



VCS VERIFICATION REPORT

NANNING LANDFILL GAS POWER
GENERATION PROJECT

(VCS PROJECT ID: 2464)



Report ID	CTISC-NC-CBN-202405017
Project title	Nanning Landfill Gas Power Generation Project
Project ID	2464
Verification period	01-Jul-2023 to 31-Dec-2024
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Version	
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Summary:

CTI Certification Co., Ltd. (CTI) has performed the verification of the emission reductions reported for the project activity “Nanning Landfill Gas Power Generation Project” (VCS Project ID: 2464) for the monitoring period 01-Jul-2023 to 31-Dec-2024, to review and determine the monitored reductions in GHG emissions that have occurred as a result of the project activity. These emission reductions are claimed as Verified Carbon Units (VCU) under the Verified Carbon Standard (VCS) version 4.7.

The verification was performed on the basis of VCS Program Guide version 4.4 and VCS Standard version 4.7 for the VCS projects, as well as criteria given to provide for consistent project operations, monitoring and reporting. The verification was conducted by means of document review, follow-up interviews and site inspections, and the resolution of outstanding issues. The verification team identified 1 CL, no CAR or FAR in this monitoring period.

In CTI's opinion, the GHG emission reductions reported for the project in the monitoring report (version 03 dated 11-Jun-2025) are fairly stated. The GHG emission reductions of the period were calculated correctly on the basis of approved methodology ACM0001 “Flaring or use of landfill gas” (Version 19.0) and the monitoring plan contained in the VCS PD (version 1.1 dated 22-Apr-2021).

CTI does not assume any responsibility towards the issuance and utilization of the VCUs hereby verified and certified. Request for issuance of VCUs shall be made by the project proponent to an approved VCS Program Registry based on the requirements set out under the most recent version of the VCS Program Guidelines clause on VCS Registration.

The verification of reported emission reductions is based on the information made available to CTI and the engagement conditions detailed in this report. CTI cannot be held liable by any party for decisions made or not made based on this report.

Hence, CTI is able to certify that the emission reductions from the “Nanning Landfill Gas Power Generation Project” during the period amount to 181,997 tCO_{2e}.

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1 INTRODUCTION

Swiss Carbon Value Ltd. has commissioned CTI Certification Co., Ltd. (CTI) to carry out the verification and certification of emission reductions reported for the “Nanning Landfill Gas Power Generation Project” (the project) for the period 01-Jul-2023 to 31-Dec-2024. This report contains the findings from the verification and includes a verification statement for the verified carbon units.

1.1 Objective

Verification is the periodic independent review and ex-post determination by an accredited verification body of the monitored reductions in GHG emissions that have occurred as a result of the registered VCS project activity during a defined verification period.

A verification statement is the written assurance by a verification body that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and provide a verification statement of emission reductions reported for the “Nanning Landfill Gas Power Generation Project” for the period 01-Jul-2023 to 31-Dec-2024.

1.2 Scope and Criteria

The scope of the verification is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emissions reduction data is free from material misstatement;
- To verify that reported GHG emissions data is sufficiently supported by evidence.

The criteria of the verification are:

- VCS Program Guide (version 4.4) /58/
- VCS Standard (version 4.7) /57/ and other relevant requirements defined by Verra;
- The approved methodology ACM0001 (Version 19.0) /60/ applied by the project;
- All information and references relevant to the project activity's resulting in emission reductions.

The verification shall ensure that reported emission reductions are complete and accurate in order to be verified.

1.3 Level of Assurance

The verification report expresses a conclusion with a reasonable level of assurance about whether the reported GHG emissions reduction data is free from material misstatement. CTI applied a materiality threshold of 5% (for projects with $ER \leq 300,000 \text{ tCO}_2\text{e}$ per year) with respect to emission or misstatements concerning reported quantities as per VCS standard (i.e. para 3.10.1 and 4.1.10 (4) of VCS Standard, version 4.7).

1.4 Summary Description of the Project

Sectoral Scope and Project Type

According to the VCS Program Guide (version 4.4) /58/ and Annex A of the Kyoto Protocol, the project is applicable under the following activity categories:

- Sectoral Scope: 1. Energy (Renewable/non-renewable); 13. Waste handling and disposal
- Project type: Landfill gas power generation project

Project Background

Project title:	Nanning Landfill Gas Power Generation Project
Project proponent:	Guangxi Ruirong Energy Technology Co., Ltd. (China)
Project location:	Pingli Landfill Site in Xingning District, Nanning City, Guangxi Zhuang Autonomous Region, P.R China By checking online GPS map during site visit, it was verified the central coordinates of the project activity was 108°38'11"E and latitude of 23°00'43"N, consistent with that in the registered VCS PD.
VCS Project ID:	2464
Applied methodology:	ACM0001 Version 19.0
VCS project crediting period:	03-Apr-2020 to 02-Apr-2030 (the 10-year fixed VCS crediting period)
VCU verification period:	01-Jul-2023 to 31-Dec-2024

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification was performed through means of the following three phases in accordance with the requirement of the VCS PD (version 1.1 dated 22-Apr-2021), the applied methodology, and the VCS Standard (version 4.7) and other relevant VCS requirements:

- A desk review of the monitoring report and all support documents;
- Follow-up interviews with project stakeholders and site inspection;
- The resolution of outstanding issues and the issuance of the verification report and statement.

The following sections outline each step in more detail.

Based on the requirements of competency, experience and qualified sectoral scopes, CTI appointed a verification team in accordance with CTI's internal procedures.

Function	Name	Technical competence	Task Performance*
Team Leader/Technical Expert	Ziqi LI	1, 3, 4, 5, 11, 12, 13	☒ DR ☒ SV ☒ RP ☐ TR
Team Member	Qixin ZHANG	1,13	☒ DR ☒ SV ☒ RP ☐ TR
Technical Reviewer	Shunrong LIN	1, 3, 13, 14, 15	☒ DR ☐ SV ☐ RP ☒ TR

*DR=Document review; SV=Site visit; RP=Reporting; TR=Technical review

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. These include:

- The emission reduction calculations and the relevant data records;
- The calibration and maintenance records for the monitoring instruments;
- The management systems to support the project operation and monitoring.

2.2 Document Review

In addition to the VCS monitoring report /1/, VCS PD (version 1.1 dated 22-Apr-2021) /3/ and Emission Reduction Calculation Spreadsheet /2/, the following documents also were assessed as a part of the verification audit:

- VCS Validation Report, version 01.0 dated 28-Apr-2021 /4/;
- Monitoring Report of previous monitoring periods /5/;
- Verification Report of previous monitoring period /6/;

- Baseline and monitoring methodology ACM0001 applied by the project /60/;
- Relevant decisions, clarifications and guidance from the Verra /57/-/59/; and
- Other information and references relevant to the project activity.

The references used in the course of this verification are summarized in Appendix B.

During the desk review, CTI has applied standard auditing techniques to assess the quality of information provided. The following activities were performed:

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures; and

An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

2.3 Interviews

On 25-Mar-2025 ~ 26-Mar-2025, CTI visited Guangxi Ruirong Energy Technology Co., Ltd. performed on-site assessment. The key personnel of the project were interviewed or assisted the verification team. Main topics of the interview cover implementation of the project construction, applicability of selected methodology, implementation of project monitoring, emission reduction calculation, etc.

The key personnel interviewed are summarized in the table below:

Interviewed personnel	Role	Organization	Subject
Mr. Chen Anjiang	General Manager	Guangxi Ruirong Energy Technology Co., Ltd.	Operation of the project activity; Implementation of the monitor plan of the project activity; Data collection and data achievement; Calibration of meters and equipment maintenance; No net harm assessment; SDGs contribution.
Mr. Chen Hongtao	Administrative Staff		
Mr. Li Chaoshen	Director of Production Department		
Ms. Yang Ruyi	Staff	Pingli Landfill Site	Status of Pingli Landfill Site; Management of Pingli Landfill Site.
Mr. Li Xianwen	Staff	Environmental Protection Bureau of Xingning District, Nanning City	The impact of the project activity; The complaint by local stakeholders; The stakeholder consultation during the operation of the project activity; SDGs contribution.
Mr. Shen Peng	Villager	Dongzhipo Village	
Ms. Wang Yanjun	Villager	Naxinpo Village	
Ms. Yang Sui	Project Manager	Swiss Carbon Value Ltd.	Data collection and ER calculation.

2.4 Site Visits

The verification team performed the on-site verification (Pingli Landfill Site in Xingning District, Nanning City, Guangxi Zhuang Autonomous Region, P.R China) on 25-Mar-2025 ~ 26-Mar-2025. The interviewed personnel and objective are listed in above table.

Duration of on-site inspection: 25-Mar-2025 ~ 26-Mar-2025				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening meeting Interview with PP Representative, local officers, local residents and Operation Staff	Project proponent's office in the project site	25-Mar-2025	Ziqi LI Qixin ZHANG
2.	On-site inspection Project site, Pingli Landfill Site, equipments etc., interviewing stakeholders	Project site	25-Mar-2025	Ziqi LI Qixin ZHANG

3.	Documents check	Project proponent's office in the project site	25-Mar-2025	Ziqi LI Qixin ZHANG
4.	Finding Summary	Project proponent's office in the project site	26-Mar-2025	Ziqi LI Qixin ZHANG
5.	Close Meeting	Project proponent's office in the project site	26-Mar-2025	Ziqi LI Qixin ZHANG

During the on-site assessment, CTI has applied standard auditing techniques to assess the quality of information provided, the implementation and current situation of the project activity, evaluate data management, QA/QC system, project technology and equipment, training provided, and monitoring etc.

The following aspects of the project activity have been verified:

- An assessment of the implementation and operation of the registered project activity is as per the VCS PD;
- An assessment of the status and management of the landfill site is as per the VCS PD;
- A review of information flows for generating, aggregating and reporting the monitoring parameters; and
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the VCS PD;
- A cross-check between information provided in the monitoring report and data from other sources such as plant logbooks and electricity sale receipts;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the VCS PD and the selected methodology;
- A review of calculations and assumptions made in determining the GHG data and emission reductions; and
- An identification that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The data presented in the monitoring report were assessed by review of the detailed project documentation and production records, as well as by interviews with personnel from the project proponent Guangxi Ruirong Energy Technology Co., Ltd. and observation of collection of measurements, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. This has enabled the verification team to assess the accuracy and completeness of reported monitoring results, to verify the correct application of the approved monitoring methodology and the determination of the emission reductions.

2.5 Resolution of Findings

A corrective action request (CAR) shall be raised, where:

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

A clarification request (CL) shall be raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

The verification team identified 1 CL and 0 CAR in this monitoring period.

2.5.1 Forward Action Requests

A forward action request (FAR) is issued for actions if the monitoring and reporting require attention and/or adjustment for the next monitoring period.

CTI confirmed that there was no FAR identified in validation or previous verifications /4//6/, and no FAR was raised during this verification.

2.6 Eligibility for Validation Activities

The VCS PD of the project activity was validated by LGAI Technological Center, S.A. (Applus+ Certification) on 28-Apr-2021 /3//4/ (<https://registry.verra.org/app/projectDetail/VCS/2464>). The proposed monitoring period 01-Jul-2023 to 31-Dec-2024 is the 5th VCS verification.

As per 4.1.27 of VCS Standard version 4.7, Validation (including project crediting period renewal validation) and the first verification of a project (in a given project crediting period) may be undertaken by the same validation/verification body and a validation/verification body shall not verify more than six consecutive years of a project's GHG emission reductions or removals. CTI conducted 2nd - 5th (this) VCS verifications (with monitoring periods of 3.5 years, less than 6 years) of the project activity and therefore it is confirmed that 4.1.27 of VCS Standard version 4.7 have been met.

3 VALIDATION FINDINGS

3.1 Methodology Deviations

The validation process /4/ has assessed all factors and issues that constitute the basis for emission reductions from the project according to the applicable CDM methodology ACM0001 (Version 19.0) /57//60/. There was not any methodology deviation applied to this project. Details refer to section 4.1.

3.2 Project Description Deviations

By checking the registered VCS PD /3/ and site visit interview with project proponent, it is confirmed that there were no project description deviations identified by CTI to this monitoring period.

The verification team assessed through visual inspection and document review that all physical features of the proposed project activity including data monitoring, reporting and collecting systems have been implemented in accordance with the monitoring plan included in the registered VCS PD (version 1.1 dated 22-Apr-2021) /3/. Details refer to section 4.1.

3.3 New Project Activity Instances in Grouped Projects

The project was not a grouped project; hence this clause is not applicable.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes

☒ No

Not applicable as the project does not undergo baseline reassessment during the monitoring period.

4 VERIFICATION FINDINGS

4.1 Project Details

Item	Evidence gathering activities, evidence checked, and assessment conclusion:
Audit history	The audit history mentioned in the MR has been confirmed to be correct through checking registered VCS PD (version 1.1 dated 22-Apr-2021) /3/ and information on the VERRA website (https://registry.verra.org/app/projectDetail/VCS/2464).
Double counting and participation under other GHG programs	CTI checked public information from the UNFCCC website, REC Mechanism database of China, Chinese Emission Trading System, Gold Standard Registry and interviewed with project proponent during site visit, it is confirmed that except VCS scheme, the project has not been participated or been rejected under any other GHG programs since validation. The same has been confirmed through interviewing with project proponent and statement issued by project proponent.
No double claiming with emissions trading programs or binding emission limits	As per Notice on Strengthening the Management of Greenhouse Gas Emission Reports for Power Generation Enterprises during 2023–2025 issued by Ministry of Ecology and Environment of the People's Republic of China on 14-Oct-2023 /54/, China has a national emissions trading scheme covering thermal power generation industry (including Thermal Power Generation, Cogeneration and Biomass Power Generation with Fossil Fuel Blending). And as per Notice on the Issuance of the Work Plan for the Expansion of the National Carbon Emission Trading Market to Cover the Steel, Cement, and Aluminum Smelting Industries issued by Ministry of Ecology and Environment of the People's Republic of China on 20-Mar-2025 /55/, China marks a significant step in the expansion of the national carbon emission trading market, which will include the steel, cement, and aluminum smelting industries. Therefore, the assessment team confirmed that the project activity is not included the mandatory emission control scheme and there is no emission cap enforced for the project owner. Besides, the verification team checked the REC Mechanism database of China, Chinese Emission Trading System (Chinese ETS) and Chinese Certified Emission Reduction Mechanism, and found that the project activity is not accredited / registered under REC mechanism, Chinese ETS, or CCER mechanism. Thus, the verification team concluded that the project activity is not involved on other emissions trading programs or other binding limits.
No double claiming with other forms of	The verification team checked the REC Mechanism database of China, I-REC database and confirmed that there are no other

environmental credit	forms of environmental credits applied or issued for the project activity. The emission reduction resulted from the project during this monitoring period would only apply for VCUs.
Supply chain (scope 3) emissions double claiming	The Project can reduce GHG emissions by utilization the recovered landfill gas, avoiding the emission of methane that would be generated under landfill condition; and by replacing the electricity generated by fossil fuel fired power plants of South China Power Grid (SCPG). For LFG power generation projects, the GHG emission reductions come from avoiding CO ₂ emissions from those fossil fuel-based power plants connected to the grid and avoiding GHG emissions from releasing LFG into atmosphere at the landfill site, and does not happen in a supply chain. Therefore, it is confirmed that the Supply Chain (Scope 3) Emissions are not applicable for the project activity.
Sustainable development contributions	By checking registered VCS PD version 1.1 dated 22-Apr-2021 /3/, Staff Roster /16/, China's National Plan on Implementation of the 2030 Agenda for Sustainable Development and 17 SDGs defined by UNDP, interviewing with stakeholders during site visit, the verification team confirmed that the project activity would contribute sustainable development in the region and China's Sustainable Development Goals (SDG). The specific sustainable development goals that the project activity could achieve have been listed as follows: - SDG13 "Take urgent action to combat climate change and its impacts": the project utilizes and destroy landfill gas that would otherwise be released directly into the atmosphere, effectively reducing GHG emissions and air pollution in the surrounding area and decreasing odour nuisance and minimizing health risks of local residents. Meanwhile, the project activity is able to increase the safety on the landfill through Proper extraction and utilization of the landfill gas, which minimizes the potential for LFG migration on site and reduce the explosion risks of landfill gas. This contributes to achieve one of China's stated sustainable development priorities "Actively adapt to climate change and strengthen resistance capacity to climate risks in agriculture, forestry, water resources and other key fields, as well as cities, coastal regions and ecologically vulnerable areas". During this monitoring period, total GHG emission reductions were 181,997 tCO₂e, which has been verified through checking ERs Calculation Spreadsheet /2/. By checking emission reductions of previous monitoring period through VERRA website, it is confirmed that the cumulative emission reductions were 931,201 tCO₂e since the project start date. - SDG7 "Ensure access to affordable, reliable, sustainable and modern energy for all": the project activity will provide clean and renewable energy source through making use of landfill gas, displacing the power generation of fossil fuel power plants by using renewable energy sources, reducing fossil fuel consumption in SCPG. This contributes to one of the China's

	actions for promoting sustainable developing, “By 2030, increase the share of non-fossil fuels in primary energy consumption to about 20 percent”. During this monitoring period, 28,723.59 MWh of renewable electricity was delivered to SCPG, which has been verified through checking Monthly Reading Records (MRRs) /23/ and Electricity Transaction Notes (ETNs) /26/. By checking net electricity delivered to SCPG of previous monitoring period from VERRA website, it is confirmed that the cumulative renewable electricity delivered to SCPG was 145,280.61 MWh since operation of the project activity. - SDG 8 “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”: by checking Staff Roster /16/, it was verified the project activity increases 12 long term employment opportunities for the management, operation and maintenance of the power plant. This contributes to one of the China 's actions for promoting sustainable developing, “Increase labor force participation rate through implementation of the classification policy. Vigorously enforce the Law on Promotion of Employment”.
Additional information relevant to the project	• Leakage management for AFOLU projects According to the methodology, the leakage of the project is zero, thus the leakage management is not applicable to the project. • Commercially sensitive information No commercially sensitive information has been excluded from the public version of the project description. • No additional relevant information that may have a bearing on the eligibility of the project, the reductions or removals, or the quantification of the project’s reductions or removals.

4.2 Safeguards and Stakeholder Engagement

4.2.1 Stakeholder Identification

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder identification	The verification team has checked the registered VCS PD /3/ and confirm that the stakeholder identification has been conducted as per the VCS standard version 4.7. People or groups who might be impacted by a project, including residents nearby the project site and workers in the project activity and Pingli Landfill Site. Local residents can also be workers of Pingli Landfill Site. Therefore, local residents nearby the project site, the local government, and employees of the project and the Pingli Landfill Site, are identified as stakeholders of this project.

Legal or customary tenure/access rights	By checking EIA Approval /9/ and Project Approval /7/, it is confirmed the project activity has been approved by local government. The verification team confirmed that as per Measures for Public Participation in Environmental Impact Assessment /56/, the government gives the legal right to the project proponent to access the stakeholders and consider their advice. On the other hand, people are voluntary to participate the consultation. By checking LFG Utilization Agreement signed between Pingli Landfill Site and the Project Proponent /12/, it is confirmed that PP has the legal right to use the collected landfill gas. Therefore, it was verified the project activity does not violate any legal or customary tenure/access rights to territories and resources, including collective and conflicting rights, held by stakeholders, indigenous people (IPs), local communities (LCs), and customary rights holders.
Stakeholder diversity and changes over time	By checking registered VCS PD /3/, Validation Report /4/ and MRs and Verification Reports of previous monitoring periods /5//6/, it was verified the stakeholder involved in the project has been correctly identified in the PD and MRs of previous monitoring periods, who were relevant local residents, workers, government officials. Consider there are no change for the project since the validation and the project is implemented as the design mentioned in the registered VCS PD /3/, the stakeholder diversity and changes over time is highly unlikely. The same kind of stakeholders have been identified for this monitoring period, which is verified to be reasonable.
Expected changes in well-being	Following expected changes in well-being has been identified and confirmed to be correct through the site visit: Economic well-being – as justified in the above sections, the project activity will increase employment opportunities for the operation of the project activity. Environmental well-being – as justified in the above sections, the project utilizes and destroy landfill gas that would otherwise be released directly into the atmosphere, effectively reducing GHG emissions and air pollution in the surrounding area and decreasing odour nuisance and minimizing health risks of local residents. Meanwhile, the project activity is able to increase the safety on the landfill through proper extraction and utilization of the landfill gas, which minimizes the potential for LFG migration on site and reduce the explosion risks of landfill gas.
Location of stakeholders	The project is located at Pingli Landfill Site in Xingning District, Nanning City, Guangxi Zhuang Autonomous Region, P.R China. PP identified local residents nearby the project site, local authorities and staff working for the project activity and Pingli Landfill Site as stakeholders, which is considered to be reasonable by the verification team.

Location of resources	By checking LFG Utilization Agreement signed between Pingli Landfill Site and the Project Proponent /12/, it is confirmed that PP has the legal right to use the collected landfill gas. By checking EIA Approval /9/ and Project Approval /7/, it is confirmed the project activity has been approved by local government. Therefore, it is confirmed that territories and resources occupied by the project is within the range of Pingli Landfill Site, where no identified stakeholders legally own or use.
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4.2.2 Stakeholder Consultation and Ongoing Communication

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Ongoing consultation	Via on site inspection, it was verified the project information with contact information has been posted on the bulletins /19/ at and nearby the project site. Through interviewing the project proponent during site visit, it is confirmed in case of any comments from email and phone call channel, it would be recorded, meanwhile, responses would be given and recorded. Besides, via site inspection, it is confirmed during the monitoring period, a grievance expression book /18/ has been put in the office of the project, which is used to collect stakeholders' views about the project. Through interviewing the project proponent during site visit, it is confirmed the comments in the book were checked on a regular basis, and the responses to comments would be recorded in case of any inputs/grievances.
Date(s) of stakeholder consultation	By checking Validation Report /4/, it was verified a local stakeholder consultation meeting was held on 15-May-2020 by the project proponent. Before the stakeholder consultation meeting, the project information with contact information and the stakeholder meeting notice was published on the bulletins /19/ at and nearby the project site on 15-Apr-2020 to invite Local stakeholders. A survey was conducted through distributing and collecting responses to a questionnaire to collect comments from local residents. The questionnaire includes a brief summary of the project activity, including the project design and other relevant key information. In total 30 out of 30 questionnaires were returned with a 100% response rate. By checking Stakeholder Meeting Minutes /17/, it was verified a stakeholder consultation meeting has been held by PP on 05-Aug-2023 during this monitoring period. Local residents nearby the project site, the local government, and employees of the project and the Pingli Landfill Site participated in the meeting. During the meeting, the implementation of the project activity has been introduced and comments have been collected. Besides, a grievance expression book /18/ has been put at the

	project proponent office to collect comments from stakeholders.
Communication of monitored results	By checking Stakeholder Meeting Minutes /17/, it was verified no negative comments has been received during Stakeholder Consultation Meeting on 05-Aug-2023 during this monitoring period. Through checking the grievance expression book /18/ during site visit, it is confirmed a Grievance Book has been put at the project proponent office. No comments has been identified in the Grievance Book during this monitoring period. Through checking records from the project proponent and via interviewing staff from the project proponent, it is confirmed no comments has been received in email or phone call channel. The same has been confirmed through interviewing stakeholders during site visit. Besides, via interviewing with staff from local Environmental Protection Bureau during the site visit, it is confirmed by the verification team that during the implementation stage of this monitoring period, local authority has conducted spot checks on the implementation of the project periodically as per the request from the local governments' regulations, there were no negative comments or issues from the local stakeholders during this monitoring period, the project passed all the periodic spot checks by local government.
Consultation records	By checking Validation Report /4/, it was verified questionnaires have been filled out during the stakeholder meetings. During site visit, it was verified a grievance expression book was put in the office of the project, which is used to collect stakeholders' views and comments about the project. PP checked the comments in the book, email or phone call channel on a regular basis, and record responses in case of any inputs/grievances. The project information with contact information has also been posted on the bulletins /19/ at and nearby the project site. Every stakeholder can make comments by grievance expression book or contact information.
Stakeholder input	By checking Validation Report /4/, grievance expression book /18/, and interviewing staff from local Environmental Protection Bureau during the site visit, it is confirmed there were no negative inputs received during both construction and operation phase.

4.2.3 Free, Prior, and Informed Consent

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Consent	By checking LFG Utilization Agreement signed between Pingli Landfill Site and the Project Proponent /12/, it is confirmed that PP has the legal right to use the collected landfill gas. By checking EIA Approval /9/ and Project Approval /7/, it is confirmed the project activity has been approved by local government.

	By checking Grievance Book /18/ and interviewing stakeholders during site visit, it is confirmed no negative comments has been received during this monitoring period. Therefore, it was verified the project activity does not violate any legal rights held by stakeholders, indigenous people (IPs), local communities (LCs), and customary rights holders.
Outcome of FPIC discussion	As mentioned above, the project has been approved by Chinese government. LFG Utilization Agreement has been signed between Pingli Landfill Site and the Project Proponent /12/ for legally collect and use landfill gas by the project activity. As verified through checking Grievance Book /18/ and interview stakeholders during site visit, it was verified Indigenous people (IPs), local communities (LCs), and customary rights holders have no negative comments for the construction and operation of the project up to the end of this monitoring period. Therefore, it was verified the project has not encroached on land, relocated people without consent, and forced physical or economic displacement during this monitoring period.

4.2.4 Grievance Redress Procedure

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Grievance received and steps taken to resolve the grievance including the outcomes of the resolution	Not applicable as no inputs/grievances have been received for the project during both construction and operation phase of the project. As justified in 4.2.2 section of this report, a grievance expression book /18/ has been put in the office of the project to collect stakeholders' views about the project, which can be easily accessible to stakeholders for ongoing consultation.
Grievance redress procedure	During site visit, it was verified a Grievance Book has been located at the office of the project. Grievance redress procedure described in Monitoring Manual /40/, has been checked and confirmed via onsite interview: Stakeholders can register any comments and suggestions on the project at any time. The stakeholders can directly reflect their opinions by telephone or email and get response from the project proponent immediately. The project proponent will review the Grievance Book once a week. After receiving comments and suggestions, the project proponent will give feedback within 24 hours and propose a solution and mediation plan within two weeks. PP will invite stakeholders to the project office to discuss the solution first. If no agreement can be reached, then the local government will be invited to solve the problem.

4.2.5 Public Comments

Comments received	Actions taken by the project proponent	Evidence gathering activities, evidence checked, and assessment conclusion
No comments received from public channel.	Not applicable as no comments received from public channel.	Not applicable as no comments received from public channel.

4.2.6 Risks to Local Stakeholders and the Environment

4.2.6.1 Management Experience

As confirmed with the project proponent during site visit, no new entity is involved in project design or implementation. By checking Business License /11/, it was verified the PP was established on 27-03-2018, with main business scope containing “biogas utilization for power generation”. Therefore, the audit team deemed PP has expertise or experience in implementing similar project activities and engaging communities.

On-site training for the related procedures including monitoring, recording and reporting was verified to be in place and their implementation was confirmed by interview with the key operators and observing the operation. Competence and training records /38/ of on-site personnel engaged in measurement of parameters were presented during verification and found to be in order.

4.2.6.2 Risk Assessment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Natural and human induced risks to stakeholders' wellbeing	By checking EIA Approval /9/ and Project Approval /7/ issued by government, it is confirmed the project has been approved by Chinese government, in this sense, the project meets all the requirement of regulation and laws set up by Chinese government in aspect of environment, health and safety. The project utilizes and destroy landfill gas that would otherwise be released directly into the atmosphere, effectively reducing GHG emissions and air pollution in the surrounding area and decreasing odour nuisance and minimizing health risks of local residents. Meanwhile, the project activity is able to increase the safety on the landfill through Proper extraction and utilization of the landfill gas, which minimizes the potential for LFG migration on site and reduce the explosion risks of landfill gas. By checking Staff Roster /16/, it was verified the project offers job opportunities for local residents. Therefore, it was verified no natural or human induced risks to stakeholders' well being have been identified.

Risks to stakeholder participation	As mentioned above, the project has been approved by Chinese government. In this sense, the project meets all the requirement of regulation and laws set up by Chinese government in aspect of environment, health and safety. The verification team confirmed that as per Measures for Public Participation in Environmental Impact Assessment /56/, the government gives the legal right to the project proponent to access the stakeholders and consider their advice. Therefore, it is confirmed no risks has been identified to stakeholder participation.
Working conditions	As mentioned above, the project has been approved by Chinese government. In this sense, the project meets all the requirement of regulation and laws set up by Chinese government in aspect of environment, health and safety. The project utilizes and destroy landfill gas that would otherwise be released directly into the atmosphere, effectively reducing GHG emissions and air pollution in the surrounding area and decreasing odour nuisance and minimizing health risks of local residents. Meanwhile, the project activity is able to increase the safety on the landfill through Proper extraction and utilization of the landfill gas, which minimizes the potential for LFG migration on site and reduce the explosion risks of landfill gas. By checking EIA Report /8/, it was confirmed the project proponent has established and improved the safety production responsibility system; formulated safety production rules and regulations and operating procedures; formulated and implemented the safety production education and training plan. These measures ensure the effective implementation of safety production investment, eliminate safety hazards in time, and carry out the standardization construction of safety production. The same has been confirmed during site visit. Therefore, the verification team deemed the staff from the project are working in safety working environment. And no risks identified for working conditions.
Safety of women and girls	As mentioned above, the project has been approved by Chinese government. In this sense, the project meets all the requirement of regulation and laws set up by Chinese government in aspect of environment, health and safety. In order to protect the physical and mental health of minors, China issued "Prohibition of Child Labor Regulations" /47/, prohibiting employers from recruiting minors under the age of 16. Also, China published "Law of the People's Republic of China on the Protection of Women's Rights and Interests" /42/ and "Law of the People's Republic of China on the Protection of Minors" /43/. Therefore, the Project will not expose women and girls to further risks or hazards. By checking Staff Roster /16/, it was verified no girls have been recruited, also equal payment has been made to women and men. Therefore, it is confirmed no risks has been exposed to safety of

	women and girls.
Safety of minority and marginalized groups, including children	China has strict prohibition for child labour. Thus, the project does not involve child labour neither in construction nor at operation of project activity. In the HR policy is also mentioned that no child labour will be entertained. The same was confirmed by the assessment team through checking Staff Roster /16/ and on site interview. Besides, in order to protect the physical and mental health of minors, the State Council promulgated the "Prohibition of Child Labor Regulations" /47/, prohibiting employers from recruiting minors under the age of 16. By checking Staff Roster /16/ and on site interview, the assessment team was able to confirmed that no minors under the age of 16 were employed.
Pollutants (air, noise, discharges to water, generation and release of hazardous materials and chemical pesticides and fertilizers)	During construction phase, the air pollution, noise, wastewater and solid wastes caused by project construction have been treated according to the measures in EIA Report. The EIA Report has been approved by local government /8//9/. The assessment has been provided in the Validation Report /4/. During the operation period, all the mitigation measures proposed by EIA Report /8/ has been implemented and the project activity has acquired Environmental Protection Acceptance Opinion /10/ after completing construction. Via site investigation, interviewing stakeholders, as well as checking EIA Report /8/, EIA Approval /9/ and Environmental Protection Acceptance Opinion /10/, it was verified the following key aspects have been addressed: Water Quality The condensate water during the process of landfill gas collection has been treated by the landfill leachate treatment system. The domestic wastewater from onsite employees has been treated in the septic tank and then treated by the landfill leachate treatment system. Air Quality This project uses LFG which is collected from Pingli Landfill Site to generate electricity, and it avoids uncontrolled releasing of LFG. Therefore, it reduces greenhouse gas and effluvium emitting to air, and mitigates the possible danger of fire or explosion. Prior to electricity generation, LFG has been pre-treated to remove its impurities and moisture, and therefore emissions of NO_x, SO₂ and NH₃ is satisfied with the emission standards. LFG is sent to gas-fired engines for combustion and the exhaust gas would be emitted to atmosphere which is far away from sensitive targets. Therefore, the emission of exhaust gas has little impact on surrounding environment. Noise The project is surrounded by landfill and mountains, the only building which is next to the project is Pingli Landfill Site office building. During onsite visit, it was verified under the influence of distance attenuation, air absorption and trees blocking, the noise of the project

has no impact on surrounding residential areas.

Solid Waste

This project produces small amounts of solid waste. The general industrial solid waste is dust. All solid waste has been sent to the landfill site, which could not only ensure the safety of disposal, but also has little impact on surrounding environment.

Hazardous Waste

Via onsite inspection, it was verified a hazardous waste temporary storage room has been set up at the project site. By checking Hazardous Waste Transfer Records /53/, it was verified waste mineral oil and waste oil drums would be generated during the operation period. By checking Hazardous Waste Transfer Records /53/, it was verified the waste mineral oil has been transferred by qualified third party, and the name, source, quantity, characteristics of hazardous wastes, the type of packaging containers, storage location, waste handover date and the name of receiving unit have been indicated in the record.

4.2.7 Respect for Human Rights and Equity

4.2.7.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination	China has published "Labor Law" /44/ and "Law of the People's Republic of China on the Protection of Women's Rights and Interests" /42/ and "the Special Provisions on Labor Protection for Women Workers" /48/, which could prohibit such phenomena. It has been confirmed during onsite inspection and interviews that project proponent strictly obeys the anti-discrimination rules set out in the law. No discrimination has occurred or will occur.
Sexual harassment	It has been confirmed during onsite inspection and interviews that project proponent strictly obeys the anti-discrimination rules set out in the law. No sexual harassment has occurred or will occur.
Gender equity in labor and work	It has been confirmed during onsite inspect and interviews that project proponent strictly obeys the law, i.e. "Law of the People's Republic of China on the Protection of Women's Rights and Interests" /42/, "Labor Contract Law of the People's Republic of China" /45/ and "the Special Provisions on Labor Protection for Women Workers" /48/. Besides, China also ratified relevant ILO core conventions on equality, namely Equal Remuneration Convention (Convention No 100) /41/. By checking Staff Roster /16/ and interviewing staff from the project proponent during site visit, it was confirmed male and female employees enjoy equal pay for equal work.

Forced labor	It has been confirmed during onsite inspect and interviews that project proponent strictly obeys the law, i.e. "Law of the People's Republic of China on the Protection of Women's Rights and Interests" /42/, "Labor Contract Law of the People's Republic of China" /45/ and "the Special Provisions on Labor Protection for Women Workers" /48/. Besides, China also ratified relevant ILO core conventions on equality, namely Equal Remuneration Convention (Convention No 100) /41/. By interviewing staff from the project proponent during site visit, it was validated male and female employees enjoy equity in labor and work.
Child labor	It has been confirmed during onsite inspect and interviews that project proponent strictly obeys the law, i.e. Labor Law of the People's Republic of China /44/, and there is no forced labor.
Human trafficking	It has been confirmed during onsite inspect and interviews that project proponent strictly obeys the law, i.e. Labor Law of the People's Republic of China /44/, "Law of the People's Republic of China on the Protection of Minors" /43/ and "Prohibition of Child Labor Regulations" /47/. Besides, no child labor was identified from the Staff Roster /16/.

4.2.7.2 Human Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
N.A.	China has published relevant regulations and practice in line with the treaties, such as the "Constitution of the People's Republic of China" /49/, the "Labor Law of the People's Republic of China" /44/, the "Anti-Discrimination Law of the People's Republic of China" /50/, the "Law of the People's Republic of China on the Protection of Minors" /43/, to make sure that no action can be taken against human rights. Especially with regard to gender equality, China has published the "Law of the People's Republic of China on the Protection of Women's Rights and Interests" /42/ and the "Special Provisions on Labor Protection for Women Workers" /48/, which stipulates detailed enforcement rules to provide support and benefits to women. It has been confirmed during onsite inspect and interviews that project proponent strictly obeys the law and the legal rights and interests of all employees are protected. No indigenous peoples or tribal peoples are treated differently from the majority of local people. Therefore, it was verified the project does not involve any conflict with livelihood of local people and respect all human rights. Stakeholder consultation had been carried out to take their opinion. The host country prohibits discrimination on the basis of a person's race, sex, religion, place of birth, or social status.

4.2.7.3 Indigenous Peoples and Cultural Heritage

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
Preservation and protection of cultural heritage	As per the EIA Report /8/ of the project activity, it is clear that the project site is not a cultural heritage site and the construction of the project activity does not require or cause any form of physical or economic relocation of peoples. The project has received the necessary approvals (EIA Approval /9/ and Project Approval /7/) from the local authorities. Therefore, cultural heritage is not involved in the project.

4.2.7.4 Property Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
Disputes over rights to territories and resources	By checking LFG Utilization Agreement signed between Pingli Landfill Site and the Project Proponent /12/, it is confirmed that PP has the legal right to use the collected landfill gas. By checking EIA Approval /9/ and Project Approval /7/, it is confirmed the project activity has been approved by local government. Therefore, the assessment team confirmed no territories accessed by the project was owned or customarily accessed by the stakeholders and no disputes has been occurred during this monitoring period and this section is not applicable.
Respect for property rights	By checking LFG Utilization Agreement signed between Pingli Landfill Site and the Project Proponent /12/, it is confirmed that PP has the legal right to use the collected landfill gas. By checking EIA Approval /9/ and Project Approval /7/, it is confirmed the project activity has been approved by local government. Based on the above justifications, the assessment team confirmed no territories accessed by the project during its lifetime was owned or customarily accessed by the stakeholders and the project does not involve in the property rights of stakeholders, IPs, LCs, and customary rights holders during its lifetime.

4.2.7.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Summary of the benefit sharing plan	Not applicable as the project does not involve the property rights of stakeholders, IPs, LCs, and customary rights holders during its lifetime and thus no benefit sharing plan is involved between PP and the stakeholders.

Benefit sharing during the monitoring period

Not applicable as the project does not involve the property rights of stakeholders, IPs¹, LCs², and customary rights holders during its lifetime and thus no benefit sharing plan is involved between PP and the stakeholders.

4.2.8 Ecosystem Health

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	By checking EIA Report /8/ approved by government and via on site investigation, it is confirmed the project does not alter biodiversity and is not located in high conservation value areas, and there are no rare and valuable plant and animal species. Therefore, it is confirmed the project activity does not adversely impacted habitats for rare, threatened, or endangered species during the monitoring period.
Soil degradation and soil erosion	The project utilizes landfill gas for electricity generation. By checking EIA Report /8/, it is confirmed the project will not cause soil degradation and soil erosion during its lifetime. Therefore, it is confirmed the project does not adversely impacted soil during the monitoring period.
Water consumption and stress	The project utilizes landfill gas for electricity generation, avoiding methane emissions. By checking EIA Report /8/ approved by government and via site investigation, it is confirmed circulating water would be used by biogas combustion facility for cooling, which will not cause water consumption stress. Therefore, it is confirmed the project activity will not cause water consumption stress.

4.2.8.1 Rare, Threatened, and Endangered species

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Species or habitat	Not applicable. By checking EIA Report approved by government /8//9/ and via interviewing with stakeholders, it is confirmed that the project does not involve habitats for rare, threatened, or endangered species.
Areas needed for habitat connectivity	Not applicable. By checking EIA Report approved by government /8//9/ and via interviewing with stakeholders, it is confirmed the project does not involve habitats for rare, threatened, or endangered

¹ IPs means Indigenous Peoples

² LCs means local communities

	species and will not impact areas needed for habitat connectivity.
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Item	Evidence gathering activities, evidence checked, and assessment conclusion
Habitats for rare, threatened, and endangered species	Not applicable. By checking EIA Report approved by government /8//9/ and via interviewing with stakeholders, it is confirmed the project does not involve habitats for rare, threatened, or endangered species.
Areas for habitat connectivity	Not applicable. By checking EIA Report approved by government /8//9/ and via interviewing with stakeholders, it is confirmed the project does not involve habitats for rare, threatened, or endangered species and will not impact areas for habitat connectivity.

4.2.8.2 Introduction of Species

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
Not applicable	Not applicable. By checking EIA Report approved by government /8//9/ and via interviewing with stakeholders, it is confirmed that the project does not involve introduction of any species.

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
Not applicable	Not applicable. By checking EIA Report approved by government /8//9/ and via interviewing with stakeholders, it is confirmed that the project does not involve any existing invasive species.

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Invasive species	Not applicable. By checking EIA Report approved by government /8//9/ and via interviewing with stakeholders, it is confirmed the project does not involve existing invasive species.

4.2.8.3 Ecosystem conversion

Item	Evidence gathering activities and evidence checked
Ecosystem conversion	Not applicable as the project is not a ARR, ALM, WRC or ACoGS project.

4.3 Accuracy of Reduction and Removal Calculations

The monitoring has been carried out in accordance with the monitoring plan contained in the VCS PD (version 1.1 dated 22-Apr-2021). CTI confirms that all parameters stated in the monitoring plan are monitored and reported appropriately. All parameters required to be monitored by the monitoring plan as per the monitoring methodology ACM0001 (Version 19.0) and the management system were assessed during the site visit. The monitoring report lists each parameter required by the monitoring plan and the information flow (i.e. from data generation, aggregation, recording, calculation and reporting) for these parameters is provided. The information flow for the each parameter is further verified in the following sections.

By checking Operation Logbook and interviewing with staff during site visit, the assessment team confirmed that there were no simultaneous shutdowns of all the 6 units, i.e., the 6 units were not overhauled at the same time during this monitoring period. Methane collection and use were not interrupted during the maintenance of some units during this monitoring period. In addition, due to insufficient gas supply, certain generators, such as the generator 3#, remained inoperative and served as backup throughout the entire monitoring period. By checking LFG Operation Daily Records /20/, the assessment team confirmed all collected methane was effectively utilized and destroyed, with no methane flaring observed. As per registered VCS PD and its validation report, the project developer determined that **VERs from flare will not be claimed**, which is verified to be conservative.

Additionally, by checking Monitoring Manual, the assessment team confirmed the project has measures in place to manage LFG during emergencies. During normal operation, the LFG flow can be adjusted according to the project's demand. In the event of an emergency shutdown of all the gas generators, the landfill is capable of containing the LFG. The solenoid valves on the inlet pipework of each gas generator can be automatically activated to prevent LFG from being vented to the atmosphere. The LFG is temporarily stored in the landfill and pipework, and the landfill is equipped with gas wells that have the capacity to store the generated LFG. When the facility is shut down in an emergency, the inlet pressure increases, and the Roots blower pumps decrease in frequency, extracting less LFG from the landfill. This interlocking control ensures that the pressure within the unit remains balanced and accommodates the small amount of LFG stored in the pipework. As a result, the landfill gas does not enter the atmosphere, ensuring that all collected landfill gas is used to generate electricity and does not escape, meaning that all landfill gas flowing through the pipeline to the generators (metered methane) is effectively destroyed. For safety, a flare is also installed on the project site. In the unlikely event that all units shut down simultaneously and the shutdown persists, the flare can be utilized to safely burn off any excess LFG. This situation has not occurred during the current monitoring period, as confirmed by reviewing the LFG Operation Daily Records /20/ and onsite interviews.

◆ Parameters monitored

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PD /3/.

The parameter $BE_{CH_4,SWDS,y}$ - methane generation from the landfill in the absence of the project activity, is only used for ex-ante estimation the parameter $F_{CH_4,PJ,y}$. In this monitoring period, the parameter

$F_{CH_4,PJ,y}$ was ex post determined through monitoring parameters, which is consistent with the approved methodology ACM0001. Thus, except parameters f_y that needs to be monitored expost as required by ACM0001, parameters ϕ_y , OX , F , DOC_f , MCF_y , k_j , $W_{j,x}$, DOC_j , η_{PJ} , which determined $BE_{CH_4,SWDS,y}$ and $F_{CH_4,PJ,y}$ ex-ante are not included in this report.

Parameter monitored ex ante

The data in table below has been verified against the data sources and the registered PD /3/.

Parameter title	Description	Data	Unit	Source
OX_{top_layer}	Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline	0.1	/	Consistent with how oxidation is accounted for in the methodological tool “Emissions from solid waste disposal sites”
GWP_{CH_4}	Global warming potential of CH_4	28	/	IPCC Fifth Assessment Report (AR5)
$EF_{grid,OM,y}$	Operating margin CO_2 emission factor in year y	0.8042	t CO_2 /MWh	2019 Baseline Emission Factors for Regional Power Grids in China dated 29-Dec-2020 published by China DNA /13/
$EF_{grid,BM,y}$	Build margin CO_2 emission factor in year y	0.2135	t CO_2 /MWh	2019 Baseline Emission Factors for Regional Power Grids in China dated 29-Dec-2020 published by China DNA /13/
$EF_{grid,CM,y}$	Combined margin CO_2 emission factor in year y	0.50885	t CO_2 /MWh	2019 Baseline Emission Factors for Regional Power Grids in China dated 29-Dec-2020 published by China DNA /13/
R_u	Universal ideal gases constant	8,314	Pa.m ³ /kmol.K	Tool to determine the mass flow of a greenhouse gas in a gaseous stream
MM_i	Molecular mass of greenhouse gas i	16.04	kg/kmol	Tool to determine the mass flow of a greenhouse gas in a gaseous stream
P_n	Total pressure at normal conditions	101,325	Pa	Tool to determine the mass flow of a greenhouse gas in a gaseous stream
T_n	Temperature at normal conditions	273.15	K	Tool to determine the mass flow of a greenhouse gas in a gaseous stream

Parameter monitored ex post

By checking online Monitor System Interface during site visit /51/, it is confirmed by the verification team that the parameter $V_{t,wb}$ have been converted automatically into normal condition (0°C and $101,325\text{Pa}$) during the monitoring process, therefore, P_t and T_t are not included as separate parameters according to the registered PD /3/.

For all rest parameters, including Management of SWDS, $Op_{j,h}$, $EG_{PJ,y}$, $TDL_{k,y}$, $EC_{PJ,y}$, $TDL_{j,y}$, f_y , $V_{i,t,wb}$, $V_{t,wb}$, CAPEX and OPEX, Tariff of electricity exported were monitored and determined as per the monitoring plan which is verified as follows:

✓ Management of SWDS

This parameter was monitored annually by the project proponent through following up with any changes in the management of Pingli Landfill Site. Through interview with staff from Pingli Landfill Site and by checking the Operation Management Manual of Pingli Landfill Site /25/, the verification team confirmed that there was no changes in the management of the SWDS after the implementation of the project activity, which is consistent with that in the registered PD.

Staff from Pingli Landfill Site was interviewed, the Operation Management Manual of Pingli Landfill Site was checked, and on-site inspection was conducted by the verification team, all monitoring method and frequency meets the description in the PD /3/.

✓ Operation of the electricity generators that consume the LFG ($Op_{j,h}$)

The methane was destructed through using for electricity generation. The project activity was in normal operational condition, while the operation hours of generators were monitored by the project proponent. By checking online Monitor System Interface during site visit /51/, the verification team confirmed that the operating hours of each gas engine are automatically monitored and recorded every hour by an integrated monitoring device in the engine system, which is in compliance with methodology and registered PD. The value of $Op_{j,h}$ is sourced from Operating Time Statistics of Generator Units /21/ which was aggregated monthly by the project proponent.

The LFG flow meter, installed at the LFG pipe inlet to gas engines, monitors the total LFG consumed by all generators. Therefore, the parameter $Op_{j,h}$ represents the working hours of the power plant (the operating time of the entire project), which is determined hourly based on the operation hours of generators. Each generator's runtime is timed by a built-in programmer within the generator set's control module. For each hour, when the project is operational (i.e., at least one generator is running), the parameter $Op_{j,h} = 1$, indicating that the landfill gas (LFG) is being utilized. If the project is non-working (simultaneous shutdowns of all the 6 units), the parameter $Op_{j,h} = 0$.

By checking Operation Logbook and interviewing with staff during site visit, the assessment team confirmed that there were no simultaneous shutdowns of all the 6 units, i.e., the 6 units were not overhauled at the same time during this monitoring period.

Data recorded in the Operating Time Statistics of Generator Units /21/ was crosschecked with that recorded in Operation and Maintenance Record /39/ and verified to be consistent. The verification team confirmed value of this parameter in this monitoring period were:

Generator 1#	2,721 h
Generator 2#	3,868 h
Generator 3#	0 h
Generator 4#	9,326 h
Generator 5#	11,032 h
Generator 6#	10,521 h

✓ **Amount of electricity generated using LFG by the project activity in year y ($EG_{PJ,y}$)**

One bi-directional electricity meter was installed by local grid company at the transformer substation located at the project site to monitor continuously and the meter reading was recorded monthly. The staff from project proponent recorded the electricity meter readings at 24:00 hr of last day of each month and afterwards aggregated Monthly Reading Records (MRRs) /23/. At the same cut-off time, main meter readings have been recorded remotely and digitally by local power grid company. Data was downloaded and transcribed into Electricity Transaction Notes (ETNs) /28/. After confirmation of transacted data, the project proponent issued the electricity invoice /27/. It was verified the monitoring of this parameter is in compliance with the registered VCS PD.

Value of $EG_{PJ,y}$ was sourced from Monthly Reading Records /23/ issued by the project proponent, which have been crosschecked with that in ETNs /28/ issued by power grid company covering monitoring period. By checking the same, the verification team confirmed that the amount of electricity generated using LFG by the project activity in this monitoring period were:

Vintage	Value (MWh)
01-Jul-2023 ~ 31-Dec-2023	13,683.95
01-Jan-2024 ~ 31-Dec-2024	15,040.14

✓ **Average technical transmission and distribution losses for providing electricity to source k in year y ($TD_{Lk,y}$)**

The default value (3%) from latest version methodological tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" was monitored annually and adopted to calculate the baseline emissions, which is in compliance with the registered VCS PD.

✓ **Amount of electricity consumed by the project activity in year y ($EC_{PJ,y}$)**

One bi-directional electricity meter was installed by local grid company at the transformer substation located at the project site to monitor continuously and the meter reading was recorded monthly. The staff from project proponent will record the electricity meter readings and generate Monthly Reading Records (MRRs) /23/ at 24:00 hr of last day of each month. At the same cut-off time, main meter readings have been recorded remotely and digitally by local power grid company. Data was downloaded and transcribed into Electricity Transaction Notes (ETNs) /26/. It was verified the monitoring of this parameter is in compliance with the registered VCS PD.

Value of $EC_{PJ,y}$ was sourced from Monthly Reading Records /23/ from the project proponent, which have been crosschecked with that in ETNs of electricity consumed from the grid /26/ covering monitoring period. By checking the same, the verification team confirmed the amount of electricity consumed by the project activity in this monitoring period were:

Vintage	Value (MWh)
01-Jul-2023 ~ 31-Dec-2023	0.2
01-Jan-2024 ~ 31-Dec-2024	0.3

✓ **Average technical transmission and distribution losses for providing electricity to source j in year y ($TDL_{j,y}$)**

The default value (20%) from latest version methodological tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" was monitored annually and adopted to calculate the baseline emissions, which is in compliance with the registered VCS PD.

✓ **Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y (f_y)**

This parameter is historic data from SWDS which was followed up by the project proponent and was determined once for the crediting period.

In the absence of the project, LFG from Pingli Landfill Site is emitted directly into atmosphere. Through interview with staff from Pingli Landfill Site and by checking the Operation Management Manual of Pingli Landfill Site /25/, the verification team confirmed that the methane was not captured at SWDS or not flare, combusted. And no other measures that prevents the emissions of methane to the atmosphere are taken. Therefore, the verification team confirmed the baseline scenario or monitoring plan will not change accordingly.

✓ **Volumetric fraction of greenhouse gas i in the gaseous stream in time interval t on a wet basis ($V_{i,t,wb}$)**

The volumetric fraction of methane in the gaseous stream was measured by a continuous in-situ gas analyzer. By checking online Monitor System Interface of Pretreatment control system during site visit /51/, the verification team confirmed that the readings of the gas analyzer was continuously monitored and hourly recorded by Online Monitoring System /51/ through recordable electronic signal, and was manually recorded in Pretreatment Monitoring Records /24/. It was verified the monitoring of this parameter is in compliance with the registered VCS PD.

During this monitoring period, there were 75 hourly records missed. The missing data was caused by the loss of electronic signal due to adverse weather conditions, which prevented the data from being transmitted to the Online Monitoring System. In compliance with the monitoring manual, conservative values are to be used for missing data. For $V_{i,t,wb}$, the most conservative value is "0". Therefore, "0" has been applied to the missing data entries. The "LFG" tab of the ER Sheet has been updated as accordingly to reflect these changes.

Data recorded in Pretreatment Monitoring Records /24/ has been crosschecked with that in daily monitoring data of LFG Volumetric fraction recorded in LFG Operation Daily Records /20/, which is verified to be consistent. By checking the same, it is confirmed value of $V_{i,t,wb}$ was 40.5% (hourly average value) for this monitoring period.

✓ **Volumetric flow of the gaseous stream in time interval t on a wet basis ($V_{t,wb}$)**

The volumetric flow of methane in the gaseous stream was measured by a continuous flow meter. By checking online Monitor System Interface during site visit /51/, the verification team confirmed that the readings of the flow meter was continuously monitored and hourly recorded /51/ by Online Monitoring System through recordable electronic signal, and was manually recorded in Pretreatment Monitoring Records /24/. It was verified the monitoring of this parameter is in compliance with the registered VCS PD.

By checking online Monitor System Interface during site visit /51/, It is confirm by the verification team that the parameter $V_{t,wb}$ have been converted automatically into normal condition (0°C and 101,325Pa) during the monitoring process. The readings of temperature transducer and pressure transducer measuring T_t and P_t was monitored automatically by Online Monitoring System through recordable electronic signal.

During this monitoring period, there were 75 hourly records missed. The missing data was caused by the loss of electronic signal due to adverse weather conditions, which prevented the data from being transmitted to the Online Monitoring System. In compliance with the monitoring manual, conservative values are to be used for missing data. For $V_{t,wb,n}$, the most conservative value is “0”. Therefore, “0” has been applied to the missing data entries. The “LFG” tab of the ER Sheet has been updated as accordingly to reflect these changes.

Data recorded in Pretreatment Monitoring Records /24/ has been crosschecked with that in the raw monitoring data of LFG volumetric fraction and flow recorded in LFG Operation Daily Records /20/, which is verified to be consistent. By checking the same, it is confirmed value of $V_{t,wb}$ was 1,693.79 m³ wet gas/h (hourly average value at normal conditions) for this monitoring period.

✓ **Total investment to implement the project and total cost to operate the project (CAPEX and OPEX)**

As the project activity applied the simplified procedures to identify the baseline scenario and demonstrate additionality in the registration stage, the monitoring of this parameter is required as per ACM0001. By checking registered VCS PD and ACM0001, this parameter was monitored at the first issuance request after each phase of the project is fully implemented.

By checking Validation Report /4/ and Operation and Maintenance Record /39/, and Completion Inspection Opinion of Power Receiving Project /22/, as well as checking through site visit, it is confirmed 6 gas-fired Engine / generators started operation on 03-Apr-2020 and the project activity does not involve any other phases, i.e. the project activity was fully implemented since 03-Apr-2020. Furthermore, by checking the monitoring reports and verification reports of previous monitoring periods /5//6/, it is confirmed that this parameter has been monitored and verified by VVB at the first issuance request after full implementation and thereby consistent with the registered VCS PD and ACM0001.

✓ **Tariff of the electricity exported**

As the project activity applied the simplified procedures to identify the baseline scenario and demonstrate additionality in the registration stage, the monitoring of this parameter is required as per ACM0001. By checking registered VCS PD and ACM0001, this parameter was monitored at the first issuance request after each phase of the project is fully implemented.

By checking Validation Report /4/, Operation and Maintenance Record /39/, and Completion Inspection Opinion of Power Receiving Project /22/, as well as checking through site visit, it is confirmed 6 gas-fired Engine / generators started operation on 03-Apr-2020 and the project activity does not involve any other phases, i.e. the project activity was fully implemented since 03-Apr-2020. Furthermore, by checking monitoring reports and verification reports of previous monitoring periods /5//6/, it is confirmed that this parameter has been monitored and verified by VVB at the first issuance request after full implementation and thereby consistent with the registered VCS PD and ACM0001.

In conclusion, the monitoring equipment have been installed in accordance with the monitoring plan of VCS PD (version 1.1 dated 22-Apr-2021). CTI has on-site checked the location of the monitoring equipment against the diagram of monitoring system and found them to be consistent. The data reported in the monitoring report and ERs calculation spreadsheet has been verified by the verification team. Supporting references and data required to determine the parameters for calculating emission reductions are found to be complete and transparent.

Monitoring equipment and calibration

The monitoring equipments /51/ have been calibrated periodically as per the relevant industrial standard by the qualified third party to ensure the monitoring equipments' accuracy and in good conditions. The relevant information of monitoring equipments' calibration /30//29//31/ is listed as below.

Monitoring parameter	Monitoring equipment	Serial Number	Model	Accuracy Class	Calibration Date	Validity
EG _{PJ,y} EC _{PJ,y}	Electricity meter (main)	001700006603	DSSD718	0.5S	13-Mar-2023	12-Mar-2024
	Electricity meter (backup)	001700007636			12-Mar-2024	11-Mar-2025
V _{i,t,wb}	Gas analyzer	63523/5	GTR 196	2%	20-Jan-2023	19-Jan-2024
					19-Jan-2024	18-Jan-2025
V _{t,wb}	Flow meter	19122401	KZV	0.5%	06-Dec-2022	05-Dec-2023
					05-Dec-2023	04-Dec-2024
					04-Dec-2024	03-Dec-2025
	Temperature transducer	19120776	KZW/P-240E	0.2	06-Dec-2022	05-Dec-2023
					05-Dec-2023	04-Dec-2024
					04-Dec-2024	03-Dec-2025
	Pressure transducer	19120342	KZY-KB-P	0.25	09-Jun-2023	08-Jul-2023
					09-Jul-2023	08-Aug-2023
					09-Aug-2023	08-Sep-2023
					09-Sep-2023	08-Oct-2023

					09-Oct-2023	08-Nov-2023
					09-Nov-2023	08-Dec-2023
					09-Dec-2023	08-Jan-2024
					09-Jan-2024	08-Feb-2024
					09-May-2024	08-Jun-2024
					09-Jun-2024	08-Jul-2024
					09-Jul-2024	08-Aug-2024
					09-Aug-2024	08-Sep-2024
					09-Sep-2024	08-Oct-2024
					09-Oct-2024	08-Nov-2024
					09-Nov-2024	08-Dec-2024
					09-Dec-2024	08-Jan-2025

The electricity meter was calibrated by a qualified third party, Guangxi Electric Energy Measurement and Testing Center as per relevant industry standard “Verification Regulation of Electrical Meters for Measuring Alternating-current Electrical Energy (JJG596-2012)” /35/. Calibration records and accreditation certificates /30//32/ have been verified by the verification team. The accuracy of meter complies with that in the VCS PD. In the monitoring plan of the VCS PD, it stated that the meters will be calibrated and checked for accuracy. By checking the calibration reports, CTI found the calibration frequency of these meters is annual, which is in line with the VCS PD and relevant industry standard /35/. Hence, CTI can confirm that the meters’ calibration is in line with the monitoring plan of the VCS PD and relevant industry standard /35/, and the calibrations of meters are verified to be valid for the whole reporting period.

The Gas analyzer was calibrated by a qualified third party, Shenzhen Academy of Metrology and Quality Inspection as per relevant industry standard “Alarmer Detectors of Combustible Gas (JJG693-2011)” /36/. Calibration records and accreditation certificates /29//33/ have been verified by the verification team. As per the calibration certificates, the zero verification with an inert gas (N₂) and one reading verification with a standard gas (single calibration gas, CH₄) was included. All calibration gases have been certified and were under their validity period. In the monitoring plan of the VCS PD, it stated that the gas analyzer will be calibrated and checked for accuracy. By checking the calibration reports, CTI found the calibration frequency of the gas analyzer is annual, which is in line with the monitoring plan of the VCS PD and relevant industry standard /36/, and the calibrations of meters are verified to be valid for the whole reporting period.

The flow meter, temperature transducer and Pressure transducer were calibrated by a qualified third party, Aviation Industry Corporation of China Beijing Great Wall Metrology and Testing Technology Research Institute as per “Verification Regulation of Vortex-shedding Flowmeter (JJG1029-2007)” /37/. Calibration records and accreditation certificates /31//34/ have been verified by the verification team. In the monitoring plan of the VCS PD, it stated that these monitoring instruments will be calibrated and checked for accuracy. By checking the calibration reports, CTI found the calibration frequency of the flow meter and temperature transducer is annual, while the calibration frequency of Pressure transducer is monthly, which is in line with the monitoring plan of the VCS PD and relevant industry

standard /37/, and the calibrations of these monitoring instruments are verified to be valid for the whole reporting period.

Data management and control

The project proponent is responsible for operation and routine maintenance of power plant under the project activity. The quality assurance and quality control procedures have been addressed in the VER project management and monitoring manual /40/, including the organization structure with the responsibilities, personnel competencies, monitoring procedures and monitoring management. By interview with the staff and check records /38/-/40/ during on-site visit, it can be confirmed that the monitoring management system is implemented following the project management and monitoring manual.

By checking Monitoring Manual /40/, it was verified monitoring personnel were required to strictly adhere to the conservative principle in data recording, utilizing conservative values for all missing or damaged data during the monitoring process. For instance, in cases of missing LFG flow data due to sensor failures or power outages, the lowest possible values for methane fraction and LFG flow rate, namely "0," were employed to fill the data gaps. This approach ensures that any uncertainties are addressed in a manner that does not overestimate the project's performance, thereby maintaining the integrity of the monitoring results.

During this monitoring period, a total of 75 hourly records for $v_{i,t,wb}$ (volumetric fraction of greenhouse gas i in the gaseous stream at time t on a wet basis) and $V_{t,wb,n}$ (volumetric flow of the gaseous stream at time t on a wet basis at normal conditions) were identified as missing, primarily due to the loss of electronic signals caused by adverse weather conditions. For these instances of missing data, the most conservative value of "0" was applied. This conservative approach was deemed appropriate by the assessment team, as it ensures that the project does not claim reductions that may not have occurred. Therefore, the assessment team accepts the use of "0" for these missing data points as a valid and conservative method to address data gaps.

All monitoring devices have been calibrated and maintained periodically to ensure the accuracy of measurement. Calibration records of instruments used in measurements were made available during the verification visit and found to be valid for the entire period of the verification. Competence and training records of in-plant personnel engaged in measurement of plant parameters were presented during verification and found to be in order.

CTI confirms that appropriate methods and formulae for calculating baseline emissions, project emissions and leakage have been followed, and the assumptions, emission factors and default values that are applied in the calculation have been justified.

Baseline emissions

As per registered VCS PD, baseline reductions are determined as:

$$BE_y = BE_{CH_4,y} + BE_{EC,y} \quad \text{Equation (1)}$$

Baseline emissions of methane from the SWDS ($BE_{CH_4,y}$)

As per ACM0001 and registered PD,

$$BE_{CH_4} = \left((1 - OX_{top_layer}) \times F_{CH_4, PJ, y} - F_{CH_4, BL, y} \right) \times GWP_{CH_4} \quad \text{Equation (2)}$$

The calculation process has been included in the ER calculation spreadsheet and confirmed by the verification team to be correct. The value of parameters in the equation are listed as follows:

Parameter	Description	01-Jul-2023 to 31-Dec-2023	01-Jan-2024 to 31-Dec-2024	Total
OX_{top_layer}	Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)	0.1	0.1	0.1
$F_{CH_4, PJ, y}$ (tCH ₄)	Amount of methane in the LFG which is flared and/or used in the project activity	3,194	3,431	6,625
$F_{CH_4, BL, y}$ (tCH ₄)	Amount of methane in the LFG that would be flared in the baseline. No requirement in the baseline, therefore, it is 0.	0	0	0
GWP_{CH_4} (tCO _{2e} /tCH ₄)	Global warming potential of CH ₄	28	28	28
$BE_{CH_4, y}$ (tCO _{2e})	Baseline emissions of methane from the SWDS	80,496	86,450	166,946

As per registered VCS PD, for the project activity, $F_{CH_4, PJ, y} = F_{CH_4, EL, y}$, which is calculated using equation below:

$$F_{i, t} = V_{t, wb, n} \times v_{i, t, wb} \times \rho_{i, n} \quad \text{Equation (3)}$$

With:

$$\rho_{i, n} = \frac{P_n \times MM_i}{R_u \times T_n} \quad \text{Equation (4)}$$

Where:

$F_{i, t}$	=	Mass flow of greenhouse gas i in the gaseous stream in time interval t (kg gas/h)
$V_{t, wb, n}$	=	Volumetric flow of the gaseous stream in time interval t on a wet basis at normal conditions (m ³ wet gas/h)
$v_{i, t, wb}$	=	Volumetric fraction of greenhouse gas i in the gaseous stream in time interval t on a wet basis (m ³ gas i/m ³ wet gas)
$\rho_{i, n}$	=	Density of greenhouse gas i in the gaseous stream at normal conditions (kg gas

i/m³ wet gas i)

P_n	=	Absolute pressure at normal conditions (Pa)
T_n	=	Temperature at normal conditions (K)
MM_i	=	Molecular mass of greenhouse gas i (kg/kmol)
R_u	=	Universal ideal gases constant (Pa.m ³ /kmol.K)

The formulas used in the spreadsheet has been aligned with the ACM0001 equation numbering by PP, as highlighted in yellow. The density of CH₄ has been calculated using Equation (10) from Tool to determine the mass flow of a greenhouse gas in a gaseous stream (Version 03.0), and detailed explanations have been added in the “LFG” tab of the ER Sheet. The assessment team has verified that the calculation is correctly applied in accordance with the specified methodological tool.

The detailed calculation process of $F_{CH_4,PJ,y}$ has been included in the ER calculation spreadsheet and confirmed by the verification team to be correct. The value of $F_{CH_4,PJ,y}$ during this monitoring period are as follows:

Parameter	Description	01-Jul-2023 to 31-Dec-2023	01-Jan-2024 to 31-Dec-2024	Total
$F_{CH_4,PJ,y}$ (tCH ₄)	Amount of methane in the LFG which is flared and/or used in the project activity	3,194	3,431	6,625
$F_{CH_4,EL,y}$ (tCH ₄)	Amount of methane in the LFG which is used for electricity generation	3,194	3,431	6,625

Baseline emissions associated with electricity generation ($BE_{EC,y}$)

As per registered VCS PD, this parameter is calculated as:

$$BE_{EC,y} = \sum_k EC_{BL,k,y} \times EF_{EL,k,y} \times (1 + TDL_{k,y}) \quad \text{Equation (5)}$$

The detailed calculation process of $BE_{EC,y}$ has been included in the ER calculation spreadsheet and confirmed by the verification team to be correct. The parameters determining $BE_{EC,y}$ during this monitoring period are as follows:

Parameter	Description	01-Jul-2023 to 31-Dec-2023	01-Jan-2024 to 31-Dec-2024	Total
$EC_{BL,k,y}$ (MWh)	Quantity of electricity that would be consumed by the baseline electricity consumption source k. In this project, the equivalent electricity is from SCPG.	13,683.95	15,040.14	28,724.09

$EF_{EL,k,y}$ (tCO ₂ /MWh)	Emission factor for electricity generation for source k (tCO ₂ /MWh). In this project, it is EF of SCPG. $EF_{EL,k,y}=EF_{grid,CM,y}$	0.50885	0.50885	0.50885
$TDL_{k,y}$	Average technical transmission and distribution losses for providing electricity to source k	3%	3%	3%
$BE_{EC,y}$ (tCO ₂)	Baseline emissions associated with electricity generation	7,171	7,882	15,053

Hence, the corresponding baseline emission reductions are calculated as:

Parameter	Description	01-Jul-2023 to 31-Dec-2023	01-Jan-2024 to 31-Dec-2024	Total
BE_y (tCO _{2e})	Baseline emissions	87,667	94,332	181,999
$BE_{EC,y}$ (tCO _{2e})	Baseline emissions associated with electricity generation	7,171	7,882	15,053
$BE_{CH_4,y}$ (tCO _{2e})	Baseline emissions of methane from the SWDS	80,496	86,450	166,946

Project emissions

As per the registered VCS PD, Project emissions are calculated as follows:

$$PE_y = PE_{EC,y} \quad \text{Equation (6)}$$

$$PE_{EC,y} = \sum_j EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y}) \quad \text{Equation (7)}$$

The detailed calculation process of $PE_{EC,y}$ has been included in the ER calculation spreadsheet and confirmed by the verification team to be correct. The parameters determining $PE_{EC,y}$ during this monitoring period are as follows:

Parameter	Description	01-Jul-2023 to 31-Dec-2023	01-Jan-2024 to 31-Dec-2024	Total
$EC_{PJ,j,y}$ (MWh)	Quantity of electricity consumed by the project electricity consumption source j	0.2	0.3	0.5
$EF_{EL,j,y}$	Emission factor for electricity	0.50885	0.50885	0.50885

(tCO ₂ /MWh)	generation for source j			
TDL _{j,y}	Average technical transmission and distribution losses for providing electricity to source j	20%	20%	20%
PE _{EC,y} (tCO ₂)	Emissions from consumption of electricity due to the project activity	1	1	2

Hence, the corresponding project emissions are calculated as:

Parameter	Description	01-Jul-2023 to 31-Dec-2023	01-Jan-2024 to 31-Dec-2024	Total
PE _y (tCO ₂)	Project emissions	1	1	2
PE _{EC,y} (tCO ₂)	Emissions from consumption of electricity due to the project activity	1	1	2

Leakages

Leakage does not need to be accounted for this project as per the VCS PD.

Emission reductions

The emission reductions for this monitoring period was calculated as:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
01-Jul-2023 to 31-Dec-2023	87,667	1	0	87,666
01-Jan-2024 to 31-Dec-2024	94,332	1	0	94,331
Total	181,999	2	0	181,997

4.4 Quality of Evidence to Determine Reductions and Removals

All necessary documentations are collected, referenced and aggregated, which is easily accessible in hard-copy or electronic format. Measurements are performed by calibrated equipment, and the key data can also be cross-checked via other sources, such as records, receipts and inventory data. No assumptions are used that have any material influence on reported emission reductions.

4.5 Non-Permanence Risk Analysis

The project is not AFOLU project, and thus non-permanence risk analysis is not applicable for the project.

5 VERIFICATION OPINION

5.1 Verification Summary

CTI Certification Co., Ltd. (CTI) has performed the verification of the emission reductions that have been reported for the project activity “Nanning Landfill Gas Power Generation Project” in China (VCS Project ID: 2464) for the period 01-Jul-2023 to 31-Dec-2024.

The verification is based on the baseline and monitoring methodology ACM0001 (Version 19.0), VCS PD (version 1.1 dated 22-Apr-2021) and the monitoring report (version 03 dated 11-Jun-2025). The verification consisted of the following three phases:

- i) desk review of the project design and the baseline and monitoring plan;
- ii) follow-up interviews with project stakeholders;
- iii) resolution of outstanding issues and the issuance of the final verification and certification report.

The project proponents are responsible for the collection, calculation and determination of the GHG data in accordance with the monitoring plan and the reporting of GHG emission reductions on the basis set out within the project monitoring report.

Our verification approach was based on the requirements as defined under the applicable VCS standards, relevant UNFCCC requirements and ISO 14064-3: 2019. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is implemented and operated as per the VCS PD;
- the monitoring plan in VCS PD is as per the applied methodology;
- the monitoring complies with the monitoring plan in the VCS PD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4.7 and CDM requirements;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

It is CTI's responsibility to provide an independent verification statement on the reported GHG emission reductions for the project. Based on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these, CTI planned and performed our work to obtain the information and explanations that we considered necessary to provide reasonable assurance that reported GHG emission reductions are fairly stated.

CTI does not assume any responsibility towards the issuance and utilization of the VCUs hereby verified and certified. Request for issuance of VCUs shall be made by the project proponent to an approved VCS Program Registry based on the requirements set out under the most recent version of the VCS Program Guidelines clause on VCS Registration.

The verification of reported emission reductions is based on the information made available to CTI and the engagement conditions detailed in this report. CTI cannot be held liable by any party for decisions made or not made based on this report.

In CTI's opinion the GHG emissions reductions of the "Nanning Landfill Gas Power Generation Project" for the period 01-Jul-2023 to 31-Dec-2024 are fairly stated in the monitoring report (version 03 dated 11-Jun-2025). The GHG emission reductions were calculated correctly on the basis of the approved methodology ACM0001 (Version 19.0) and the monitoring plan contained in the VCS PD (version 1.1 dated 22-Apr-2021).

5.2 Verification Conclusion

CTI can confirm that the GHG emission reductions are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CTI confirms the following statement:

Verification period: From 01-Jul-2023 to 31-Dec-2024

Verified GHG emission reductions and carbon dioxide removals in the above verification period:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCUs (tCO ₂ e)	Removal VCUs (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-Jul-2023 to 31-Dec-2023	87,667	1	0	87,666	0	87,666
01-Jan-2024 to 31-Dec-2024	94,332	1	0	94,331	0	94,331
Total	181,999	2	0	181,997	0	181,997

5.3 Ex-ante vs Ex-post ERR Comparison

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference
01-Jul-2023 to 31-Dec-2023	116,858	87,666	-24.98%	Via document review and interviewing with PP during site visit, it was verified the main reasons of decreased emission

				reductions is that the actual amount of CH ₄ generated from the waste is less than estimated.
01-Jan-2024 to 31-Dec-2024	231,811	94,331	-59.31%	Via document review and interviewing with PP during site visit, it was verified the main reasons of decreased emission reductions is that the actual amount of CH ₄ generated from the waste is less than estimated.
Total	348,669	181,997	-47.80%	Via document review and interviewing with PP during site visit, it was verified the main reasons of decreased emission reductions is that the actual amount of CH ₄ generated from the waste is less than estimated.

Li Ziqi

Mr. Ziqi LI

Team Leader

13-Jun-2025

Shunrong Lin

Ms. Shunrong LIN

Technical Reviewer

13-Jun-2025

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Section	Information	Justification	Assessment method and conclusion
Not applicable	Not applicable	Not applicable	Not applicable

APPENDIX 2: <ABBREVIATIONS>

CAR	Corrective Action Request
CER	Certified Emission Reduction(s)
CL	Clarification request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CTI	CTI Certification Co., Ltd
VVB	Validation and Verification Body
EF	Emission Factor
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
MP	Monitoring Period
MR	Monitoring Report
MRRs	Meter Reading Records
SCPG	South China Power Grid
PD	Project Description
PP	Project Proponent
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit

APPENDIX 3: <COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS>

Mr. Ziqi Li

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	-	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 3: Energy demand	TA 3.1: Energy demand
SS 4: Manufacturing industries	TA 4.1: Cement and lime production
SS 5: Chemical industry	TA 5.1: Chemical industry
	TA 5.2: Caprolactam, nitric and adipic acid
SS 11: Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	TA 11.1: Emissions of fluorinated gases
	TA 11.2: Refrigerant gas production
SS 12: Solvents use	TA 12.1: Chemical industry
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Shunrong LIN

Shunrong Lin

Technical Competent Manager

Shenzhen, 01-Jan-2024

Ms. Shunrong LIN

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 3: Energy demand	TA 3.1: Energy demand
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure
SS 14: Afforestation and reforestation	TA 14.1: Afforestation and reforestation
SS 15: Agriculture	TA 15.1: Agriculture

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu Lin

Wu LIN

Technical Competent Manager

Shenzhen, 25-Oct-2022

Ms. Qixin ZHANG

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

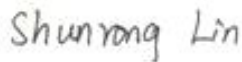
Qualification					
GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
√	√	-	-	-	-

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 13: Waste handling and disposal	TA 13.2: Manure

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Shunrong LIN



Technical Competent Manager

Shenzhen, 01-May-2024

APPENDIX 4: <REFERENCES>

Documentation used to verify the information provided by the project proponents

- /1/ Swiss Carbon Value Ltd.: VCS monitoring report for Nanning Landfill Gas Power Generation Project, version 01 dated 20-Feb-2025, version 02 dated 01-Apr-2025, version 03 dated 11-Jun-2025.
- /2/ Swiss Carbon Value Ltd.: Emission Reduction Calculation Spreadsheet for Nanning Landfill Gas Power Generation Project
- /3/ Registered VCS PD version 1.1 dated 22-Apr-2021
- /4/ LGAI Technological Center, S.A. (Applus+ Certification): VCS Validation Report version 01.0 dated 28-Apr-2021
- /5/ VERRA Website: Monitoring Report of previous monitoring periods
- /6/ VERRA Website: Verification Report of previous monitoring periods
- /7/ Project approval issued by Nanning City Administrative Approval Bureau on 22-May-2018
- /8/ Environmental Impact Assessment Report compiled by Guangxi Bohuan Environmental Consultancy Service Co., Ltd. in May 2019
- /9/ Environmental Impact Assessment (EIA) approval issued by Nanning City Xingning District Environmental Protection Bureau on 21-May-2019
- /10/ Environmental Protection Acceptance Opinion on the Construction Completion of the project activity issued by local experts on 11-Sep-2021
- /11/ Business License of Guangxi Ruirong Energy Technology Co., Ltd. (established on 27-Mar-2018) issued by Xingning District Market Supervision and Administration Bureau of Nanning City on 08-Jul-2020
- /12/ LFG Utilization Agreement signed between the project proponent and Guangxi Jinshui Construction and Development Co., Ltd. (Pingli Landfill Site) on 25-Oct-2018
- /13/ 2019 Baseline Emission Factors for Regional Power Grids in China dated 29-Dec-2020 published by China DNA
- /14/ Guangxi Ruirong Energy Technology Co., Ltd.: The filled questionnaires from local stakeholders
- /15/ Guangxi Ruirong Energy Technology Co., Ltd.: The attendance list of stakeholder consultation meeting
- /16/ Staff Roster provided by the project proponent
- /17/ Stakeholder Meeting Minutes of Stakeholder Consultation Meeting on 05-Aug-2023
- /18/ Grievance expression book

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- /19/ Guangxi Ruirong Energy Technology Co., Ltd.: Notice on project proponent's contact information and the stakeholder meeting
 - /20/ LFG Operation Daily Records covering this monitoring period
 - /21/ Guangxi Ruirong Energy Technology Co., Ltd.: Operating Time Statistics of Generator Units, from 01-Jul-2023 to 31-Dec-2024.
 - /22/ Completion Inspection Opinion of Power Receiving Project, issued by local power grid company on 03-Apr-2020
 - /23/ Guangxi Ruirong Energy Technology Co., Ltd.: Monthly Reading Records - amount of electricity generated using LFG and amount of electricity consumed by the project activity in year y, from 01-Jul-2023 to 31-Dec-2024.
 - /24/ Guangxi Ruirong Energy Technology Co., Ltd.: Pretreatment Monitoring Records, from 01-Jul-2023 to 31-Dec-2024.
 - /25/ Pingli Landfill Site: Operation Management Manual of Pingli Landfill Site, issued on 01-Jan-2022.
 - /26/ Electricity Transaction Notes (ETNs) - Amount of electricity consumed by the project activity in year y, issued by local power grid company, from 01-Jul-2023 to 31-Dec-2024.
 - /27/ Guangxi Ruirong Energy Technology Co., Ltd.: Sample of Electricity Invoices of amount of electricity generated using LFG by the project activity in year y measured by electricity meter
 - /28/ Electricity Transaction Notes (ETNs) - amount of electricity generated using LFG by the project activity in year y, issued by local power grid company, from 01-Jul-2023 to 31-Dec-2024.
 - /29/ Shenzhen Academy of Metrology and Quality Inspection: Calibration certificates of gas analyzer covering this monitoring period
 - /30/ Guangxi Electric Energy Measurement and Testing Center: Calibration certificates for electricity meter covering this monitoring period.
 - /31/ Aviation Industry Corporation of China Beijing Great Wall Metrology and Testing Technology Research Institute: Calibration certificates of flow meter, temperature transducer and pressure transducer covering the whole monitoring period.
 - /32/ General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China: Metrological Authorization Certification of Guangxi Electric Energy Measurement and Testing Center, issued on 19-Aug-2022 valid till 18-Aug-2027
 - /33/ Guangdong Provincial Market Supervision Administration: Metrological Authorization Certification of Shenzhen Academy of Metrology and Quality Inspection, issued on 30-Jul-2019 valid till 29-Jul-2024.
 - /34/ General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China: Metrological Authorization Certification of Aviation Industry Corporation of China Beijing Great Wall Metrology and Testing Technology Research Institute, valid from 29-Dec-2020 to 29-Dec-2025

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- /35/ Verification Regulation of Electrical Meters for Measuring Alternating-current Electrical Energy (JJG596-2012)
<https://www.doc88.com/p-3791642036465.html>
 - /36/ Alarmer Detectors of Combustible Gas (JJG693-2011)
<https://www.doc88.com/p-9495114451329.html>
 - /37/ Verification Regulation of Vortex-shedding Flowmeter (JJG1029-2007)
<https://www.doc88.com/p-66519767067867.html>
 - /38/ Guangxi Ruihong Energy Technology Co., Ltd.: Records of training for on-site staff.
 - /39/ Guangxi Ruihong Energy Technology Co., Ltd.: Operation and Maintenance Record, from 01-Jul-2023 to 31-Dec-2024.
 - /40/ Guangxi Ruihong Energy Technology Co., Ltd.: VER monitoring manual and management procedure.
 - /41/ Equal Remuneration Convention, 1951 (No. 100)
<https://www.ilo.org/publications/equal-remuneration-convention-1951-no-100>
 - /42/ "Law of the People's Republic of China on the Protection of Women's Rights and Interests"
https://www.gov.cn/banshi/2005-05/26/content_980.htm
 - /43/ "Law of the People's Republic of China on the Protection of Minors"
https://www.gov.cn/xinwen/2020-10/18/content_5552113.htm
 - /44/ "Labor Law of the People's Republic of China"
https://www.gov.cn/banshi/2005-05/25/content_905.htm
 - /45/ "Labor Contract Law of the People's Republic of China"
http://www.mohrss.gov.cn/xxgk2020/fdzdgknr/zcfg/fl/202011/t20201102_394622.html
 - /46/ "Criminal Law of the People's Republic of China"
<http://gongbao.court.gov.cn/details/f8e30d0689b23f57bfc782d21035c3.html>
 - /47/ "Prohibition of Child Labor Regulations"
<https://fgw.sh.gov.cn/ys-laogong-1.3.2.1/20240124/9174629f4b0c4453ad48edd741b50ae7.html>
 - /48/ "Special Provisions on Labor Protection for Women Workers"
https://www.gov.cn/zwgk/2012-05-Jul-content_2131567.htm
 - /49/ "Constitution of the People's Republic of China"
https://www.gov.cn/xinwen/2018-03/22/content_5276319.htm
 - /50/ "Anti-Discrimination Law of the People's Republic of China"

<http://www.xixianrencai.com/News/5709.html>

- /51/ Photos of Monitoring System Display Screen, electricity meter, gas analyzer, flow meter, Temperature transducer and Pressure transducer and hazardous waste room.
- /52/ Guangxi Ruirong Energy Technology Co., Ltd.: nameplate of the equipment
- /53/ Hazardous Waste Transfer Records covering this monitoring period
- /54/ Notice on Strengthening the Management of Greenhouse Gas Emission Reports for Power Generation Enterprises during 2023 – 2025 issued by Ministry of Ecology and Environment of the People's Republic of China on 14-Oct-2023
https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202302/t20230207_1015569.html
- /55/ Notice on the Issuance of the Work Plan for the Expansion of the National Carbon Emission Trading Market to Cover the Steel, Cement, and Aluminum Smelting Industries issued by Ministry of Ecology and Environment of the People's Republic of China on 20-Mar-2025
https://www.mee.gov.cn/xxgk2018/xxgk/xxgk03/202503/t20250326_1104736.html
- /56/ Measures for Public Participation in Environmental Impact Assessment issued by Ministry of Ecology and Environment of P.R.China
https://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/201808/t20180803_629536.html

Methodologies, tools and other guidance

- /57/ Verified Carbon Standard: VCS Standard, version 4.7.
- /58/ Verified Carbon Standard: VCS Program Guide, version 4.4.
- /59/ Verified Carbon Standard: Registration & Issuance Process, version 4.5.
- /60/ UNFCCC EB: Approved methodology, ACM0001, Version 19.0

APPENDIX 5: <CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS>

Table 1: Corrective Action Requests

CAR ID	Corrective Action Request	Response by Project Proponent	Verification Team Assessment
NA	NA	NA	NA

Table 2: Clarification Requests

CL ID	Clarification Request	Response by Project Proponent	Verification Team Assessment
01	Please clarify how risk from hazardous materials has been prevented in section 2.2.2 of the MR and please provide relevant evidences.	The description on how risk from hazardous materials was prevented has been added in section 2.2.2 of the revised MR and the relevant evidences have been provided.	The description on risk prevention of hazardous materials has been supplemented in section 2.2.2 of the revised MR and verified by the assessment team. Via onsite inspection, it was verified a hazardous waste temporary storage room has been set up at the project site. By checking Hazardous Waste Transfer Records /53/, it was verified waste mineral oil and waste oil drums would be generated during the operation period. By checking Hazardous Waste Transfer Records /53/, it was verified the waste mineral oil has been transferred by qualified third party, and the name, source, quantity, characteristics of hazardous wastes, the type of packaging containers, storage location, waste handover date and the name of receiving unit have been indicated in the record. Therefore, the assessment team verified the risk prevention of hazardous materials supplemented in section 2.2.2 of the revised MR was reasonable and reliable and thus CL 01 was closed.

Table 3: Forward Action Requests

FAR ID	Forward Action Request	Response by Project Proponent	Verification Team Assessment
NA	NA	NA	NA