



Draft Validation report form for renewal of crediting period for
CDM project activities
(Version 02.0)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Ekurhuleni Landfill Gas Recovery Project – South Africa UNFCCC reference number: 3677
Number and duration of the next crediting period	2, 26/10/2017 to 25/10/2024
Version number of the validation report for RCP	01
Completion date of the validation report for RCP	25/09/2018
Version number of PDD to which this report applies	12/02/2018
Project participants	City of Ekurhuleni Metropolitan Municipality
Host Party	South Africa
Applied methodologies and standardized baselines	Methodology: ACM0001: Flaring or use of landfill gas, Version 18.0.0
Mandatory sectoral scopes linked to the applied methodologies	1, 13
Conditional sectoral scopes linked to the applied methodologies	-
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	
Name and UNFCCC reference number of the DOE	Carbon Check (India) Private Ltd. E0052
Name, position and signature of the approver of the validation report for RCP	TBD

SECTION A. Executive summary

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The validation team assigned by the DOE has been assigned by “City of Ekurhuleni Metropolitan Municipality” to perform the validation of Renewal of Crediting Period for the project “Ekurhuleni Landfill Gas Recovery Project – South Africa”, UNFCCC registration No. 3677. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism. The scope of the validation is defined as an independent and objective review of the project design document, the validity of methodology used, the project’s baseline study, estimated emission reductions and monitoring plan and other relevant documents. The information in these documents is reviewed against CDM Validation and Verification Standard for project activities, version 01.0, Kyoto Protocol requirements, CDM Executive Board/UNFCCC rules.

The project activity consists of collection of landfill gas at four landfill sites located within the City of Ekurhuleni Metropolitan Municipality (CEMM) in Gauteng, South Africa. The recovered gas is used to produce electricity and flaring of the excess gas. Greenhouse gas emission reductions will be achieved by the combustion of recovered methane contained in landfill gas that would be otherwise emitted to the atmosphere and by the generation of electricity from the gas which will displace largely coal-fired power generation on the South African grid. The landfill facilities included in this CDM project activity are Weltevreden, Rooikraal, Rietfontein, and Simmer & Jack. The collected landfill gas is flared only on three (3) of the four (4) sites, namely Weltevreden, Rooikraal and Rietfontein and for power generation and flaring at Simmer & Jack.

Inline with the requirements of paragraph 280 of CDM Project Standard for project activities, version 01.0 /xx/, the Project participants had notified the UNFCCC secretariat of their intention in accordance with the Project cycle procedure /xx/. This has been done in accordance with 266 of CDM Project Cycle Procedure for project activities, version 01.0 /xx/, as verified by reviewing the email /xx/ sent by the project participant to UNFCCC.

Validation team confirms that names of the project participants included in the request for renewal of crediting period are same as reflected on the UNFCCC interface. The PP from the host country is the same as the original PDD.

Validation methodology and process

The validation has been performed as described in the CDM VVS for project activities, version 01.0 and constitutes the following steps:

- Desk review of the registered PDD on the UNFCCC website
- Desk review of the revised PDD and the relevant documents
- Follow-up Interviews
- Issuance of Validation Report

Validation criteria

The following CDM requirements have been considered:

- Article 12 of the Kyoto Protocol,
- Modalities and procedures for CDM (Marrakech Accords) Para 49(a)
- Subsequent decisions by the COP/MOP and CDM Executive Board
- Host country criteria (National and/or Sectoral policies)
- Criteria given to provide for consistent project operations, monitoring and reporting.

The project correctly applies the baseline and applicable monitoring methodology ACM0001, version 18: “Flaring or use of landfill gas” /xx/.

The project results in reductions of CO₂ equivalent emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is

continued to be not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The monitoring plan provides for the monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is CCIPL’s opinion that the project participants are able to monitor as per the monitoring plan.

The total emission reductions from the project are estimated to be 1,918,273 tCO₂e over a 7-year crediting period, averaging 274,039 tCO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not alter.

The validation describes total of (05) findings, which include:

(07) Corrective Action Requests (CARs);

(10) Clarification Requests (CLs);

(00) Forward Action Requests (FARs); and all findings need to be resolved by the PP.

CC IPL can conclude (after the closure of all CARs/CLs) that the CDM Project Activity “Ekurhuleni Landfill Gas Recovery Project – South Africa” in South Africa, as described in the PDD /01/, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) Para 49 (a) and the subsequent decisions by the COP/MOP and CDM Executive Board. The selected baseline and monitoring methodology, ACM0001, version 18 /xx/ is applicable to the project and correctly applied. The CCIPL therefore requests the approval of the renewal of the crediting period for the registered CDM project with UNFCCC.

The above is subject to review of all supporting documents and closure of raised CARs/CLs.

SECTION B. Validation team, technical reviewer and approver

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/document review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader / Validator / Technical Expert	IR	Agarwalla	Sanjay Kumar	CC IPL	X	X	X	X

B.2. Technical reviewer and approver of the validation report for RCP

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	Dimri	Anubhav	CC IPL
2.	Approver	IR	TBD		CC IPL

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

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List of all documents reviewed or referenced during the validation is provided in Appendix 3.

C.2. On-site inspection

Duration of on-site inspection: 12/09/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Project implementation and operation (project boundary, technology, project equipment, monitoring and related equipment)	Ekurhuleni Metropolitan Municipality, South Africa	12/09/2018	Sanjay Kumar Agarwalla
2.	Applicability of the methodology	Ekurhuleni Metropolitan Municipality, South Africa	12/09/2018	Sanjay Kumar Agarwalla
3.	Project boundary and emission sources	Ekurhuleni Metropolitan Municipality, South Africa	12/09/2018	Sanjay Kumar Agarwalla
4.	Baseline validity, impact of national & sectoral policies	Ekurhuleni Metropolitan Municipality, South Africa	12/09/2018	Sanjay Kumar Agarwalla
5.	Monitoring plan, validity of ex-ante parameters	Ekurhuleni Metropolitan Municipality, South Africa	12/09/2018	Sanjay Kumar Agarwalla

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Viljoen	Flip	City of Ekurhuleni Metropolitan Municipality	12/09/2018	<p>Status of the project and any modifications with respect to the registered PDD;</p> <p>Applicable national policies and regulations and their eventual impacts in terms of changing of the previously derived baseline scenario and baseline emissions;</p>	Sanjay Kumar Agarwalla
2.	Olivia	Tuchten	Promethium	12/09/2018	<p>Status of the project and any modifications with respect to the registered PDD;</p> <p>Meeting of applicability conditions of the selected CDM baseline and monitoring methodology and related methodological tools;</p> <p>Applicable national policies and regulations and their eventual impacts in terms of changing of the previously derived baseline scenario and baseline emissions;</p> <p>Application of updated and/or new values for previously existent or new ex-ante determined (fixed) parameters;</p> <p>Design of the monitoring plan (as per the applied methodology)</p> <p>Revised PDD and ER calculations</p>	Sanjay Kumar Agarwalla
3.	Singh	Vishan	Envitech Solutions	12/09/2018	<p>Status of the project and any modifications with respect to the registered PDD;</p> <p>Meeting of applicability conditions of the selected CDM baseline and</p>	Sanjay Kumar Agarwalla

					<p>monitoring methodology and related methodological tools;</p> <p>Applicable national policies and regulations and their eventual impacts in terms of changing of the previously derived baseline scenario and baseline emissions;</p> <p>Application of updated and/or new values for previously existent or new ex-ante determined (fixed) parameters;</p> <p>Design of the monitoring plan (as per the applied methodology)</p> <p>Revised PDD and ER calculations</p>	
4.	Jager	Etienne de	Envitech Solutions	12/09/2018	<p>Design of the monitoring plan (as per the applied methodology)</p> <p>Revised PDD and ER calculations</p>	Sanjay Kumar Agarwalla
5.	Chavalala	Jabulani	City of Ekurhuleni Metropolitan Municipality	12/09/2018	<p>Status of the project and any modifications with respect to the registered PDD;</p> <p>Applicable national policies and regulations and their eventual impacts in terms of changing of the previously derived baseline scenario and baseline emissions;</p>	Sanjay Kumar Agarwalla
6.	Nxumalo	Ziphozami	City of Ekurhuleni Metropolitan Municipality	12/09/2018	<p>Status of the project and any modifications with respect to the registered PDD;</p> <p>Applicable national policies and regulations and their eventual impacts in terms of changing of the previously derived baseline scenario and baseline emissions;</p>	Sanjay Kumar Agarwalla

C.4. Sampling approach

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Not applicable

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	01	02	-
Application and selection of methodologies and standardized baselines	02	01	-
Validity of original baseline or its update	01	01	-
Estimated emission reductions or net anthropogenic removals	04	02	-
Validity of monitoring plan	-	01	-
Crediting period	01	-	-
Project participants	-	-	-
Post-registration changes	01	-	-
Others (please specify)	-	-	-
Total	10	07	-

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

Means of validation	DR, I
Findings	CAR 01, CAR 03 and CL 01 have been raised. Please refer to Appendix 4 for further details.
Conclusion	<p>CC IPL confirms the following:</p> <ul style="list-style-type: none"> The compliance of the revised PDD /xx/ with the valid version of the applicable PDD form and the instructions therein for filling the form. PP has used the latest version of the CDM-PDD-FORM and the assessment team confirms that the information transferred to the PDD are materially same as that in the registered PDD /xx/. <p>The validation team confirms the compliance of paragraph 406 CDM VVS for project activities, version 01.0 /xx/.</p> <p>This is subject to review of all supporting documents and closure of raised CARs/CLs.</p>

D.2. Application and selection of methodologies and standardized baselines

Means of validation	DR, I
Findings	CAR 03, CL 02 and CL 03 have been raised. Please refer to Appendix 4 for further details.
Conclusion	<p>The project was originally registered under ACM0001, version 11 /xx/. During the request of renewal of crediting period of the project, the latest available version of the baseline and monitoring methodology ACM0001, version 18.0 "Flaring or use of landfill gas" /xx/ has been applied. This is in compliance with paragraph 283 (a) of CDM Project Standard for project activities, version 01 /B01-2/ and paragraph 403 of CDM VVS for project activities, version 01.0 /B01-1/.</p> <p><u>Assessment of the applicability of the applied methodology:</u></p> <p>The chosen baseline methodology is applicable to the project activity as justified below and verified by reviewing the registered PDD of the project /xx/, validation report /xx/ and the updated PDD /xx/. The assessment of the project's compliance with the applicability criteria of ACM0001, version 18 are detailed below:</p>

	Applicability condition of the methodology ACM0001, Version 18	Criteria fulfilled	Assessment by the validation team
	<p>The methodology is applicable under the following conditions:</p> <p>(a) Install a new LFG capture system in a new or existing SWDS where no LFG capture system was installed prior to the implementation of the project activity; or</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Validation team confirms that the project activity is the installation of a new landfill gas capture system at an existing SWDS where no LFG capture system was installed prior to the implementation of the project activity. This been assessed based on the knowledge of the project from the initial validation /B04/ and confirmation through interviews with the project participant during the on-site visit.</p>
	<p>(b) Make an investment into an existing LFG capture system to increase the recovery rate or change the use of the captured LFG, provided that:</p> <p>(i) The captured LFG was vented or flared and not used prior to the implementation of the project activity; and</p> <p>(ii) In the case of an existing active LFG capture system for which the amount of LFG cannot be collected separately from the project system after the implementation of the project activity and its efficiency is not impacted on by the project system: historical data on the amount of LFG capture and flared is available;</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>The project activity is the installation of a new LFG capture system in an existing SWDS where no LFG capture system was installed prior to the implementation of the project activity. Therefore condition (b) is not relevant.</p>
	<p>(c) Flare the LFG and/or use the captured LFG in any (combination) of the following ways:</p> <p>i. Generating electricity;</p> <p>ii. Generating heat in a boiler, air heater or kiln (brick firing only) or glass melting furnace;2 and/or</p> <p>iii. Supplying the LFG to consumers through a natural gas distribution network;</p> <p>iv. Supplying compressed/liquefied LFG to consumers using trucks;</p> <p>v. Supplying the LFG to consumers through a dedicated pipeline</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Validation team confirms that LFG is captured in the project activity and then flared. This been assessed based on the knowledge of the project from the initial validation /B04/ and confirmation through interviews with the project participant during the on-site visit.</p>

	<p>(d) Do not reduce the amount of organic waste that would be recycled in the absence of the project activity.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>The implementation of the project activity does not imply any change in the waste received at the landfill and has not reduced the amount of organic waste that would have been recycled in the absence of the project activity.</p> <p>This been assessed based on the knowledge of the project from the initial validation /B04/ and confirmation through interviews with the project participant during the on-site visit.</p> <p>Validation Team further reviewed a letter from xxxxx (attached as a part of appendix 3 of the revised PDD), which confirms that that the project activity did not and will also continue to not imply any change to the waste received at the landfill and therefore has not reduced the amount of organic waste that would have been recycled in the absence of the project activity. Such a letter from the company dealing with waste management in South Africa could be categorized as other additional sources.</p> <p>In addition to that validation team based on review of South African Waste Information Centre (SAWIC) /B08-6/ further confirms that recycling of organic waste is not a common/widely used practice in South Africa and in the region of the project and thus validation team concluded that the project does not reduce the amount of organic waste that would be recycled in the absence of the project activity.</p>
<p>The methodology is only applicable if the application of the procedure to identify the baseline scenario confirms that the most plausible baseline scenario is:</p>			
	<p>(a) Atmospheric release of the LFG or capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons; and</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Validation team confirms that the baseline scenario for the project is the atmospheric release of the LFG. This conclusion has been made based on the fact that no regulations or contractual requirements, prescribing capturing of LFG and/or flaring thereof, exist currently.</p> <p>Validation team based on review of draft 'Minimum Requirements for Waste Disposal by Landfill' (published in 2005 and constituting the most recent</p>

			legislation on landfill site management available in South Africa) /Bxx/ confirms that this regulation does not categorically specify that it is a mandatory requirement to actively capture, flare, or destroy LFG at every landfill in South Africa. The said draft requirements provide guidelines to ensure safety on site (i.e. reducing the risk of explosions) by limiting LFG accumulation via passive ventilation.
	(b) In the case that the LFG is used in the project activity for generating electricity and/or generating heat in a boiler, air heater, glass melting furnace or kiln; (i) For electricity generation: that electricity would be generated in the grid or in captive fossil fuel fired power plants; and/or (ii) For heat generation: that heat would be generated using fossil fuels in equipment located within the project boundary.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	In the project activity, the LFG is captured and flared and also used for electricity generation (supplying to grid which otherwise would be generated in the grid). This been assessed based on the knowledge of the project from the initial validation /B04/ and confirmation through interviews from the project participant during the on-site visit.
	This methodology is not applicable: (a) In combination with other approved methodologies. For instance, ACM0001 cannot be used to claim emission reductions for the displacement of fossil fuels in a kiln or glass melting furnace, where the purpose of the CDM project activity is to implement energy efficiency measures at a kiln or glass melting furnace;	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The project activity does not apply any methodologies in addition to ACM0001 (Version 18), checked and confirmed by the validation team.
	(b) If the management of the SWDS in the project activity is deliberately changed during the crediting in order to increase methane generation compared to the situation prior to the implementation of the project activity.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The management of the SWDS shall not be deliberately changed in order to increase methane generation. This been assessed based on the knowledge of the project from the initial validation /B04/ and confirmation through interviews with the project participant during the on-site visit.
<p>Thus the validation team confirms the project activity complies with the applicability criteria of the methodology ACM0001, version 18.</p> <p>This is subject to review of supporting documents and closure of all the raised CARs/CLs.</p>			

D.3. Validity of original baseline or its update

Means of validation	DR, I
Findings	CAR 04 and CL 04 have been raised. Please refer to Appendix 4 for further details.
Conclusion	The project was registered with the methodology ACM0001, version 11 /xx/. In the registered PDD /xx/, the baseline scenario was identified as the atmospheric release of the landfill gas (no capture of landfill gas and destruction to comply with

regulations or contractual requirements or to address safety and odour concerns). No project power generation and the continued use of existing and/or new grid-connected power plants for all municipal power supply. This is effectively the continuation of the status quo.

PP has correctly applied the applicable and valid methodology at the time of renewal of crediting period i.e. ACM0001, version 18 /Bxx/ which provides an option for the simplified baseline and PP has opted for the same. The consideration of Simplified procedures to identify the baseline scenario and demonstrate additionality, as specified in section 5.3.1 of the applied methodology ACM0001, version 18 /Bxx/ is deemed to correct and thus acceptable to the validation team.

As required by paragraph 407 (a) of CDM VVS for project activities, version 01 /B01-1/, validation team has checked the impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period at the time of requesting renewal of crediting period. The assessment has been carried out as per the “Methodological tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” /Bxx/.

As per the “Methodological tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”, Version 3.01 /Bxx/, CCIPL has assessed the validity of the baseline through an assessment of the following:

Step 1: Assess the validity of the current baseline for the next-crediting period:

The assessment is carried out by the CCIPL’s validation team to assess the impact of national and/or sectoral policies and circumstances existing at the time of requesting renewal of the crediting period on the registered baseline GHG emissions, without reassessing the baseline scenario.

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies:

Does the present chosen baseline in the renewal crediting period complies with the relevant mandatory national and/or sectoral policies	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	To be assess in FVR
If «NO» above → are these national and/or sectoral policies enforced and commonly practiced in the region/country?	<input type="checkbox"/> Yes <input type="checkbox"/> No	NA

Step 1.2: Assess the impact of circumstances:

To be assess in FVR

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested:

To be assess in FVR

Step 1.4: Assessment of the validity of the data and parameters:

Data and parameters have been updated due to the adoption of the latest version of the applied methodology ACM001, version 18 and the related methodological tools.

To be assess in FVR

	<p>Step 2: update the current baseline and the data and parameters:</p> <p>NA</p> <p>Step 2.1 update the current baseline:</p> <p>NA</p> <p>Step 2.2 update the data and parameters:</p> <p>To be assess in FVR</p>
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D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	DR, I
Findings	CAR 05, CAR 06, CL 05, CL 06, CL 07 and CL 08 have been raised. Please refer to Appendix 4 for further details.
Conclusion	<p>At the time of registration of the project activity, the project applied approved baseline and monitoring methodology ACM0001, version 11 - Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario. PP has correctly applied the latest valid version the methodology at the time of renewal of crediting period i.e. ACM0001, version 18. PP has revised the calculation of emission reductions as per the requirement of ACM0001, version 18. Emission reduction calculation was correctly and conservatively demonstrated by the PP according to the methodology ACM0001, version 18 and associated tools. All values used in the PDD are considered reasonable and conservative in the context of the renewal of crediting period of the CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions and emission reductions. All estimates of the baseline and project can be replicated using the data and parameter values provided in the PDD.</p> <p>To be assess in FVR</p>

D.5. Validity of monitoring plan

Means of validation	DR, I																																										
Findings	CAR 07 has been raised. Please refer to Appendix 4 for further details.																																										
Conclusion	<p>The project monitoring plan is in compliance with the monitoring methodology ACM0001, version 18 /xx/ and the applicable methodological tools.</p> <p>It is CCIPL's opinion, that the monitoring arrangements described in the monitoring plan are feasible within the project design and the project participants are able to implement the monitoring plan.</p> <p><u>Parameters determined ex-ante</u></p> <p>The following parameters are fixed ex-ante as per the requirements of applied methodology and applicable tools:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffff00;">Data and parameters</th> <th style="background-color: #ffff00;">Applied value</th> <th style="background-color: #ffff00;">Assessment</th> </tr> </thead> <tbody> <tr><td style="background-color: #ffff00;">GWP_{CH4}</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">OX_{top_layer}</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">D_{CH4}</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">BE_{CH4,SWDS,y}</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">φ_{default}</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">F</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">f</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">η_{PJ}</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">OX</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">MCF_{default}</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">DOC_j</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">DOC_{f,default}</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00;">k_j</td><td></td><td></td></tr> </tbody> </table>	Data and parameters	Applied value	Assessment	GWP_{CH4}			OX_{top_layer}			D_{CH4}			BE_{CH4,SWDS,y}			φ_{default}			F			f			η_{PJ}			OX			MCF_{default}			DOC_j			DOC_{f,default}			k_j		
Data and parameters	Applied value	Assessment																																									
GWP_{CH4}																																											
OX_{top_layer}																																											
D_{CH4}																																											
BE_{CH4,SWDS,y}																																											
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η_{PJ}																																											
OX																																											
MCF_{default}																																											
DOC_j																																											
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k_j																																											

Carbon Emission Factor (CEFelectricity,y)		
Ru		
MMi		
Pn		
Tn		

CCIPL is able to verify that all the ex-ante parameters required by ACM0001, version 18 and the relevant tool have been clearly stated, referenced and used in the ex-ante emission reduction calculations. The authenticity and referencing of all the parameters have been clearly described in the emission reduction calculation sheet /xx/ and was checked and verified by CCIPL and found to be appropriate.

Parameters monitored ex-post

The monitoring plan includes the operational and management structure to implement the monitoring plan and provisions to ensure that data monitored and required for verification and issuance be kept and archived electronically for two years after the end of the crediting period or the last issuance of CERs, whichever occurs later. It defines responsibilities and arrangements for data collection and archiving and quality assurance and quality control (QA/QC) procedures. The uncertainty levels, methods and the associated accuracy level of measuring instruments to be used for various parameters and variables are also defined in the monitoring plan. Further, specifications of the calibration frequency for the measuring equipment are given as needed.

The following parameters will be monitored as per the requirements of applied methodology and applicable tools:

Parameter	Monitoring frequency
fvi,h	
FVRG, h	
TO2, h	
FVCH4, FG, h	
Tflare	
LFGflare,v	
LFGelectricity,v	
LFGtotal,,y	
WCH4	
T_LFG	
P_LFG	
EL_LFG	
ECPJ,j,y	
Wx	
Opflare,h	

CCIPL confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design, and the mean of implementation of the monitoring plan is able to ensure the achievement of emission reductions.

A detailed operational and management structure has been provided in the updated PDD /01/.

The above section will be completed after further review of supporting documents, closure of all CARs/CLs.

D.6. Crediting period

Means of validation	DR, I
Findings	CL 09 has been raised. Please refer to Appendix 4 for further details.
Conclusion	Inline with the requirements of paragraph 280 of CDM Project Standard for project activities, version 01.0 /01-2/, the Project participants had notified the UNFCCC secretariat of their intention in accordance with the CDM Project cycle procedure for project activities, version 01.0 /01-3/. This has been done in accordance with paragraph 263 of CDM PCP for project activities, version 01.0 as verified by reviewing the email /xx/ sent by the project participant to the UNFCCC. The notification e mail was sent on 15/06/2018 which is beyond 180 days of the expiry of the 1 st crediting period on 25/10/2017. In this context CL 09 is raised.

D.7. Project participants

Means of validation	DR, I
Findings	-
Conclusion	Validation team confirms that the names of the project participants included in the request for renewal of crediting period are same as reflected on the UNFCCC interface for the project activity. The PP from the host country is "City of Ekurhuleni Metropolitan Municipality".

D.8. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines	N	N/A	N/A
Corrections	N	N/A	N/A
Change to the start date of the crediting period of the project activity	N	N/A	N/A
Inclusion of a monitoring plan	N	N/A	N/A
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools	N	N/A	N/A
Changes to the project design	N	N/A	N/A
Changes specific to afforestation and reforestation project activities	N	N/A	N/A

CL 10 has been raised. Please refer to Appendix 4 for further details.

This is subject to review of all supporting documents and closure of raised CARs/CLs.

SECTION E. Internal quality control

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The final validation report has undergone a technical review and quality reviewer before being submitted to the project participant(s) and UNFCCC Executive Board. The technical review is performed by a technical reviewer qualified in accordance with CCIPL's qualification scheme for CDM validation and verification.

SECTION F. Validation opinion

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The validation team assigned by the DOE has been assigned by "City of Ekurhuleni Metropolitan Municipality" to perform the validation of Renewal of Crediting Period for the project "Ekurhuleni Landfill Gas Recovery Project – South Africa", UNFCCC reference number 3677. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism.

CC IPL confirms that that the project participants have updated sections of the PDD relating to the baseline, estimated GHG emission reductions or net anthropogenic GHG removals, the monitoring

plan and the crediting period using the valid version(s) of the approved baseline and monitoring methodology applicable to the project activity.

As per the registered PDD, the methodology used was ACM0001, version 11 “Consolidated baseline and monitoring methodology for landfill gas project activities” and the baseline scenario was identified as the atmospheric release of the landfill gas (no capture of landfill gas and destruction to comply with regulations or contractual requirements or to address safety and odour concerns). No project power generation and the continued use of existing and/or new grid-connected power plants for all municipal power supply. This is effectively the continuation of the status quo. PP has correctly applied the applicable and valid version of the methodology at the time of renewal of crediting period i.e. ACM0001, version 18.

The applicability of the methodology has been assessed based on the knowledge of the project from the initial validation, subsequent verifications and the interviews from the project participant. The assessment of the project’s compliance with the applicability criteria of the methodology ACM0001, version 18 as documented in the PDD, which are evaluated in detail under assessment above in this report. Thus, the validation team confirms the applicability of the selected methodology to the proposed CDM project activity.

As required by paragraph 407 (a) of CDM VVS for project activities, version 01, validation team has checked the impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period at the time of requesting renewal of crediting period. The assessment has been carried out as per the “Methodological tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” /xx/. Validation team confirms that no law or regulation which mandates that it is a mandatory requirement to actively capture, flare, or destroy LFG at landfill in South Africa and thus it can be confirmed that the original baseline of the project as described in the registered PDD is still valid.

Validation team confirms the correctness of the application of the approved methodology for the determination of the continued validity of the baseline, and the estimation of emission reductions for the applicable crediting period of the registered CDM project activity. Validation team confirms that the applied the baseline and monitoring methodology applied in accordance with the applicable requirements in the Project standard. Validation team confirms that the baseline, the estimated GHG emission reductions or net anthropogenic GHG removals, and the monitoring plan in the updated PDD comply with the applicable requirements in the Project standard, and the valid version of the methodology and, applicable to the registered CDM project activity.

The project participants used a later valid version of the PDD form for the updated PDD than the version of the PDD of the registered PDD. Validation team confirms that the information transferred to the later valid version of the PDD form is materially the same as that in the registered PDD. The updated PDD complies with the valid version of the applicable PDD form and instructions therein for filling out the PDD form.

Validation team confirms that the names of the project participants included in the request for renewal of crediting period are as reflected on the UNFCCC interface.

The project participants had not requested any post-registration changes together with this request for renewal of crediting period of the registered CDM project activity (this can be confirmed after receiving the response against the raised CARs/CLs).

Inline with the requirements of paragraph 280 of CDM Project Standard for project activities, version 01.0 /xx/, the Project participants had notified the UNFCCC secretariat of their intention in accordance with the CDM Project cycle procedure for project activities, version 01.0 /xx/. This has been done in accordance with paragraph 263 of CDM PCP for project activities, version 01.0 as verified by reviewing the email /xx/ sent by the project participant to the UNFCCC. The notification

e mail was sent on 15/06/2018 which is beyond 180 days of the expiry of the 1st crediting period on 25/10/2017. In this context CL 09 is raised.

CC IPL concludes that the CDM Project Activity “Ekurhuleni Landfill Gas Recovery Project – South Africa” in South Africa, as described in the PDD /01/, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) Para 49 (a) and the subsequent decisions by the COP/MOP and CDM Executive Board. The selected baseline and monitoring methodology, ACM0001, version 18 is applicable to the project and correctly applied. CC IPL therefore requests the approval of the renewal of the crediting period for the registered CDM project with UNFCCC.

The above is subject to review of all supporting documents and closure of all raised CARs/CLs.

Appendix 1. Abbreviations

Abbreviations	Full texts
CER	Certified Emission Reduction
CA	Corrective Action / Clarification Action
CDM	Clean Development Mechanism
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
DNA	Designated National Authority
DOE	Designated Operational Entities
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final validation Report
GSC	Global Stakeholder Consultation
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MWh	Mega Watt Hour
NA	Not applicable
OSV	On Site Visit
QC/QA	Quality control/Quality assurance
RCP	Renewal of Crediting Period
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/01/	City of Ekurhuleni Metropolitan Municipality	1. Initial PDD 2. Final PDD	Version 1, dated 15/02/2018 Version xx, dated xxx	Project Participant
/02/	City of Ekurhuleni Metropolitan Municipality	Emission reduction spread sheet.	--	Project Participant
/03/	UNFCCC	1. CDM VVS for project activities, version 01.0 2. CDM PS for project activities, version 01.0 3. CDM PCP for project activities, version 01.0	--	UNFCCC
/04/	Project Participant	Approved revised PDD (and corresponding validation report)	PDD version 11, dated 14/08/2014	UNFCCC project page
/05/	UNFCCC project page	Documents available on UNFCCC website corresponding to verifications of the project activity.	--	UNFCCC project page
/06/	UNFCCC	Methodological Tool – “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”.	Version 3	UNFCCC
/07/	UNFCCC	ACM0001: Flaring or use of landfill gas	Version 18	UNFCCC
/08/	UNFCCC	ACM0001: Consolidated baseline and monitoring methodology for landfill gas project activities	Version 11	UNFCCC
/09/	UNFCCC	Instructions for filling out the project design document form for CDM project activities, version 10.1	Version 10.1	UNFCCC
/10/	UNFCCC	“Tool to determine the mass flow of a greenhouse gas in a gaseous stream” (Version 03.0)	Version 03.0	UNFCCC
/11/	UNFCCC	Emissions from solid waste disposal sites	Version 08.0	UNFCCC
/12/	UNFCCC	Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation	Version 03	UNFCCC
/13/	UNFCCC	Project emissions from flaring	Version 03	UNFCCC
/14/	Project Participant	Notification Email dated 15/06/2018 sent to UNFCCC by Project participants for their intention of renewal of crediting period for the project activity	--	PP
/15/	-	Websites referenced: 1. http://cdm.unfccc.int 2. http://www.ipcc-nggip.iges.or.jp/ 3. https://maps.google.com/	--	-

		<p>4. http://www.sawic.org.za/</p> <p>5. https://www.environment.gov.za/</p> <p>6. http://sawic.environment.gov.za</p>		
/16/		'Minimum Requirements for Waste Disposal by Landfill' (published in 2005)		
/17/		Evidence for the assessment of the impact of national and/or sectoral policies and circumstances, existing at the time of requesting the renewal of the crediting period, on the current baseline GHG emissions (Cp para 288 of PS for PA, version 1.0)		
/18/		Copies of all the relevant Statutory clearances for the four project sites		
/19/		Evidence for the updated ex ante parameters in accordance with the "Methodological tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (Cp para 290 of PS for PA, version 1.0)		
/20/		MoC statement, if applicable (Cp para 281 of PS for PA, version 1.0 and para 409 of VVS for PA, version 1.0)		
/21/		Technical details of all the monitoring equipment		
/22/		Monitoring Manual		
/23/		Evidences for each of the applicability criteria of the applied methodology and the relevant tools		
/24/		Organization structure		
		Site plan/map		
/25/		Evidence for non-disposal of hazardous material on the project sites		
/26/		Key photographs of the project sites		

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

Table 1. CL from this validation

CL ID	01	Section no.	D.1	Date: 25/09/2018
Description of CAR				
In section B.5 of the PDD, PP has demonstrated the additionality of the project activity. But paragraph 284 of the CDM PS for PA, version 01 states “ <i>For renewal of crediting period of a registered CDM project activity, the project participants are not required to reassess the additionality of the project activity nor update the section of the PDD relating to additionality</i> ”. Clarification is requested.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY
CL ID	02	Section no.	D.2	Date: 25/09/2018
Description of CL				
PP has not demonstrated the applicability condition of paragraph 3(d) of the applied meth ACM0001, version 18 in line with the methodology. Also the applicability conditions of para 5 (a) and 5 (b) of the meth have not been demonstrated.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY
CL ID	03	Section no.	D.2	Date: 25/09/2018
Description of CL				
Clarification is requested on the applicability of Standardized Baseline: Grid emission factor for the Southern Africa power pool, ASB0001, Version 01, considering that it has expired.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY
CL ID	04	Section no.	D.3	Date: 25/09/2018
Description of CAR				
PP is requested to provide evidence for the statement in section B.6.1 of the PDD: “ <i>For the project activity, Case 1 is applicable: “No requirement to destroy methane exists and no existing LFG capture system” is applicable because the legislation applicable at the submission for validation of the project activity did not require landfills to collect nor utilize the gas generated, hence it was not mandated by regulations. As explained on previous sections at the time of the renewal of the crediting period, the new waste management legal regime in South Africa is delimited by the National Environmental Management: Waste Act No. 59 of 2008 (NEM:WA) 12, which was assented on 06/03/2009 as a regulation (NEM: WA Regulations). The NEM:WA does not introduce into South African legislation the requirement for landfill gas to be captured and flared¹³. Therefore, the project participant is not required to capture and flare LFG at the start of the second crediting period by any mandatory law</i> ”.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				

DOE assessment	Date: DD/MM/YYYY

CL ID	05	Section no.	D.4	Date: 25/09/2018
Description of CAR				
The applicable equation of the methodological tool: Tool to determine the mass flow of a greenhouse gas in a gaseous stream, version 03 for determining the mass flow of greenhouse gas has not been provided in the PDD.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

CL ID	06	Section no.	D.4	Date: 25/09/2018
Description of CAR				
PP has not demonstrated the step wise approach for determining $PE_{flare,y}$ as per the applied methodological tool: "Project emissions from flaring", version 02.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

CL ID	07	Section no.	D.4	Date: 25/09/2018
Description of CAR				
For the parameter "Average technical transmission and distribution losses for providing electricity to source j in year y" in section B.6.1 of the PDD, PP is requested to confirm along with proper justification, the applied option as per the methodological tool. Also this parameter is not listed in section B.6.2 of the PDD.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

CL ID	08	Section no.	D.4	Date: 25/09/2018
Description of CAR				
PP needs to confirm whether the chosen value for the ex-ante fixed parameter "GWP _{CH4} " is the latest available one.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

CL ID	09	Section no.	D.6	Date: 25/09/2018
Description of CL				

The notification for renewal of crediting period was sent by the PP to UNFCCC on 15/06/2018, which is beyond 180 days of the expiry of the 1 st crediting period for the project activity on 25/10/2018. In this context PP needs to clarify the compliance of paragraph 263 of PCP for project activities, version 01 which states “However, if the notification of the intention to request a renewal of the crediting period was not received by the secretariat by 180 days prior to the date of expiration of the current crediting period in accordance with paragraph 266 below, and if the date when the renewal of crediting period is deemed renewed after the expiration of the current crediting period, the project participants shall not be entitled to claim the issuance of CERs from the first day of the next crediting period until the last day before the renewal of crediting period is deemed renewed or until the number of days equivalent to the delay in the notification have elapsed since the notification submission deadline, whichever is earlier”.	
Project participant response	Date: DD/MM/YYYY
Documentation provided by project participant	
DOE assessment	Date: DD/MM/YYYY

CL ID	10	Section no.	D.9	Date: 25/09/2018
Description of CL				
PP is requested to confirm whether the information transferred to the later valid version of the PDD form is materially the same as that in the registered PDD (Cp paragraph 406 of CDM VVS for Project activities, version 01). If not, PP needs to confirm the changes in the current version of the PDD with respect to the approved revised PDD, version 11, dated 14/08/2014 and confirm whether the changes would require post registration changes in the PDD (please refer paragraph 412 of CDM VVS for Project activities, version 01 and paragraph 292 of CDM PS for project activities, version 01).				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Table 2. CAR from this validation

CAR ID	01	Section no.	D.1	Date: 25/09/2018
Description of CAR				
As per the PDD completing instructions, all numerical values in the PDD must be in internationally recognized format and date format should be in DD/MM/YYYY format. Also the font type and size must be as per the CDM-PDD-FORM template.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

CAR ID	02	Section no.	D.1	Date: 25/09/2018
Description of CAR				
The PDD completing instructions for section A.1 states “Describe how the project activity contributes to sustainable development”. This has not been followed for the submitted PDD.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

CAR ID	03	Section no.	D.2	Date: 25/09/2018
Description of CAR				

The table in section B.2 (Project boundary, sources and greenhouse gases (GHGs)) of the submitted PDD is not as per the applied methodology ACM0001, version 18.	
Project participant response	Date: DD/MM/YYYY
Documentation provided by project participant	
DOE assessment	Date: DD/MM/YYYY

CAR ID	04	Section no.	D.3	Date: 25/09/2018
Description of CAR				
In section B.4 of the PDD, PP has not followed paragraph 287 of the CDM PS for PA, version 01 which states “ <i>To demonstrate the validity of the original baseline or its update, the project participants are not required to re-assess the baseline scenario. Instead, the project participants shall assess the GHG emission reductions or net anthropogenic GHG removals that would have resulted from that scenario</i> ”. PP needs to follow paragraph 286 to 291 of the PS.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

CAR ID	05	Section no.	D.4	Date: 25/09/2018
Description of CAR				
During the on-site visit interviews it was confirmed that PP has not followed the “Methodological tool: Emissions from solid waste disposal sites”, version 08, paragraph 12 which states “ <i>The amount of methane generated from disposal of waste at the SWDS is calculated based on a first order decay (FOD) model</i> ”. PP needs to provide revised ER spread sheet along with proper evidence.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

CAR ID	06	Section no.	D.4	Date: 25/09/2018
Description of CAR				
In section B.3 of the PDD, PP has not provided the calculation of emission reductions using the methodological equations in a transparent manner (please refer the PDD completing instructions).				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

CAR ID	07	Section no.	D.5	Date: 25/09/2018
Description of CAR				
PP is requested to confirm on minute wise monitoring of the relevant monitoring parameters as per the methodological tool: “Project emissions from flaring”, version 02.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Table 3. FAR from this validation

FAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of FAR				
-				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
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