


(Version 01.0)

VALIDATION REPORT ON POST-REGISTRATION CHANGES (PRCs)

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Name, position and signature of the approver of the validation report on PRCs	Soon Hong YEOM Managing Director of Sustainability management institute 
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SECTION A. Executive summary

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Korean Foundation for Quality (KFQ) has been engaged by Sudokwon Landfill Site Management Corporation (SLC) to perform periodic verification of the CDM project "Sudokwon Landfill Gas Electricity Generation Project (50MW) (UNFCCC Registration Ref. No. 0941)" in Republic of Korea for 11th monitoring period from 01/07/2015 to 30/06/2016.

The validation for the post-registration change has been conducted in the course of the verification for the 11th monitoring period of the project activity since changes to the project design of a registered project activity was identified during on-site assessment.

The validation is objective review of the PDD including post registration changes. The compliance with the UNFCCC criteria are validated in order to confirm that the revised PDD as documented is reasonable and meets the identified criteria.

Validation process

The validation was conducted according to KFQ validation procedures in line with the requirements specified in the CDM Project Standard (ver. 09), Validation and Verification Standard (ver. 09), relevant decisions of the CDM EB. The validation involved a document review of relevant documentations, further, on-site assessments and interviews with those involved in project management and operations are conducted. This is followed by preparation of draft validation report summarizing desk review and on-site inspection findings (i.e. CARs, CLs, and FARs). Upon successful closing of the CARs and CLs raised (if any), the final validation report is prepared. The final report then undergoes a technical review and final approval according to KFQ's internal quality assurance procedures.

General description of the project activity and permanent change

Project Parties:	Republic of Korea (Host) United Kingdom of Great Britain and Northern Ireland Switzerland
Title of project activity:	Sudokwon Landfill Gas Electricity Generation Project (50MW)
UNFCCC Registration Number:	0941
Project Participants:	<ul style="list-style-type: none"> • Sudokwon Landfill Site Management Corporation (SLC) • DASCO Partners LLP • Ecoeye Co.,Ltd.
Baseline and monitoring methodology:	ACM001 (Version 04) and ACM0002 (Version 06)
Registered PDD:	Version 07 dated 04/07/2016
Revised PDD	Version 08 dated 24/07/2017 (revised from above mentioned registered PDD since PRC underwent during this verification)
Registration Date:	30/04/2007
Crediting Period:	30/04/2007 ~ 29/04/2017

The project has been developed to utilize LFG more efficiently by SLC in the Republic of Korea. The purpose of this project is avoiding the release of methane (CH₄) as well as utilizing LFG for electricity generation with the capacity of 50 MW at the project site.

During the verification of 11th monitoring period (01/07/2015 to 30/06/2016), there was a post-registration change (Changes to the project design of a registered project activity) identified. The number of components of LFG collecting system (i.e. transferring pipes, collection pipes, etc.) described in the registered PDD (version 7) was not consistent with actual status. Therefore, the number of components of LFG collection system is precisely corrected in the revised PDD (version 08) in line with actual status.

Conclusion

As a result of our assessment, the verification team confirms that the actual status of LFG collection system is correctly described in the Revised PDD (version 08). The verification team confirms that the changes comply with the relevant requirements in the Project standard (ver. 09) related to changes to the project design of a registered CDM project activity. The PRC change is in line with Appendix 1 of Project Standard (ver. 09) and, hence does not require a prior approval from the EB. Thus, an approval of the PRC is requested under this issuance track.

SECTION B. Validation team, technical reviewer and approver

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B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	CHO	Jin Seok	KFQ	√	√	√	√
2.	Verifier	IR	LEE	Mi Jung	KFQ	√	√	√	√

B.2. Technical reviewer and approver of the validation report on PRCs

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	PARK	Sang Yeon	KFQ
2	Approver	IR	YEOM	Soon Hong	KFQ

Please refer to Appendix 2 below for demonstration of how the team meets the competence required for the validation.

SECTION C. Means of validation**C.1. Desk review**

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The PDD version 08.0 (hereinafter referred to as 'revised PDD') was reviewed as initial step of the validation process as for the for the post registration changes. Also, over the whole validation period, validation team reviewed the applied baseline and monitoring methodology and any other information and references relevant to the changes to the project design. A complete list of all documents reviewed is shown in Appendix 3 of this validation report. KFQ's validation process takes into consideration all the CDM Rules and Guidance applicable to the project activity, e.g. Clean Development Mechanism Validation and Verification Standard, Clean Development Mechanism Project Standard, Clean Development Mechanism Project Cycle Procedure, Post Registration Changes and Request for Issuance: Completeness checklist, Post Registration Changes and Request for Issuance: Information and reporting checklist and relevant decisions, clarifications and guidance from the CMP and the CDM EB.

C.2. On-site inspection

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KFQ performed a physical site inspection on 28/04/2017 for the periodic verification and post registration changes were identified in this process. During the on-site assessment, the personnel were interviewed or assisted the validation team.

The main topics of the discussion are summarized in the table below.

Duration of on-site inspection: 28/04/2017				
No.	Activity performed on-site	Site location	Date	Team member
1.	Confirm the implementation and operation of the project	Project site (Incheon)	28/04/2017	Jin Seok CHO Mi Jung LEE
2.	Cross-check the information provided in the PDD with other sources	Project site (Incheon)		

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	HWANG	Won Gu	Sudokwon landfill site management Corporation (SLC)	28/04/2017	General support CDM coordination	Jin Seok CHO Mi Jung LEE
2.	KIM	Dong Beom	Sudokwon landfill site management Corporation (SLC)	28/04/2017	General support CDM coordination	Jin Seok CHO Mi Jung LEE
3	LEE	Jang Ho	Eco Energy Co., Ltd	28/04/2017	Plant operation	Jin Seok CHO Mi Jung LEE

C.4. Clarification requests, corrective action requests and forward action requests raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	0	0	0
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	0	0	0
Corrections	0	0	0
Changes to the start date of the crediting period	0	0	0
Inclusion of a monitoring plan to a registered project activity	0	0	0
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	0	0	0
Changes to the project design of a registered project activity	0	0	0
Types of changes specific to afforestation and reforestation project activities	0	0	0
Others (please specify)	0	0	0
Total	0	0	0

SECTION D. Validation findings**D.1. Compliance with PDD form**

Means of validation	Compliance with PDD form is validated by the document review, review of PDD template and instruction for completing PDD form, review of registered PDD (ver. 07) and review of revised PDD (ver. 08). Both registered and revised PDD were reviewed for the consistency of the information.
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Findings	The change to the project information of the registered project activity has been observed during document review and on-site visit. The project participant has provided a revised PDD (ver. 08) inclusive of all post registration changes. The project participants used the applicable version of the PDD form (ver. 08.0) for the revised PDD. The PP has provided the PDD in VVS track in clean and track change version and same has been checked and found to be correct.
Conclusion	The validation team has reviewed the revised PDD and it is observed that the revised PDD is completed by using the applicable form, Project Design Document form (version 08.0). By means of checking updated PDD with the applicable and available PDD template form, the validation team can confirm that the information transferred to the later version of the PDD form is materially the same as that in the registered PDD, and those changes are assessed under this report.

D.2. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

Means of validation	N/A
Findings	N/A
Conclusion	N/A

D.3. Corrections

Means of validation	N/A
Findings	N/A
Conclusion	N/A

D.4. Changes to the start date of the crediting period

Means of validation	N/A
Findings	N/A
Conclusion	N/A

D.5. Inclusion of a monitoring plan to a registered project activity

Means of validation	N/A
Findings	N/A
Conclusion	N/A

D.6. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

Means of validation	N/A
Findings	N/A
Conclusion	N/A

D.7. Changes to the project design of a registered project activity

Means of validation	The proposed change to the project design is verified by the validation team as per para. 317 ~ 327 of VVS (ver. 09.0.) KFQ reviewed the revised PDD, registered PDD, applied methodology, and the supporting documents referenced in the findings row below.
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Findings

[Description of the changes to the project design]

Changes on the number of components of LFG collecting system

There was no change at the 1st landfill site, however, there are changes at the 2nd landfill site with regard to the number of components of LFG collecting system (i.e. transferring pipes, collection pipes, etc.) as below table.

Item	Registered PDD (ver. 7)		Revised PDD (ver. 8)			
	2 nd site		2 nd site			
	Area 1		Area 1		Area 2	
	Level 1	Level 3	Level 1	Level 3	Level 1	Level 3
Transferring pipe	3.1 km	4.5 km	No change		3.6 km	5.0 km
Collection pipe (horizontal)	39 ea	-			-	-
Collection pipe (vertical)	-	326 ea			-	373 ea
Gas distribution pipes	-	20 ea			-	24 ea
Blower	250HP x 2sets		170HP x 2sets, 250HP x 5sets			

Assessment of the changes

- When the changes occurred and the reason of those changes taking place
 - The 1st landfill was reclaimed from 1992 to 2000, and the 2nd landfill has been in use for waste reclamation since 2000. As the 2nd landfill is still receiving waste, there have been additional components of LFG collection system (i.e. transferring pipes, collection pipes, etc.) installed at the 2nd landfill site in purpose of well-operation and controlling of the landfill site. Thus, after registration of this project activity, there were changes on the number of components of LFG collection system, and this number has a possibility to change afterward. Current numbers are as above and it was confirmed through on-site inspection as well as review of ‘2016 Sudokwon Landfill Statistics Yearbook (No. 14) and ‘2017 Management and operation plan of Sudokwon Landfill’.
- Whether the changes would have been known prior to registration of the project activity
 - At that time of registration of this project activity, it was expected that the number of components of LFG collecting system would increase since the 2nd landfill site is not a closed landfill. However, exact number of these components could not be expected at the time of registration of the project activity.
- How the changes would impact the overall operation/ability of the project activity to deliver emission reductions as stated in the PDD
 - The changes on the number of components of LFG collection system (i.e. transferring pipes, collection pipes, etc.) do not impact the output capacity of the project activity as there is no change on the capacity of each engine, and the overall operation remains unchanged.

Assessment of the changes

- Additionality of the project activity
 - Additionality of the project was demonstrated by investment barrier in the registered PDD and the revenue of the project activity is from only electricity generation exported to the Grid. Even, there have been additional components of LFG collection system (i.e. transferring pipes, collection pipes, etc.) installed at the 2nd landfill site for the purpose of well-operation and controlling of the landfill site, the actual electricity exported to the grid is smaller than the expected electricity export in the registered PDD. Hence, it is confirmed that the

	<p>changes do not affect the additionality of the project activity and the project activity still remains additional.</p> <ol style="list-style-type: none"> 2. Scale of the project activity <ul style="list-style-type: none"> ➤ This is a large-scale project activity with installation of 50MW power plant. The changes on the number of components of LFG collection system do not affect to the 'output' of engine or generator. Thus, the change will not impact the scale of the project activity. 3. Applicability and application of approved baseline methodology <ul style="list-style-type: none"> ➤ The validation team reviewed the justification provided for applicability criteria of ACM0001 (ver. 04) and ACM0002 (ver. 06), and the changes on the number of components of LFG collection system (i.e. transferring pipes, collection pipes, etc.) do not impact the applicability and application of approved baseline methodologies. 4. The compliance of the monitoring plan with applied monitoring methodology <ul style="list-style-type: none"> ➤ Apart from the revision on the number of components of LFG collection system (i.e. transferring pipes, collection pipes, etc.), the monitoring plan is not changed. Thus, the changes do not impact the monitoring plan or any monitoring parameters. 5. The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan. <ul style="list-style-type: none"> ➤ There is no amendment to the design (including the parameters, methods of measurement, QA/QC procedures, etc.) of the monitoring plan. Thus, the changes to the project design do not reduce the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan.
Conclusion	<p>The validation team confirms the actual changes comply with the relevant requirements in the Project Standard (ver. 09) related to changes to the project design of a registered CDM project activity.</p> <p>The validation team confirms the changes would not adversely affect the conclusions of the validation report of the registered PDD with regard to:</p> <ol style="list-style-type: none"> (i) Additionality of the registered CDM project activity; (ii) Scale of the registered CDM project activity; (iii) Applicability and application of approved baseline methodology; (iv) The compliance of the monitoring plan with the applied monitoring methodology; or (v) The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan.

D.8. Types of changes specific to afforestation and reforestation project activities

Means of validation	N/A
Findings	N/A
Conclusion	N/A

SECTION E. Internal quality control

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According to KFQ's Procedure for deciding whether to proceed a request for approval of post registration changes, the final validation report and validation findings (if applicable) underwent a technical review before being submitted to the PP. The technical review was performed by technical review team composed of a person for the project activity qualified in accordance with KFQ's qualification scheme for CDM project validation and verification.

SECTION F. Validation opinion

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Korean Foundation for Quality (KFQ) has performed a validation of post-registration change of CDM project Ref. No. 0941, "Sudokwon Landfill Gas Electricity Generation Project (50MW)". The validation was performed on the basis of UNFCCC criteria for the CDM and host country criteria, as well as criteria given to provide for the consistent project operation, monitoring and reporting.

The validation is based on the information made available to us and the engagement conditions. The review of the revised PDD, relevant supporting documents, and the subsequent follow-up interviews have conducted with sufficient evidences to determine the fulfilment of all stated criteria. In our opinion, post-registration changes of the project activity meet all relevant UNFCCC requirements for the CDM and this post registration changes in the project activity is in line with Appendix 1 of CDM project standard (ver.09) and, hence does not require a prior approval from Executive Board.

Furthermore, KFQ confirms that the proposed changes of project activity do not impact;

- (i) Additionality of the registered CDM project activity;
- (ii) Scale of the registered CDM project activity;
- (iii) Applicability and application of approved baseline methodology;
- (vi) The compliance of the monitoring plan with the applied monitoring methodology; or
- (vii) The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan.

Therefore, KFQ requests for the approval of post-registration changes of the project activity as justified above.

Signed on behalf of the Korean Foundation for Quality

Signature :



Name : Soon Hong YEOM, Managing Director

Date : 28 July 2017

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
CARs	Corrective Action Requests
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CERs	Certified Emission Reductions
CLs	Clarification Requests
CMP	COP/MOP Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CH ₄	Methane
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
DOE	Designated Operational Entity
FAR	Forward Action Request
EB	Executive Board
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
KFQ	Korean Foundation for Quality
KPX	Korea Power Exchange
KTL	Korea Testing Laboratory
KEPCO	Korea Electric Power Corporation
LFG	Landfill Gas
MoV	Means of verification
MP	Monitoring Plan
MR	Monitoring Report
NCM	Normal Cubic Meter
PDD	Project Design Document
PP	Project participant
PS	Clean Development Mechanism Project Standard
EMS	Environment Management System
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers



CERTIFICATE OF COMPETENCE

Name: Jin Seok CHO

Qualification:

	Validation	Verification
-Lead auditor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-Auditor	<input type="checkbox"/>	<input type="checkbox"/>
-Technical Expert	<input type="checkbox"/>	<input type="checkbox"/>
-Local Expert	<input type="checkbox"/>	<input type="checkbox"/>

Scopes of Expertise:

Technical Area (TA)

- 1.1 Thermal energy generation
- 1.2 Renewables
- 13.1 Solid waste and wastewater
- 13.2 Manure

He is approved as the qualification above according to the KFQ's procedure of Qualifying and Maintaining of Auditor on 31 March 2016

Sustainability Management Institute
Sang Yeon PARK

CERTIFICATE OF COMPETENCE

Name: Mi Jung LEE

Qualification:

	Validation	Verification
-Lead auditor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-Auditor	<input type="checkbox"/>	<input type="checkbox"/>
-Technical Expert	<input type="checkbox"/>	<input type="checkbox"/>
-Local Expert	<input type="checkbox"/>	<input type="checkbox"/>

Scopes of Expertise:

Technical Area (TA)

- 1.2 Renewables
- 3.1 Energy demand
- 11.1 Emission of Fluorinated gases
- 11.2 Refrigerant gas production
- 13.1 Solid waste and wastewater
- 13.2 Manure

She is approved as the qualification above according to the KFQ's procedure of Qualifying and Maintaining of Auditor on 16 May 2016

Sustainability Management Institute
Sang Yeon PARK





CERTIFICATE OF COMPETENCE

Name: Sang Yeon PARK

Qualification:

	Validation	Verification
-Lead auditor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-Auditor	<input type="checkbox"/>	<input type="checkbox"/>
-Technical Expert	<input type="checkbox"/>	<input type="checkbox"/>
-Local Expert	<input type="checkbox"/>	<input type="checkbox"/>

Scopes of Expertise:

Technical Area (TA)

- 1.2 Renewables
- 3.1 Energy demand
- 5.2 Caprolactam, nitric and adipic acid
- 13.1 Solid waste and wastewater

She is approved as the qualification above according to the KFQ's procedure of Qualifying and Maintaining of Auditor on 31 March 2016

Sustainability Management Institute
Yu Shim JEONG

A handwritten signature in black ink, appearing to be 'Yu Shim JEONG'.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Project participants	Project Design Document • (Registered) Version 7.0	04/07/2016 https://cdm.unfccc.int/Projects/DB/DNV-CUK1171534717.86/view	Others
		• (Revised) Version 8.0 (Submitted with this request for issuance)	24/07/2017	KFQ
2	DNV	Final Validation Report • Rev. 02	14/02/2007 https://cdm.unfccc.int/Projects/DB/DNV-CUK1171534717.86/view	Others
3	KFQ	PRC validation report • (PRC-0941-002) Version 01.1	14/06/2013 https://cdm.unfccc.int/PRCContainer/DB/prcp831009840/view	Others
		• (PRC-0941-002) Version 01	18/11/2016 https://cdm.unfccc.int/PRCContainer/DB/prcp270171230/view	Others
		• Version 01 (Submitted with this request for issuance)	28/07/2017	KFQ
4	Western Incheon Tax office	Business license (established in 2002)	28/07/2015	Project participants
5	Ministry of Commerce, Industry and Energy	The approval for electricity generation business for Sudokwon landfill site, (No. 2003-6)	24/06/2003	Project participants
6	Project participants	SLC Monitoring Manual (Revision 01)	Dec. 2013	Project participants
7	Project participants	Sudokwon Landfill Statistics Yearbook (No. 14)	July 2016	
8	Project participants	Management and operation plan of Sudokwon Landfill	Jan. 2017	
9		Methodologies ACM0001 : “Consolidated baseline methodology for landfill gas project activities” (ver. 04) ACM0002 : “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (ver. 06)	https://cdm.unfccc.int/methodologies/PAmethodologies/approved	Others

10	CDM Executive Board	CDM Forms <ul style="list-style-type: none"> Project Design Document form (Ver. 08.0) Validation report form for post registration changes for CDM project activities (Ver. 01.0) 	https://cdm.unfccc.int/Reference/PDDs_Forms/index.html	Others
11	CDM Executive Board	CDM Standards <ul style="list-style-type: none"> CDM project standard for project activities (Ver. 09.0) CDM validation and verification standard for project activities (Ver. 09.0) 	https://cdm.unfccc.int/Reference/old_reg.html	Others
12	CDM Executive Board	CDM Procedure <ul style="list-style-type: none"> CDM project cycle procedure for project activities (Ver. 09.0) 	https://cdm.unfccc.int/Reference/old_reg.html	Others

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CL from this validation

CL ID	N/A	Section no.	N/A	Date: N/A
Description of CL				
N/A				
Project participant response				Date: N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date: N/A
N/A				

Table 2. CAR from this validation

CAR ID	N/A	Section no.	N/A	Date: N/A
Description of CAR				
N/A				
Project participant response				Date: N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date: N/A
N/A				

Table 3. FAR from this validation

FAR ID	N/A	Section no.	N/A	Date: N/A
Description of FAR				
N/A				
Project participant response				Date: N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date: N/A
N/A				