRK, which has been verified authentic by Bureau Veritas Certification.	<del>Pending</del> g	OK
3.3. Has the approval of participation issued from the relevant DNA?	VVM	53	<del>Pending on CAR 1 and CAR 2.</del> Yes. The participation of the CME has been approved by DPRK DNA in the LoA. The code of LoA from DPRK DNA is No. 101.	<del>Pending</del> g	OK
3.4. Is there doubt with respect to (3.3) above?	VVM	53	<del>Pending on CAR 1 and CAR 2.</del> No.	<del>Pending</del> g	OK
3.5. If yes, was verified with the DNA that the approval of participation is valid for the proposed project participant?	VVM	53	<del>Pending on CAR 1 and CAR 2.</del> N.A.	<del>Pending</del> g	OK
<b>4. Modalities of Communications (MoC)</b>					
4.1. Is the CME the sole or a joint focal point for each scope of authority?	EB55 Ann38	11	<del>CAR 3: The MoC has not been provided.</del> The MoC has been provided. The contact information in the MoC has been verified and found consistent with that in the SSC-	<del>CAR 3</del>	OK

## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			PoA-DD. Hence, CAR-3 is closed out.		
4.2. Is the number of joint focal points limited to five, or equal to the number of host parties if greater than five?	EB55 Ann38	11	<del>Pending on CAR-3.</del> N.A. No joint focal points, just sole focal point.	<del>Pending</del> g	OK
5. PoA design					
5.1. Is the SSC-PoA-DD completed using latest version of the CDM SSC-PoA-DD form appropriate to the type of project activity?	VVM	55	Yes, Programme of Activities Design Document Form (CDM- SSC- PoA - DD) version 01 (EB33 Ann 43) was used.	OK	OK
6. General description of PoA (corresponding to section A of CDM SSC-PoA-DD s)					
6.1. In Section A.1 of CDM-SSC-PoA-DD, is a title for the PoA provided?	EB33	Ann43	Yes. PoA title: Methane Utilisation and Destruction Programme from Industrial Wastewater in DPR Korea.	OK	OK
6.2. Description of programme of activities(Section A.2 of CDM-SSC-PoA-DD)	EB33	Ann43			
6.2.1. Is a framework developed for the implementation of the proposed CDM PoA and inclusion of CPAs under the PoA?	EB33 EB55 Ann38	Ann43 6	Yes. The proposed PoA mainly aims to reduce GHG emission by capturing and destroying methane which is now emitted directly from the organic wastewater in foodstuff, pulp &	OK	OK

## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			paper, fibre & textile industry in DPRK using new wastewater treatment system.  The factories which meet the eligibility criteria will be included in the proposed PoA.		
6.2.2. Is Policy/measure or stated goal that the proposed PoA provided?	EB33 EB55 Ann38	Ann43 6(c)	Yes.  The PoA aims to reduce GHG emissions by capturing methane from industrial wastewater in the territory of the DPRK through the measures provided in the applied methodology AMS-III.H.	OK	OK
6.2.3. Is it confirmed that the proposed PoA is a voluntary action by the coordinating/managing entity?	EB33 EB55 Ann38	Ann43 6(d)	Yes.  The proposed PoA is a voluntary action by the CME and is not required by DPRK law.	OK	OK
6.3. Coordinating/managing entity and participants of PoA(Section A.3 of CDM-SSC-PoA-DD)	EB33	Ann43			
6.3.1. Coordinating or managing entity	EB33 EB55 Ann38	Ann43 6(a)	Yes.  CME: Carbon Development and Trading Ltd.	OK	OK
6.3.2. Host Party(ies)	EB33 EB55 Ann38	Ann43 6(a)	Yes.  Host Party: DPRK.	OK	OK
6.3.3. PoA participants	EB33	Ann43	Carbon Development and Trading Ltd.	OK	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	EB55 Ann38	6(a)			
6.4. Technical description of the programme of activities(Section A.4 of CDM-SSC-PoA-DD)	EB33	Ann43			
6.4.1. In Section A.4.1 of CDM-SSC-PoA-DD, is location of the programme of activities defined?	EB33	Ann43			
6.4.1.1. Host Party(ies)	EB33	Ann43	DPRK.	OK	OK
6.4.1.2. Definition of the boundary for the PoA in terms of a geographical area(e.g., municipality, region within a country, country or several countries) within which all CPAs included in the PoA will be implemented, taking into consideration the requirement that all applicable national and/or sectoral policies and regulations of each host country within that chosen boundary.	EB33 EB55 Ann38	Ann43 6(b)	Yes. The whole DPRK.	OK	OK
6.4.2. In Section A.4.2.1 of CDM-SSC-PoA-DD, is (are) technology or measures to be employed by the CPA provided?	EB33 EB55 Ann38	Ann43 6(f)	<p><del>CL-1: The technology or measures to be employed by the CPA should be specified.</del></p> <p>Section A.4.2.1 has been updated and the technology or measures to be employed by the CPA has been specified in the CDM-SSC-POA-DD version 08.</p> <p>Hence, CL-1 is closed out.</p> <p>Each CPA will adopt one or a combination of the following technologies or measures:</p>	CL-1	OK

## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>(a) Substitution of aerobic wastewater or sludge treatment systems with anaerobic systems with biogas recovery and combustion;</p> <p>(b) Introduction of anaerobic sludge treatment system with biogas recovery and combustion to a wastewater treatment plant without sludge treatment;</p> <p>(c) Introduction of biogas recovery and combustion to a sludge treatment system;</p> <p>(d) Introduction of biogas recovery and combustion to an anaerobic wastewater treatment system such as anaerobic reactor, lagoon, septic tank or an on site industrial plant;</p> <p>(e) Introduction of anaerobic wastewater treatment with biogas recovery and combustion, with or without anaerobic sludge treatment, to an untreated wastewater stream;</p> <p>(f) Introduction of a sequential stage of wastewater treatment with biogas recovery and combustion, with or without sludge treatment, to an anaerobic wastewater treatment system without biogas recovery (e.g. introduction of treatment in an</p>		

## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			anaerobic reactor with biogas recovery as a sequential treatment step for the wastewater that is presently being treated in an anaerobic lagoon without methane recovery).		
6.4.3. In Section A.4.2.2 of CDM-SSC-PoA-DD, is eligibility criteria for inclusion of a CPA in the PoA provided?	EB33 EB55 Ann38	Ann43 6(g)	Yes.  The eligibility criteria has been provided in Section A.4.2.2 of CDM-SSC-PoA-DD.	OK	OK
6.4.4. In Section A.4.3 of CDM-SSC-PoA-DD, is additionality assessed and demonstrated as following?	EB33	Ann43			
6.4.4.1. Is the proposed PoA a voluntary coordinated action?	EB33 EB55 Ann38	Ann43 6(e)	Yes.	OK	OK
6.4.4.2. If the PoA is implementing a voluntary coordinated action, would it be implemented in the absence of the PoA?	EB33 EB55 Ann38	Ann43 6(e)	<del>CL-2: Clarification is required on whether the proposed PoA would be implemented voluntarily.</del>  Clarification has been made that the current business as usual activity is the release of methane from industrial wastewater into the atmosphere without capture and utilisation or destruction. There are no laws in the DPR Korea requiring the operators of industrial wastewater facilities to utilise or capture methane. Given the lack of	<del>CL-2</del>	OK





## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			investment capital available in the DPR Korea, the CPAs would not happen in the absence of CDM revenue that could accrue to the coordinating/managing entity (CME). The DPR Korea currently has no plans to implement legislation for the capture and utilisation of methane from industrial wastewater. So, the PoA is implementing a voluntary coordinated action, and would not be implemented in the absence of the PoA. Hence, CL-2 is closed out.		
6.4.4.3. If the PoA is implementing a mandatory policy/regulation, is this enforced?	EB33 EB55 Ann38	Ann43 6(e)	<del>CL-3: DPRK had issued environmental protection law in 1986, which required that industrial plant must take measures to treat the production wastewater to meet national wastewater discharge standard. As per the discharge standard, the COD content of the treated wastewater before being discharged into the river should be lower than 0.0001 t/m<sup>3</sup>. However, the COD content of the wastewater treated by the open lagoons and discharged into the river, which is the prevailing wastewater treatment operation, fails to meet the discharge standard. Whether the proposed PoA is mandatory should be further justified.</del> A letter issued by the Ministry of Land and	CL-3	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Environment Protection of the DPR Korea has been provided and it could be confirmed that the current wastewater discharge standards are not enforced.  Hence, CL-3 is closed out.		
6.4.4.4. If mandatory a policy/regulation is enforced, will the PoA lead to a greater level of enforcement of the existing mandatory?	EB33 EB55 Ann38	Ann43 6(e)	<del>Pending on CL-3.</del> N.A.	<del>Pending</del> g	OK
6.4.5. In Section A.4.4.1 of CDM-SSC-PoA-DD, is the following description of the operational and management arrangement established by the coordinating/managing entity for the implementation of the PoA included?	EB33	Ann43			
6.4.5.1. A record keeping system for each CPA under the PoA	EB33	Ann43	Yes.  The record keeping system includes, but is not limited to, a database that lists all CPAs, the CPA's unique identification number, name and location of the CPA, size of each CPA, installed equipment, name of the company responsible for the CPA and all necessary data relating to the coal mines at each CPA site. The database will be maintained by the CME with information provided by each CPA operator. The CME verifies the reported data with field checks if	OK	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>necessary</p> <p>The CME's Monitoring Team collects all monitoring data from the CPA operated and will keep those records in accordance with the monitoring methodology.</p> <p>All data will be archived in accordance with the requirements set out in the monitoring methodology.</p> <p>Each CPA is operated by a CPA implementer under the control of the CME. The CPA implementer reports monitored data to the CME.</p>		
6.4.5.2. A system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as a CDM project or as a CPA of another PoA	EB33 EB65 Ann3	Ann43 17	<p>Each CPA implementer, in accordance with the eligibility criteria set out in section 4.2.2, confirms in writing at the time of CPA inclusion that it does not belong to any other PoA or other registered CDM Project to ensure the avoidance of double counting.</p> <p>However, this system/procedure does not ensure avoiding double counting.</p> <p><del>CL-4: It is required to specify the conditions</del></p>	CL-4	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p><del>to check and determine whether the new CPA belongs to any other PoA or other registered CDM Project.</del></p> <p>Before seeking to include a CPA in the PoA, the CME shall obtain a letter from the CPA operator confirming that the CPA is not already registered as a CDM project activity or a CPA of another PoA. Additionally, the CME will consult the CDM project database to ensure that the CPA is not already a registered CDM project or included in another PoA. Each CPA shall have a unique identification number and unique geographical reference.</p> <p>Hence, CL-4 is closed out.</p>		
6.4.5.3. The SSC-CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity	EB33  EB65 Ann3	Ann43  17	<p>Yes.</p> <p>The implementer shall confirm with a written statement that the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity. In addition, the Guidance for determining the occurrence of de-bundling under a Programme of Activity will be adopted to demonstrate that the SSC-CPA included in the PoA is not a de-bundled component.</p>	OK	OK
6.4.5.4. The provisions to ensure that those	EB33	Ann43	Yes.	OK	OK

## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA			The implementer shall confirm with a written statement that they are aware that the CPA will be subscribed to the PoA.		
6.4.5.5. A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies	EB65 Ann3	17	<p><del>CL-5: A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies is required to be included in the CDM PoA-DD as per EB65 Annex 3.</del></p> <p>A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies has been provided in the PoA-DD version 08.</p> <p>Hence, CL-5 is closed out.</p>	CL-5	OK
6.4.5.6. Records of arrangements for training and capacity development for personnel	EB65 Ann3	17	<p><del>CL-6: Records of arrangements for training and capacity development for personnel is required to be included in the CDM PoA-DD as per EB65 Annex 3.</del></p> <p>Records of arrangements for training and capacity development for personnel has been included in the PoA-DD version 08.</p> <p>Hence, CL-6 is closed out.</p>	CL-6	OK
6.4.5.7. Procedures for technical review of inclusion of CPAs	EB65 Ann3	17	<p><del>CL-7: Procedures for technical review of inclusion of CPAs is required to be included</del></p>	CL-7	OK

## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			in the CDM PoA DD as per EB65 Annex 3. Procedures for technical review of inclusion of CPAs have been included in the PoA DD version 08. Hence, CL-7 is closed out.		
6.4.5.8. Records and documentation control process for each CPA under the PoA	EB65 Ann3	17	Yes. Section A.4.4.1 of the CDM-PoA-DD includes the records and documentation control process for each CPA under the PoA.	OK	OK
6.4.5.9. Measures for continuous improvements of the PoA management system	EB65 Ann3	17	<del>CL-8: Measures for continuous improvements of the PoA management system is required to be included in the CDM PoA DD as per EB65 Annex 3.</del> Measures for continuous improvements of the PoA management system has been included in the PoA DD version 08 as: the CME strives to continuously improve the PoA management system. The CME will follow guidance issued by the CDM Executive Board and other entities involved in the carbon market in order to adhere to the latest standards for PoA management systems. Hence, CL-8 is closed out.	<del>CL-8</del>	OK
6.4.5.10. Any other relevant elements	EB65	17	N.A.	OK	OK

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	Ann3				
6.4.6. In Section A.4.4.2 of CDM-SSC-PoA-DD, is the following information regarding monitoring plan provided?	EB33	Ann43			
6.4.6.1. Description of the proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of reductions of anthropogenic emissions by sources or removals by sinks of greenhouse gases achieved by CPAs under the PoA	EB33 EB55 Ann38	Ann43 6(k)	<p><del>CL-9: The statistically sound sampling methods mentioned in the Section A.4.4.2 of the webhosted CDM-PoA-DD should be specified.</del></p> <p>It has been clarified in the PoA-DD version 08 that no sampling methods for the CPAs will be used. The CME opts for a verification method that does not use sampling but verifies each CPA.</p> <p>Hence, CL-9 is closed out.</p>	CL-9	OK
6.4.6.2. In case the coordinating/managing entity opts for a verification method that does not use sampling but verifies each CPA(whether in groups or not, with different or identical verification periods), a transparent system is to be defined and described that ensures that no double accounting occurs and that the status of verification can be determined anytime for each CPA	EB33 EB55 Ann38	Ann43 6(k)	<p><del>Pending on CL-9.</del></p> <p>Verification will be done separately for each individual CPA in accordance with the applied baseline and monitoring methodology. Each CPA will have a unique ID, which will be listed in the verification report in order to ensure that no double-counting can occur.</p>	Pending	OK
6.5. In Section A.5 is information regarding public funding of the programme activities provided?	EB33 EB55	Ann43 6(n)	Yes.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	Ann38				
<b>7. Duration of the programme of activities(Section B of CDM-SSC-PoA-DD)</b>	EB33	Ann43			
7.1. In Section B.1 of CDM-SSC-PoA-DD, is starting date of the PoA defined?	EB33	Ann43	Yes.	OK	OK
7.2. In Section B.2 of CDM-SSC-PoA-DD, is length of the PoA defined with a maximum total length of 28 years?	EB33 EB55 Ann38	Ann43 6(h)	Yes. 28 years.	OK	OK
<b>8. Environmental Analysis(Section C of CDM-SSC-PoA-DD)</b>	EB33	Ann43			
8.1. In Section C.1 of CDM-SSC-PoA-DD, is environmental analysis conducted at PoA level or CPA level?	EB33 EB55 Ann38	Ann43 6(l)	CPA level.	OK	OK
8.2. If environmental analysis is conducted at PoA level, is the documentation on the analysis of the environmental impacts, including transboundary impacts provided in Section C.2 of CDM-SSC-PoA-DD	EB33	Ann43	N.A.	OK	OK
8.3. In Section C.3 of CDM-SSC-PoA-DD, is it stated that whether in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA included in the PoA?	EB33	Ann43	<del>CL-10: In Section C.3 of CDM-SSC-PoA-DD, whether in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA included in the PoA should be stated.</del>	CL-10	OK



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			<p>It has been clarified in the PoA DD version 08 that in accordance with host Party laws and regulations, it is unlikely that an environmental impact assessment (EIA) will be required for a typical CPA. The requirement for performing an EIA will be evaluated for each CPA and will be completed if so required by the host Party. For each CPA, the Ministry of Land and Environment Protection, responsible for the assessment of EIAs will be consulted to be sure whether such EIA is required for the CPA.</p> <p>Hence, CL-10 is closed out.</p>		
<b>9. Stakeholders' comments(Section D of CDM-SSC-PoA-DD)</b>					
9.1. In Section D.1 of CDM-SSC-PoA-DD, is the local stakeholder consultation process done at PoA level or CPA level?	EB33 EB55 Ann38	Ann43 6(m)	CPA level.	OK	OK
9.2. If local stakeholders comments were invited at the PoA level,					
9.2.1. In Section D.2 of CDM-SSC-PoA-DD, how these comments were invited and compiled?	EB33 EB55 Ann38	Ann43 6(m)	N.A.	OK	OK



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9.2.2. In Section D.3 of CDM-SSC-PoA-DD, is the summary of the comments received provided?	EB33 EB55 Ann38	Ann43 6(m)	N.A.	OK	OK
9.2.3. In Section D.4 of CDM-SSC-PoA-DD, how due account was taken of all comments received?	EB33 EB55 Ann38	Ann43 6(m)	N.A.	OK	OK
<b>10. Application of a baseline and monitoring methodology (Section E of CDM-SSC-PoA-DD)</b>					
10.1. In Section E.1 of CDM-SSC-PoA-DD, are title and reference of the approved methodology (including any other methodologies or tools) applied to each CPA included in the PoA provided?	EB33	Ann43	Yes. AMS-III.H. (version 16) "Methane recovery in wastewater treatment".	OK	OK
10.2. Justification of the choice of the methodology and why it is applicable to each CPA (E.2 of CDM-SSC-PoA-DD)					
10.3. Is choice of an approved baseline and monitoring methodology (or combination of approved methodologies) justified?	EB33 EB55 Ann38	Ann43 6(f)			
10.3.1. For PoAs applying large scale CDM methodologies or combination of multiple large scale and small-scale CDM methodologies in a PoA, are combinations explicitly permitted in the	EB65 Ann3	32&33	Yes.	OK	OK



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methodologies?					
10.3.2. If not, has a clarification for the eligibility of the proposed combination sought by following the latest version of the "Procedure for the submission and consideration of queries regarding the application of approved methodologies and methodological tools by designated operational entities to the Meth Panel" ?	EB65 Ann3	32&33	N.A.	OK	OK
10.3.3. Is each of the applicability conditions of the approved methodology or other methodology component referred to therein met?	EB33 EB55 Ann38	Ann43 6(f)			
10.3.3.1. This methodology comprises measures that recover biogas from biogenic organic matter in wastewater by means of one, or a combination, of the following options:  (a) Substitution of aerobic wastewater or sludge treatment systems with anaerobic systems with biogas recovery and combustion;  (b) Introduction of anaerobic sludge treatment system with biogas recovery and;  (c) Combustion to a wastewater treatment plant without sludge treatment; Introduction of biogas recovery and	AMS- III.H Ver.16	1	Yes.  The CPAs will use one or a combination of the six measures.	OK	OK



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<p>combustion to a sludge treatment system;</p> <p>(d) Introduction of biogas recovery and combustion to an anaerobic wastewater treatment system such as anaerobic reactor, lagoon, septic tank or an on site industrial plant;</p> <p>(e) Introduction of anaerobic wastewater treatment with biogas recovery and combustion, with or without anaerobic sludge treatment, to an untreated wastewater stream;</p> <p>(f) Introduction of a sequential stage of wastewater treatment with biogas recovery and combustion, with or without sludge treatment, to an anaerobic wastewater treatment system without biogas recovery (e.g. introduction of treatment in an anaerobic reactor with biogas recovery as a sequential treatment step for the wastewater that is presently being treated in an anaerobic lagoon without methane recovery).</p>					
10.3.3.2. In cases where baseline system is anaerobic lagoon the methodology is applicable if:	AMS-III.H	2	Yes. The CME will ensure that all the CPAs with	OK	OK



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<p>(a)The lagoons are ponds with a depth greater than two meters, without aeration. The value for depth is obtained from engineering design documents, or through direct measurement, or by dividing the surface area by the total volume. If the lagoon filling level varies seasonally, the average of the highest and lowest levels may be taken;</p> <p>(b)Ambient temperature above 15°C, at least during part of the year, on a monthly average basis;</p> <p>(c)The minimum interval between two consecutive sludge removal events shall be 30 days.</p>	Ver.16		the baseline system of anaerobic lagoon will comply with the methodological requirements regarding the depth of the lagoon, the ambient temperature and the sludge removal intervals.		
<p>10.3.3.3.The recovered biogas from the above measures may also be utilised for the following applications instead of combustion/flaring:</p> <p>(a)Thermal or mechanical, electrical energy generation directly;</p> <p>(b)Thermal or mechanical, electrical energy generation after bottling of upgraded biogas, in this case additional guidance provided in Annex 1 shall be followed; or</p>	AMS-III.H Ver.16	3	<p>Yes.</p> <p>The CME has defined that the recovered biogas may be destroyed through flaring and/or utilized for heat and/or electricity generation. Options (b), (c), (d), and (e) will not be involved in the CPAs.</p>	OK	OK



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(c) Thermal or mechanical, electrical energy generation after upgrading and distribution, in this case additional guidance provided in Annex 1 shall be followed: (i) Upgrading and injection of biogas into a natural gas distribution grid with no significant transmission constraints; (ii) Upgrading and transportation of biogas via a dedicated piped network to a group of end users; or (iii) Upgrading and transportation of biogas (e.g. by trucks) to distribution points for end users. (d) Hydrogen production; (e) Use as fuel in transportation applications after upgrading.					
10.3.3.4. If the recovered biogas is used for project activities covered under paragraph 3 (a), that component of the project activity can use a corresponding methodology under Type I.	AMS-III.H Ver.16	4	Yes.	OK	OK
10.3.3.5. For project activities covered under paragraph 3 (b), if bottles with upgraded biogas are sold outside the project boundary, the end-use of the biogas shall be ensured via a contract between the	AMS-III.H Ver.16	5	N.A.	OK	OK





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bottled biogas vendor and the end-user. No emission reductions may be claimed from the displacement of fuels from the end use of bottled biogas in such situations. If however the end use of the bottled biogas is included in the project boundary and is monitored during the crediting period CO2 emissions avoided by the displacement of fossil fuel can be claimed under the corresponding Type I methodology, e.g. AMS-I.C "Thermal energy production with or without electricity.					
10.3.3.6. For project activities covered under paragraph 3 (c) (i), emission reductions from the displacement of the use of natural gas are eligible under this methodology, provided the geographical extent of the natural gas distribution grid is within the host country boundaries.	AMS-III.H Ver.16	6	N.A.	OK	OK
10.3.3.7. For project activities covered under paragraph 3 (c) (ii), emission reductions for the displacement of the use of fuels can be claimed following the provision in the corresponding Type I methodology, e.g. AMS-I.C.	AMS-III.H Ver.16	7	N.A.	OK	OK
10.3.3.8. In particular, for the case of 3 (b) and (c)	AMS-	8	N.A.	OK	OK



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(iii), the physical leakage during storage and transportation of upgraded biogas, as well as the emissions from fossil fuel consumed by vehicles for transporting biogas shall be considered. Relevant procedures in paragraph 11 of Annex 1 of AMS-III.H "Methane recovery in wastewater treatment" shall be followed in this regard.	III.H Ver.16				
10.3.3.9. For project activities covered under paragraph 3 (b) and (c), this methodology is applicable if the upgraded methane content of the biogas is in accordance with relevant national regulations (where these exist) or, in the absence of national regulations, a minimum of 96% (by volume).	AMS-III.H Ver.16	9	N.A.	OK	OK
10.3.3.10. If the recovered biogas is utilized for the production of hydrogen (project activities covered under paragraph 3 (d)), that component of the project activity shall use the corresponding methodology AMS-III.O "Hydrogen production using methane extracted from biogas".	AMS-III.H Ver.16	10	N.A.	OK	OK
10.3.3.11. If the recovered biogas is used for project activities covered under paragraph	AMS-III.H	11	N.A.	OK	OK



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3 (e), that component of the project activity shall use corresponding methodology AMS-III.AQ "Introduction of Bio-CNG in road transportation.	Ver.16				
10.3.3.12. New facilities (Greenfield projects) and project activities involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system are only eligible to apply this methodology if they comply with the relevant requirements in the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed.	AMS-III.H Ver.16	12	Yes.  The CME will ensure that all CPAs comply with methodological requirements regarding new facilities and capacity addition projects.	OK	OK
10.3.3.13. The location of the wastewater treatment plant as well as the source generating the wastewater shall be uniquely defined and described in the PDD.	AMS-III.H Ver.16	13	Yes.  The location of each CPA will be identified with a map, GPS coordinates and location description. The CME will ensure that each CPA is uniquely identified as described.	OK	OK
10.3.3.14. Measures are limited to those that result in aggregate emissions reductions of less than or equal to 60 kt CO2 equivalent annually from all Type III components of	AMS-III.H Ver.16	14	Yes.  The CME will ensure that each CPA complies with this criteria and shall only	OK	OK



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the project activity.			seek to include CPAs with aggregate emission reductions of less than 60kt CO <sub>2</sub> e per year.		
10.4. Description of the sources and gases included in the CPA boundary(Section E.3 of CDM-SSC-PoA-DD)	EB33	Ann43			
10.4.1. Is the boundary of the PoA including the physical delineation of the project activity defined?	VVM	79	Yes.	OK	OK
10.4.2. Are sources and GHGs included in CPA boundary in accordance with the selected methodology(ies)?	EB33 VVM	Ann43 79	Yes.	OK	OK
10.4.3. In cases where the selected methodology(ies) allows project participants to choose whether a source or gas is to be included in the project or CPA boundary, is the choice explained and justified?	VVM	79	N.A.	OK	OK
10.5. Description of how the baseline scenario is identified and description of the identified baseline scenario(Section E.4 of CDM-SSC-PoA-DD)	EB33	Ann43			
10.5.1. Is description of how the baseline scenario is identified provided?	EB33	Ann43	Yes.	OK	OK
10.5.2. Does the selected methodology require use of tools (such as the “Tool for the demonstration and assessment of additionality” or the “Combined tool to identify the baseline scenario and demonstrate	VVM	82	No.	OK	OK



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additionality”) to establish the baseline scenario?					
10.5.3. Do the project participants take into account national and/or sectoral policies and circumstances?	VVM	85	<del>Pending on CL-3.</del> Yes. The environmental protection law in 1986 and the national wastewater discharge standard have been taken into account. A letter issued by the Ministry of Land and Environment Protection of the DPR Korea has been provided and it could be confirmed that the current wastewater discharge standards are not enforced.	<del>Pending</del> g	OK
10.5.4. Is the description of the identified baseline scenario provided and consistent with the applied methodology?	EB33 VVM	Ann43 86	Yes.	OK	OK
10.6. Assessment and demonstration of additionality for a typical CPA(Section E.5 of CDM-SSC-PoA-DD)	EB33	Ann43			
10.6.1. In Section E.5.1 of CDM-SSC-PoA-DD, have the PPs demonstrated additionality of a typical CPA using the procedure provided in the baseline and monitoring methodology applied?	EB33	Ann43	<del>CL-11: The version of AMS I.A., AMS I.C., AMS I.D. and AMS I.F. should be specified.</del> The CME decided not to claim the emission reductions under these methodologies and the relevant statement has been added in the PoA-DD version 08. Hence, CL-11 is closed out.	<del>CL-11</del>	OK
10.7. In Section E.5.2 of CDM-SSC-PoA-DD, have the PPs provided the key criteria for assessing	EB33	Ann43			



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additionality of a CPA when proposed to be included in the registered PoA?					
10.7.1. Have the PPs justified the choice of criteria based on the analysis in Section E.5.1 of CDM-SSC-PoA-DD?	EB33	Ann43	<p><del>CAR-4: The steps listed for assessing the additionality are not fully consistent with the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities".</del></p> <p>The steps listed for assessing the additionality in the PoA-DD version 08 are consistent with the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities."</p> <p>Hence, CAR-4 is closed out.</p> <p>The PP has justified the choice of criteria based on the analysis in Section E.5.1 and the criteria for assessing the additionality of a CPA is summarised as follows:</p> <p>Additionality is demonstrated at CPA level.</p> <p>As per "Guidelines on the demonstration of additionality of small-scale project activities" (version 09), the PoA choose a) Investment</p>	GAR-4	OK



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			<p>barrier to demonstrate additionality. To demonstrate that the CPA faces the investment barrier, the CPA should meet the criteria as follows:</p> <p>That there is no legal requirement that is enforced for the CPA to be implemented; and</p> <p>That there are no benefits to the CME besides CDM Revenue; and</p> <p>That the CME will have to provide all capital for the implementation of the CPA and that such business framework for the implementation of CDM Programmes of Activities in the DPR Korea is equally applicable to all foreign investors.</p> <p>The fulfillment of the criterion shall be evidenced through confirmation from competent authorities in the DPR Korea</p>		
10.7.2. Is it demonstrated how these criteria would be applied to the additionality of a typical CPA at the time of inclusion.	EB33	Ann43	<p><del>Pending on CAP 4.</del></p> <p>Yes.</p>	Pending	OK
10.8. Are the eligibility criteria for inclusion of a CPA in the PoA in accordance with the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple	EB65	Ann3			



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methodologies for programme of activities?					
10.8.1. Is eligibility criteria derived from all the relevant requirements of attachment A of Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities"?	EB65 Ann3	9	<del>Pending on CAR-4.</del> Yes.	<del>Pending</del> g	OK
10.8.2. Has the CME demonstrated that compliance with the additionality-related eligibility criteria set in the PoA design document will ensure that all the relevant additionality-related guidelines, tools or any requirements embedded in the methodologies are met?	EB65 Ann3	11	<del>Pending on CAR-4.</del> Yes.	<del>Pending</del> g	OK
10.8.3. For PoAs involving combinations of technologies/ measures and/ or methodologies, are the eligibility criteria relative to each of them proposed to demonstrate additionality.	EB65 Ann3	12	<del>Pending on CAR-4.</del> N.A.	<del>Pending</del> g	OK
10.9. Estimation of Emission reductions of a CPA (Section E.6 of CDM-SSC-PoA-DD)					
10.9.1. In Section E.6.1 of CDM-SSC-PoA-DD, are methodological choices provided in the approved baseline and monitoring methodology applied, selected for a typical CPA explained and justified?	EB33 VVM	Ann43 90	Yes.	OK	OK
10.9.2. In Section E.6.2 of CDM-SSC-PoA-DD, are equations including fixed/default parametric values to be used for calculations of emission reductions of a CPA provided and justified?	EB33 VVM	Ann43 90			

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10.9.2.1. Baseline emissions?	VVM	89	<p>Yes.</p> $BE_y = \left\{ \begin{array}{l} BE_{power,y} + BE_{ww,treatment,y} + \\ BE_{s,treatment,y} + BE_{ww,discharge,y} + BE_{s,final,y} \end{array} \right\}$ <p><math>BE_{power,y}</math> is determined as per the procedures described in the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” and “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion”.</p> $BE_{ww,treatment,y} = \sum_i (Q_{ww,i,y} * COD_{inflow,i,y} * \eta_{COD,BL} * MCF_{ww,treatment,BL,i}) * B_{o,ww} * UF_{BL} * GWP_{CH4}$ $BE_{treatment,s,y} = \sum_j S_{j,BL,y} * MCF_{s,treatment,BL,j} * DOC_s * UF_{BL} * DOC_F * F * 16 / 12 * GWP_{CH4}$ <p>If the sludge is composted, the following equation shall be applied:</p> $BE_{s,treatment,y} = \sum_j S_{j,BL,y} * EF_{composting} * GWP_{CH4}$ $BE_{ww,discharge,y} = Q_{ww,y} * GWP_{CH4} * B_{o,ww} * UF_{BL} * COD_{ww,discharge,BL,y} * MCF_{ww,BL,discharge}$	OK	OK

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			$BE_{s,final,y} = S_{final,BL,y} * DOC_s * UF_{BL} * MCF_{s,BL,final} * DOC_F * F * 16 / 12 * GWP_{CH4}$ <p>Validation team has validated the equations for baseline emissions calculation as above and is able to conclude that:</p> <p>Baseline emissions (BE<sub>y</sub>) is calculated in accordance with para.18 of AMS III.H. version16.</p> <p>Validation team has validated the values of parameters ex ante determined at PoA level, i.e. B<sub>o,ww</sub> of 0.25 kgCH<sub>4</sub>/kgCOD, GWP<sub>CH<sub>4</sub></sub> of 21, UF<sub>BL</sub> of 0.89, DOC<sub>s</sub> of 0.5 for domestic sludge and of 0.257 for industrial sludge, and DOC<sub>F</sub> of 0.5, and confirms that the ex ante determined values of the parameters are fully consistent with the applied methodology AMS III.H..</p>		
10.9.2.2. Project emissions?	VVM	89	<p>Yes.</p> <p>Project emissions</p> $PE_y = \left\{ \begin{array}{l} PE_{power,y} + PE_{ww,treatment,y} + PE_{s,treatment,y} \\ + PE_{ww,discharge,y} + PE_{s,final,y} + PE_{fugitive,y} \\ + PE_{biomass,y} + PE_{flaring,y} \end{array} \right\}$ <p>PE<sub>power,y</sub> is determined as per the</p>	OK	OK



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			<p>procedures described in the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” and “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion”.</p> <p><math>PE_{ww,treatment,y}</math> shall be calculated as per equation for <math>BE_{ww,treatment,y}</math> above, using an uncertainty factor of 1.12 and data applicable to the project situation (<math>MCF_{ww,treatment,PJ,k}</math> and <math>\eta_{PJ,k,y}</math>).</p> <p><math>PE_{s,treatment,y}</math> shall be calculated as equations for <math>BE_{s,treatment,y}</math> above, using an uncertainty factor of 1.12 and data applicable to the project situation (<math>S_{i,PJ,y}</math> and <math>MCF_{s,treatment,i}</math>).</p> <p><math>PE_{ww,discharge,y}</math> shall be calculated as equations for <math>BE_{ww,discharge,y}</math> above, using an uncertainty factor of 1.12 and data applicable to the project situation (<math>COD_{ww,discharge,PJ,y}</math> and <math>MCF_{ww,PJ,discharge}</math>).</p> <p><math>PE_{s,final,y}</math> shall be calculated as equations for</p>		

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			<p>BE<sub>s,final,y</sub> above, using an uncertainty factor of 1.12 and data applicable to the project situation (MCF<sub>s,PJ,final</sub> and S<sub>final,PJ,y</sub>).</p> $PE_{fugitive,y} = PE_{fugitive,ww,y} + PE_{fugitive,s,y}$ $PE_{fugitive,ww,y} = (1 - CFE_{ww}) * MEP_{ww,treatment,y} * GWP_{CH4}$ $MEP_{ww,treatment,y} = Q_{ww,y} * B_{o,ww} * UF_{PJ} * \sum_k COD_{removed,PJ,k,y} * MCF_{ww,treatment,PJ,k}$ $PE_{fugitive,s,y} = (1 - CFE_s) * MEP_{s,treatment,y} * GWP_{CH4}$ $MEP_{s,treatment,y} = \sum_l (S_{l,PJ,y} * MCF_{s,treatment,PJ,l}) * DOC_s * UF_{PJ} * DOC_F * F * 16 / 12$ <p>PE<sub>flaring,y</sub> will be determined by using "Project emissions from flaring".</p> <p>PE<sub>biomass,y</sub> will be determined by using "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site".</p>		



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10.9.2.3. Leakage?	VVM	89	Yes. If the technology is using equipment transferred from another activity, leakage effects at the site of the other activity are to be considered and estimated (LE <sub>y</sub> ).	OK	OK
10.9.3. In Section E.6.3 of CDM-SSC-PoA-DD, are data and parameters that are to be reported in CDM-CPA-DD provided?	EB33 VVM	Ann43 91	Yes.	OK	OK
10.4.4. In cases where the selected methodology(ies) allows the use of sampling for the determination of parameter values for calculating GHG emission reductions, do project participants develop and describe the sampling plan in accordance with "Standard for sampling and surveys for CDM project activities and programme of activities"?	EB65	Ann2	Yes. The CME will use the representative sampling method for the determination of parameter values for calculating GHG emission reductions as per the "Standard for sampling and surveys for CDM project activities and programme of activities."	OK	OK
10.10. Application of the monitoring methodology and description of the monitoring plan					
10.10.1. In Section E.7.1 of CDM-SSC-PoA-DD, are data and parameters to be monitored by each CPA provided in accordance with the CDM-SSC-PoA-DD form?	EB33	Ann43		-	OK
10.10.2. In Section E.7.2 of CDM-SSC-PoA-DD, is a detailed description of the monitoring plan provided?	EB33	Ann43	Yes.	OK	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
10.10.3. Is the monitoring plan for a CPA in accordance with the approved monitoring methodology, including applicable tool(s)?	EB55 Ann38	6(j)		-	OK
10.11. In Section E.8 of CDM-SSC-PoA-DD, is the following provided?	EB33	Ann43			
10.11.1. Date of completion of the application of the baseline study and monitoring methodology	EB33	Ann43	Yes.	OK	OK
10.11.2. The name of responsible person(s)/entity(ies)	EB33	Ann43	Yes.	OK	OK
<b>11. Other information(Annex of CDM-SSC-PoA-DD)</b>					
11.1. In Annex 1 of CDM-SSC-PoA-DD, is contact information on coordinating /managing entity and participants in the Programme of Activities provided as following?	EB33	Ann43		OK	OK
11.1.1. Contact information on CME and participants in the PoA provided?	EB33	Ann43	Yes.	OK	OK
11.1.2. For each organization listed in section A.3, the following mandatory fields: Organization, Name of contact person, Street, City, Postfix/ZIP, Country, Telephone and Fax or e-mail	EB33	Ann43	Yes.	OK	OK
11.2. In Annex 2 of CDM-SSC-PoA-DD, is the background information regarding public funding provided?	EB33	Ann43	No public funding from Parties is provided for the PoA as stated in section A.4.5.	OK	OK
11.3. In Annex 3 of CDM-SSC-PoA-DD, is the	EB33	Ann43	No additional information is provided.	OK	OK

## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
background information used in the application of the baseline methodology provided					
11.4. In Annex 4 of CDM-SSC-PoA-DD, is the background information used in the application of the monitoring methodology provided	EB33	Ann43	No additional information is provided.	OK	OK
<b>12. Eligibility criteria for inclusion of a CPA in the PoA</b>					
12.1. Do the eligibility criteria cover as a minimum the following?	EB65 Ann3	14	<p><del>CAR-5: The eligible criteria for inclusion of the CPA in the PoA should be improved to meet the requirement of the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"</del></p> <p>The eligible criteria for inclusion of the CPA in the PoA has been improved. The updated eligible criteria has been verified and considered in compliance with the requirement of the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities."</p> <p>Hence, CAR-5 is closed out.</p>	CAR-5	OK
12.1.1. The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA	EB65 Ann3	14(a)	Yes. The geographic boundary of the CPA lies within the DPRK.	OK	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
12.1.2. Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo)	EB65 Ann3	14(b)	<del>Pending on CAR-5.</del> Yes.  The CME will confirm in a written statement that the CPA is not currently included in the PoA and consult the CDM project database to ensure that the CPA is not already a registered CDM project or included in another PoA and assign a unique identification number to the CPA. A letter will be issued by the CPA operator.	<del>Pending</del> g	OK
12.1.3. The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications	EB65 Ann3	14(c)	<del>Pending on CAR-5.</del> Yes.  The criteria is set as: A CPA will reduce GHG emissions by utilising methane from industrial wastewater for electricity and/or power generation and/or destroying methane through flaring by adopting one or a combination of the technologies or measures provided in the applied methodology AMS-III.H.	<del>Pending</del> g	OK
12.1.4. Conditions to check the start date of the CPA through documentary evidence	EB65 Ann3	14(d)	<del>Pending on CAR-5.</del> Yes.  The criteria is set as: The start date (defined in the Glossary of CDM terms) of	<del>Pending</del> g	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			the CPA is not prior to the commencement of validation of the PoA.		
12.1.5. Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs	EB65 Ann3	14(e)	<del>Pending on CAR-5.</del> Yes. The applicability criteria that the CPAs would be adopted have been listed.	<del>Pending</del> g	OK
12.1.6. The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in 10.7 above.	EB65 Ann3	14(f)	<del>Pending on CAR-5.</del> The CPAs will meet the requirements pertaining to the demonstration of additionality as specified in 10.7.1 above.	<del>Pending</del> g	OK
12.1.7. The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis	EB65 Ann3	14(g)	<del>Pending on CAR-5.</del> Yes. The criteria is set as: the CPA has to perform a local stakeholder consultation before it may be included in the PoA.	<del>Pending</del> g	OK
12.1.8. Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance	EB65 Ann3	14(h)	<del>Pending on CAR-5.</del> Yes. The criteria is set as: the CPA has to confirm in a written statement that no funding from an Annex I party is provided for the CPA.	<del>Pending</del> g	OK
12.1.9. Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid	EB65	14(i)	<del>Pending on CAR-5.</del>	<del>Pending</del> g	OK

## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
connected/ off-grid) and distribution mechanisms (e.g. direct installation);	Ann3		N.A.		
12.1.10. Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys	EB65 Ann3	14(j)	<del>Pending on CAR-5.</del> N.A.	<del>Pending</del> g	OK
12.1.11. Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or microscale threshold criteria and remains within those thresholds throughout the crediting period of the CPA	EB65 Ann3	14(k)	<del>Pending on CAR-5.</del> Yes. The criteria is set as: A CPA must demonstrate in the CPA-DD that the project activity's estimated annual emission reductions shall be less than 60kt CO2e/year over the entire crediting period.	<del>Pending</del> g	OK
12.1.12. Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories	EB65 Ann3	14(l)	<del>Pending on CAR-5.</del> Yes. The criteria is set as: The CPA is not a de-bundled component of another CDM programme activity or CDM project activity. Whether the CPA is a de-bundled component should be identified following the annex 13 in EB 54.	<del>Pending</del> g	OK
12.1.13. Other criteria	EB65 Ann3	14	N.A.	OK	OK
12.2. Are the eligibility criteria verifiable?	EB65	15	<del>Pending on CAR-5.</del>	<del>Pending</del>	OK



## VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	Ann3		Yes.	g	
12.3. Are the eligibility criteria sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA?	EB65 Ann3	16	<del>Pending on CAP 5.</del> Yes.	<del>Pending</del> g	OK

**Table 2 Resolution of Corrective Action /Clarification / Forward Action Requests**

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Validation team conclusion
CAR-1: The LoA from DNA of DPRK has not been provided.	2.1	The LoA was provided to the DOE on 20/04/2012.	The LoA issued by DNA of DPRK on 19/04/2012 has been provided by the project participant and verified authentic by Bureau Veritas Certification. Hence, CAR-1 is closed out.
CAR-2: The LoA from DNA of UK has not been provided.	2.1	PoA-DD version 08 has been updated to reflect that the CME has obtained a LoA from DPR Korea and aims to register the PoA as a unilateral PoA. The LoA was provided to DOE on 20/04/2012.	PoA-DD version 02 has been updated to reflect that the CME has obtained a LoA from DPRK and aims to register the PoA as a unilateral PoA. Thus it's not necessary to provide the LoA from DNA of UK. Hence, CAR-2 is closed out.
CAR-3: The MoC has not been provided.	4.1	The MoC was provided on 20/04/2012.	The MoC has been provided. The contact information in the MoC has been verified and found consistent with that in the SSC-PoA-DD. Hence, CAR-3 is closed out.



## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Validation team conclusion
<p>CAR-4: The steps listed for assessing the additionality are not fully consistent with the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”.</p>	<p>10.5.2.1</p>	<p>The steps listed for assessing the additionality has been updated in the PoA DD version 08.</p> <p>Additionality is demonstrated at CPA level.</p> <p>As per “Guidelines on the demonstration of additionality of small-scale project activities” (version 09), the PoA choose a) Investment barrier to demonstrate additionality. To demonstrate that the CPA faces the investment barrier, the CPA should meet the criteria as follows:</p> <p>That there is no legal requirement that is enforced for the CPA to be implemented; and</p> <p>That there are no benefits to the CME besides CDM Revenue; and</p> <p>That the CME will have to provide all capital for the implementation of the CPA and that such business framework for the implementation of CDM Programmes of Activities in the DPR Korea is equally applicable to all foreign investors.</p> <p>The fulfillment of the criterion shall be evidenced through confirmation from competent authorities in the DPR Korea.</p>	<p>The steps listed for assessing the additionality in the PoA DD version 08 are consistent with the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities.”</p> <p>Hence, CAR-4 is closed out.</p>



## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Validation team conclusion
CAR-5: The eligible criteria for inclusion of the CPA in the PoA should be improved to meet the requirement of the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"	12.1	Section 5.1 of the POA-DD has been updated in version 08 to be consistent with the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities".	The eligible criteria for inclusion of the CPA in the PoA has been improved. The updated eligible criteria has been verified and considered in compliance with the requirement of the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities." Hence, CAR-5 is closed out.
CL-1: The technology or measures to be employed by the CPA should be specified.	6.4.2	Section A.4.2.1. of the POA-DD has been updated in version 08 to specify the technology or measures to be employed by the CPA.	Section A.4.2.1 has been updated and the technology or measures to be employed by the CPA has been specified in the CDM-SSC-POA-DD version 08. Hence, CL-1 is closed out.
CL-2: Clarification is required on whether the proposed PoA would be implemented voluntarily.	6.4.4.2	It is clarified that the current business as usual activity is the release of methane from industrial wastewater into the atmosphere without capture and utilisation or destruction. There are no laws in the DPR Korea requiring	The clarification has been made on whether it would be implemented in the absence of the PoA.



## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Validation team conclusion
		the operators of industrial wastewater facilities to utilise or capture methane. Given the lack of investment capital available in the DPR Korea, the CPAs would not happen in the absence of CDM revenue that could accrue to the coordinating/managing entity (CME). The DPR Korea currently has no plans to implement legislation for the capture and utilisation of methane from industrial wastewater. So, the PoA is implementing a voluntary coordinated action, and it would not be implemented in the absence of the PoA.	Hence, CL-2 is closed out.
CL-3: DPRK had issued environmental protection law in 1986, which required that industrial plant must take measures to treat the production wastewater to meet national wastewater discharge standard. As per the discharge standard, the COD content of the treated wastewater before being discharged into the river should be lower than 0.0001 t/m3. However, the COD content of the wastewater treated by the open lagoons and discharged into the river, which is the prevailing wastewater treatment operation, fails to meet the discharge standard. Whether the proposed PoA is mandatory	6.4.4.3	Section A.4.3 of the POA-DD has been updated in version 08 to demonstrate that the current wastewater discharge standards are not enforced as evidenced by a letter issued by the Ministry of Land and Environment Protection of the DPR Korea. The Letter has been provided to the DOE on 20/04/2012.	A letter issued by the Ministry of Land and Environment Protection of the DPR Korea has been provided and it could be confirmed that the current wastewater discharge standards are not enforced.  Hence, CL-3 is closed out.





## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Validation team conclusion
should be further justified.			
CL-4: It is required to specify the conditions to check and determine whether the new CPA belongs to any other PoA or other registered CDM Project.	6.4.5.2	It is clarified that the conditions to check and determine whether the new CPA belongs to any other PoA or other registered CDM Project has been specified in the PoA-DD version 08. The conditions are: Before seeking to include a CPA in the PoA, the CME shall obtain a letter from the CPA operator confirming that the CPA is not already registered as a CDM project activity or a CPA of another PoA. Additionally, the CME will consult the CDM project database to ensure that the CPA is not already a registered CDM project or included in another PoA. Each CPA shall have a unique identification number and unique geographical reference.	The conditions to check and determine whether the new CPA belongs to any other PoA or other registered CDM Project has been specified in the updated PoA-DD, which is in line with the requirement of EB 65, Annex 3.  Hence, CL-4 is closed out.
CL-5: A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies is required to be included in the CDM-PoA-DD as per EB65 Annex 3.	6.4.5.4	Section A.4.4.1 of the POA-DD has been updated in version 08 to ensure compliance with EB65 Annex 3.	A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies has been provided in the PoA-DD version 08.  Hence, CL-5 is closed out.



## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Validation team conclusion
CL-6: Records of arrangements for training and capacity development for personnel is required to be included in the CDM-PoA-DD as per EB65 Annex 3.	6.4.5.5	Section A.4.4.1 of the POA-DD has been updated in version 08 to ensure compliance with EB65 Annex 3.	Records of arrangements for training and capacity development for personnel has been included in the PoA-DD version 08.  Hence, CL-6 is closed out.
CL-7: Procedures for technical review of inclusion of CPAs is required to be included in the CDM-PoA-DD as per EB65 Annex 3.	6.4.5.6	Section A.4.4.1 of the POA-DD has been updated in version 08 to ensure compliance with EB65 Annex 3.	Procedures for technical review of inclusion of CPAs have been included in the PoA DD version 08.  Hence, CL-7 is closed out.
CL-8: Measures for continuous improvements of the PoA management system is required to be included in the CDM-PoA-DD as per EB65 Annex 3.	6.4.5.8	Section A.4.4.1 of the POA-DD has been updated in version 08 to ensure compliance with EB65 Annex 3.	Measures for continuous improvements of the PoA management system has been included in the PoA DD version 08 as: the CME strives to continuously improve the PoA management system. The CME will follow guidance issued by the CDM Executive Board and other entities involved in the carbon market in order to adhere to the latest standards for PoA management systems.



## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Validation team conclusion
			Hence, CL-8 is closed out.
CL-9: The statistically sound sampling methods mentioned in the Section A.4.4.2 of the webhosted CDM-PoA-DD should be specified.	6.4.6.1	Section A.4.4.2 of the POA-DD has been updated in version 08 to clarify the use of sampling methods. No sampling methods for CPAs will be used. Each CPA will be monitored separately.	It has been clarified in the PoA DD version 08 that no sampling methods for the CPAs will be used. The CME opts for a verification method that does not use sampling but verifies each CPA.  Hence, CL-9 is closed out.
CL-10: In Section C.3 of CDM-SSC-PoA-DD, whether in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA included in the PoA should be stated.	8.3	Section C.3 of the POA-DD has been updated in version 08 to clarify the assessment of whether an EIA is going to be required for each CPA..	It has been clarified in the PoA DD version 08 that in accordance with host Party laws and regulations, it is unlikely that an environmental impact assessment (EIA) will be required for a typical CPA. The requirement for performing an EIA will be evaluated for each CPA and will be completed if so required by the host Party. For each CPA, the Ministry of Land and Environment Protection, responsible for the assessment of EIAs will be consulted to be



## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Validation team conclusion
			<p>sure whether such EIA is required for the CPA.</p> <p>Hence, CL-10 is closed out.</p>
CL-11: The version of AMS-I.A., AMS-I.C., AMS-I.D. and AMS-I.F. should be specified.	10.5.1	This is no longer applicable as the methodologies will not be used.	<p>The CME decided not to claim the emission reductions under these methodologies and the relevant statement has been added in the PoA DD version 08.</p> <p>Hence, CL-11 is closed out.</p>