



**Verified Carbon
Standard**

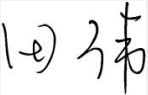
GUANGZHOU EASTERN SOLID RESOURCE RECYCLING CENTER MSW INTEGRATED TREATMENT PLANT PROJECT



Document Prepared By China Classification Society Certification Co. Ltd.

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Prepared By	China Classification Society Certification Co. Ltd. (CCSC)
Contact	40, Dong Huang Cheng Gen Nan Jie, Beijing, 100006, P.R. China, Tel: + 86 10 5631 3492 Email: zhengruijin@c.ccs.org.cn www.ccs-c.com.cn
Approved By	Mr. Tian Wei, General Manager 
Work Carried Out By	Team Leader: Wang Guan Team Members: Zheng Ruijin, Wang Wenya Technical Reviewers: Zhang Xi, Xie Fengjun

Summary:

China Classification Society Certification Co. Ltd. (CCSC), commissioned by Climate Bridge (Shanghai) Ltd., has performed the 2nd periodic verification of Guangzhou Eastern Solid Resource Recycling Center MSW Integrated Treatment Plant Project (hereafter referred to as “the Project”) covering the monitoring period from 01-January-2022 to 31-December-2022 with both days included, on the basis of requirements of VCS Version 4.2.

A brief description of the verification and the project

The project is a MSW Integrated treatment and electricity generation project, which is treating MSW with anaerobic digesters of fresh waste from Guangzhou City and utilizing recovered biogas for electricity generation. The project was owned and implemented by Guangzhou LEO-KING Environmental Technology Co., Ltd at the Solid Resource Recycling Center, Fushan Village, Jiulong Town, Luogang District, Guangzhou City, Guangdong Province, P.R

China. The geographical coordinates for the project site are east longitude 113°30'54" and north latitude 23°17'4". After conduct the project validation under VCS program, the project was allocated with VCS ID 2746.

The project activity includes MSW collection, MSW pre-treatment system, biodiesel production system, anaerobic digester, biogas purification, electricity generation system and waste heat recovery. The design processing capacity of the project is 2,040 tonnes fresh waste per day. The fresh waste of the project is mainly kitchen and catering waste from Guangzhou City. The total installed capacity of the project activity is 10.45 MW, consisting of 4 sets of 1.053 MW generators and 2 sets of 3.119 MW generators. In terms of the biodiesel production system and waste heat recovery, waste oil sourced from MSW pre-treatment system will be used for biodiesel production, and the waste heat will be recovered to be the source of heat supply for the operation. The Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants of China Southern Power Grid (CSPG). The project utilizes biogas recovered from anaerobic digestion to avoid the emission of methane that would otherwise be vented into the atmosphere at the landfill site. To be conservative, emission reductions will not be claimed for waste heat recovery and biodiesel production system.

The project started construction on 12-October-2017 and put into operation on 01-April-2020. The first day of operation is 01-April-2020, which is also considered as the start date of the crediting period. The annual average amount of exported electricity is estimated to be 61,842 MWh in the three 7-year renewable crediting periods from 01-April-2020 to 31-March-2041. And the expected total emission reductions are 2,513,097 tCO₂e during the first crediting period, with average annual emission reductions 359,014 tCO₂e.

The actual emission reductions achieved in this monitoring period are 312,451 tCO₂e.

The purpose and scope of verification

The objective of the verification is to have an independent review ex-post determination by a VVB (Validation and Verification Body) of the monitored GHG emission reductions that have occurred as a result of the implementation of the project during a defined monitoring period.

The monitoring period

The first monitoring period is from 01-April-2020 to 31-December-2021 with both days included. This monitoring period is the 2nd VCS monitoring period. This monitoring period is from 01-January-2022 to 31-December-2022 (both days included).

The method and criteria used for verification

The verification was performed on the basis of VCS Program Guide version 4.3 and VCS standard version 4.4 for the VCS projects, as well as criteria given to provide 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 number of findings raised during verification

CCSC appointed a qualified verification team in accordance with internal procedures to perform the verification. During the verification, 2 Clarification Requests (CLs), 2 Corrective Action Requests (CARs) and no forward action request (FAR) were raised.

Any uncertainties associated with the verification

There are no restrictions of uncertainty with the verification.

Summary of the verification opinion

As a result of this verification, the verification team confirms that:

The verification is based on the baseline and monitoring methodology ACM0022 Version 03.0, and the joint PD & MR (version 2.1 dated 14/07/2022). 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 joint PD & MR. Our verification approach was based on the requirements as defined under the applicable VCS Version 4.2 and relevant UNFCCC requirements. 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 monitoring plan in joint PD & MR is as per the applied methodology;
- the monitoring complies with the monitoring plan in the joint PD & MR;
- the joint PD & MR and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Version 4.2 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.
- All operations of the project are implemented and installed as planned and described in the validated Project Description;
- The registered monitoring plan is in accordance with the applied baseline and monitoring methodology for the project:

ACM0022 Alternative waste treatment processes (Version 03.0).

“Emissions from solid waste disposal sites” (version 08.1);

“Project and leakage emissions from anaerobic digesters” (version 02.0);

“Tool to calculate the emission factor for an electricity system” (version 07.0);

“Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” (version 03.0);

“Tool to determine the mass flow of a greenhouse gas in a gaseous stream” (version 03.0);

“Project emissions from flaring” (version 04.0);

Based on the information observed and evaluated, the verification team confirms that the emission reductions are correctly calculated in the MR (version 1.1 dated 23-May-2023).

In conclusion, it is CCSC's opinion that the project “Guangzhou Eastern Solid Resource Recycling Center MSW Integrated Treatment Plant Project”, as described in the MR (version 2.0 dated 24-June-2024), meets all relevant requirements for VCS and all relevant host Party criteria. Hence, CCSC is able to certify that the emission reductions from the project during the monitoring period from 01-January-2022 to 31-December-2022 (both days included) amount to 312,451 tCO₂e and requests issuance of the equivalent VCUs.

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1 INTRODUCTION

1.1 Objective

Climate Bridge (Shanghai) Ltd., has commissioned CCSC to verify and provide a verification statement of the emission reductions of the “Guangzhou Eastern Solid Resource Recycling Center MSW Integrated Treatment Plant Project” for the monitoring period from 01-January-2022 to 31-December-2022, based on the requirement of VCS Standard (version 4.4) /06/ as well as criteria to provide for consistent project operations, monitoring and reporting.

As the verification body (VVB) of the project, CCSC has been accredited as a DOE by UNFCCC and meets the competence requirements as set out in ISO 14065:2020.

Verification of emission reductions from a project activity is the independent review and ex post determination by VVB of the monitored reductions in GHG emissions during the reported monitoring period. The objectives of verification are to:

- a) Ensure that the project has been implemented and operated as per the VCS project description and monitoring report (VCS-joint PD&MR) /03/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- b) Ensure that the monitoring report and other supporting documents provided are completely in accordance with the latest applicable version of Registration and Issuance Process (version 4.3) /09/ and in accordance with the additional requirements stated by the VERRA;
- c) Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology /11//21//22//23//24//25//26/;
- d) Evaluate the data recorded and stored as per the monitoring methodology /11//21//22//23//24//25//26/.

1.2 Scope and Criteria

The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the CCSC. The verification scope covers the relevant documents (e.g. the VCS-joint PD&MR) /03/, the VCS monitoring report (VCS-MR) /01//04/, the emission reduction calculation spreadsheet (ER calculation spreadsheet) /02/, supporting documents available to the verifier and information collected through performing interviews and during the on-site assessment, VERRA's requirements publicly available, relevant rules, including the host country legislation, etc.) to be independently reviewed, the project geographical locations to be visited on-site, the related project local stakeholders to be interviewed with, and processes that are necessary to acquire objective evidence for the evaluation of the project compliance to the VCS requirements and associated interpretations.

The above verification activities are conducted according to the VERRA's requirements. In doing so, the principles of accuracy and completeness, relevance, reliability and credibility were followed.

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

1.3 Level of Assurance

CCSC has undertaken a reasonable assurance engagement in accordance with VCS Standard (version 4.4) /06/. It requires a reasonable level of assurance in verification that GHG assertions are free of material errors, omissions and misrepresentations. The verification conclusion is based on the VCS-joint PD&MR /03/, VCS-MR /01//04/, ER calculation spreadsheet /02/ and supporting evidences available to the verifier and information collected during the on-site inspection.

1.4 Summary Description of the Project

According to the VCS Program Guide (Version 4.3)/07/ and Annex A to the Kyoto Protocol, the project is applicable under the activity categories listed below:

Sectoral Scope 1: Energy (Renewable/Non-renewable)

Sectoral Scope 13: Waste handling and disposal

The project is not a grouped project.

The Project involves the construction and operation of the MSW Integrated treatment and electricity generation project at the Solid Resource Recycling Center, Fushan Village, Jiulong Town, Luogang District, Guangzhou City, Guangdong Province, P.R China. The Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants of China South Power Grid (CSPG). The annual average amount of exported electricity is estimated to 61,842 MWh in the three 7-year renewal crediting periods from 01-April-2020 to 31-March-2041. And the expected total emission reductions are 2,513,097 tCO₂e during the first crediting period, with average annual emission reductions 359,014 tCO₂e. This is the 2nd VCS monitoring period, the total verified carbon units (VCUs) achieved are 312,451 tCO₂e.

The summary of the project is shown in the following table.

Project title	Guangzhou Eastern Solid Resource Recycling Center MSW Integrated Treatment Plant Project
VCS ID	2746
Project Participants	Guangzhou LEO-KING Environmental Technology Co., Ltd. Climate Bridge (Shanghai) Ltd. (VCU Buyer, P. R. China)
Location of the project	The Solid Resource Recycling Center, Fushan Village, Jiulong Town, Luogang District, Guangzhou City, Guangdong Province, P.R China east longitude 113°30'54" and north latitude 23°17'4"
Project start date	01-April-2020
Applied Methodology	ACM0022 Alternative waste treatment processes (Version 03.0)
Scope/Technical Area	Scope 01: energy industries (renewable-/non-renewable sources) Sectoral scope 13: Waste handling and disposal
VCS crediting period	01-April-2020 to 31-March-2027 (both days inclusive)

2 VERIFICATION PROCESS

2.1 Method and Criteria

The overall verification, from Document Review to Verification Report & Opinion, was conducted using CCSC internal procedures.

A project specific verification plan was developed to guide the verification auditing process to ensure efficiency and effectiveness.

The purpose of the verification is to present a risk assessment for determining the nature and extent of verification procedures necessary to ensure the risk of auditing error is reduced to a reasonable level. According to the ISO14064-3, the criteria are the policy, procedure or requirement used as reference against which evidence is compared.

The verification was performed through means of the following three phases in accordance with the requirement of the applied methodology, and the VCS Standard (version 4.4) /06/ and other relevant VCS requirements/07//08//09/.

- A desk review of the VCS MR /01//04/, ER calculation spreadsheet /02/ 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.

CCSC completed a strategic review and risk assessment of the project's activities and processes in order to gain a full understanding of (if applicable):

- Project Details;
- Application of Methodology;
- Estimated GHG Emission Reduction and Removals;
- Monitoring;
- Safeguards etc.

CCSC also verified the emission reductions through assessing all factors and issues that constitute the basis for emission reductions from the project, including:

- 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.

CCSC assessed that the reported information in the MR is complete and accurate in question. This verification report describes the findings of this assessment. The information of the assessment team has been included in below of this report.

The following sections outline each step in more detail.

2.2 Document Review

A desk review of the VCS monitoring report (VCS-MR) /01//04/, the emission reduction calculation spreadsheet /02/, the VCS-joint PD&MR/03/, the Joint Validation and Verification Report /05/, the applied monitoring methodology /11/21//22//23//24//25//26/ was conducted by the verification team. In addition, relevant clarifications and guidance from the Verra, and other informational /supportive references relevant to the project were assessed.

The aim of the desk review of the documentation was to verify the completeness of the data and the information presented, to carry out the compliance check of the VCS-MR /01/ with respect to the monitoring plan and the applied methodology. Particular attention was given to the quality of the metering equipment including calibration requirements, the monitored data and its evidence, and the emission reduction calculation. The evaluation of data management, the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions was also performed.

Appendix B of this report contains a complete list of all documents and proofs reviewed by the verification team.

2.3 Interviews

On 11-May-2023, CCSC performed an on-site assessment at the physical site of the project.

The verification team verified that the actual implementation of the project was same as described in the VCS-MR /01//04/. This included the review of the project operation based on the evidence of on-site observation and presented documents.

During the on-site assessment, the verification team has interviewed with key personnel from the project participants, the local community and local government official.

The assessment content and topics, the persons interviewed at the on-site assessment were summarized in the following table.

Date:11-May-2023	
Interview topics	Interviewed Organizations and persons
--The status of VCS project implementation. -- Any changes of the VCS project. -- The project on-site inspection -- The evidences of construction status and operation of key equipment, parameters monitoring and data processing activities, monitor equipment and calibration. -- Sustainable Development Contributions -- Environmental aspects -- Monitoring data. -- Quality Management; organizational structure, responsibilities and competencies; Internal QA/QC Management procedures and document control. --Compliance with National Laws and Regulations. -- Status and operation of Guangzhou Eastern Solid Resource Recycling Center	Guangzhou LEO-KING Environmental Technology Co., Ltd. Yue Feng, General manager assistant Deng Shuhan, Operation Manager Zhu Chenxin, Finance Manager
-- The impact of the project activity. -- The stakeholder consultation during the operation of the project activity. -- The sustainable development contributions of the project	Local resident of Fushan Village, Jiulong Town, Luogang District, Guangzhou City Fan Youdi, Villager Zou Guanhui, Villager Guo Fuqiang, Villager Local Environment Protection Bureau Xu Hua, Environmental monitoring officer

Date:11-May-2023	
Interview topics	Interviewed Organizations and persons
Preparation of Monitoring Report.	Climate Bridge (Shanghai) Ltd. Zhang Chenxi, Project manager
Compliance of the monitoring plan with the monitoring methodology	
Compliance of monitoring with the monitoring plan	
Assessment of data and calculation of GHG emission reductions	

2.4 Site Visits

CCSC has applied standard auditing techniques to evaluate the quality of available information during the on-site assessment. The on-site assessment included different aspects of the project activity as listed below:

- An assessment of the implementation and operation of the project as per the VCS-joint PD &MR/03/;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the approved monitoring plan;
- A cross-check between information provided in the VCS monitoring report /01/ and data from other sources such as operational records or similar data sources;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the VCS-joint PD&MR /03/ and the selected methodology /11//21//22/ /23//24//25//26/;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

During the site inspection, the project location, main equipment, monitoring equipment and project implementation were inspected and document evidence were checked. The details of the site inspection flow are described in the table below.

Date	Activity performed	Locations	Team Member
11-May-2023	Management interview	Project-site Office	Wang Guan Zheng Ruijin Wang Wenya
11-May-2023	Documents review	Project-site Office	Wang Guan Wang Wenya
11-May-2023	On-site inspection	east longitude 113°30'22" and north latitude 23°17'0"	Zheng Ruijin Wang Wenya
11-May-2023	Finding Summary	Project-site Office	Wang Guan Zheng Ruijin Wang Wenya
11-May-2023	Close meeting	Project-site Office	Wang Guan Zheng Ruijin Wang Wenya

2.5 Resolution of Findings

During the verification of a project activity, to identify issues that need to be further elaborated upon, researched or added to in order to confirm that the project meets the VERRA's requirements and can achieve credible emission reductions, the verification team will issue a Corrective Action Request (CAR), a Clarification Request (CL) or a Forward Action Request (FAR) depending on different situations.

The objective of this phase of the verification is to resolve issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions prior to CCSC's positive conclusion on the GHG emission reduction calculation.

Findings established during the verification can either be considered as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

A Corrective Action Request (CAR) will be raised if one of the following occurs:

- a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

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

A Forward Action Request (FAR) will be raised for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

There are 2 CLs and 2 CARs raised by CCSC during the current verification. And communications were made between the Client and CCSC to guarantee the transparency of the verification process, the CLs and CARs have been satisfactorily addressed by the project proponents in the MR (Version 1.1) dated 23-May-2023/04/, the concerns raised, and responses given are summarized below in the appendix C.

The CL-1 has been raised is that "The survey questionnaires collected from local stakeholders are not provided", PP provided 30 survey questionnaires collected on 2022 from local stakeholders as evidence.

The CL-2 has been raised is that "The Calibration Certificate of the weighbridge which was applied to monitor the amount of waste disposed was not provided", PP provided the Calibration Certificate of the weighbridge covering this monitoring period as evidence .

The CAR-1 has been raised is that “The Gas generator model and rated capacity in the MR (Version 1.0) were different from that on the nameplate verified on site”, Through the on-site interview with the project implementer, PP explained that “The Gas generator model and rated capacity in the MR (Version 1.0) were written according to the Power Purchase Agreement. The equipment parameters are subject to the nameplates. The total installed capacity in the MR (Version 2.0) has been modified to 10.45 MW included 4 generators with each 1.053 MW and 2 generators with each 3.119 MW according to the actual nameplate of generators in this monitoring period.

The CAR-2 has been raised is that “The Serial No of the flow meter in the Calibration Certificate was not match with that on the nameplate installed at inlet of the flare verified on site.”, PP provided the correct Calibration Certificate that can match with that on the nameplate.

The CLs and CARs above have been closed satisfactorily

2.5.1 Forward Action Requests

No Forward Action Requests were raised during the current verification.

2.6 Eligibility for Validation Activities

The VVB of “China Classification Society Certification Co. Ltd.” commissioned by the project participant is one of eligible VVBs listed on the VERRA website (<https://verra.org/validation-verification/>), and it holds the accreditation for validation/verification for the sectoral scope: “1. Energy (renewable/non-renewable)” and “13: Waste handling and disposal”, to which the project belongs. Therefore, CCSC is eligible for the validation/verification of the project.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Through reviewing the registered VCS-joint PD&MR /03/ and the joint validation and verification report /05/, it was validated that the project has been registered as a VCS project with VCS ID 2746.

The project has not been registered, nor is seeking registration, nor has been rejected under any other emission trading programs by checking public information on Internet (e.g. GS standard, CDM, Chinese Certified Emission Reduction, Global Carbon Council, International Renewable Energy Certificate, etc.), and interviewing with project participant. The project is only seeking registration in VCS program.

As per “Notice on Strengthening Enterprise Greenhouse Gas Emission Report Management” /31/ issued by National Development and Reform Committee of P.R.China, China has a national emissions trading scheme only cover the high-emission industries, such as thermal power generation, petrochemical, chemical, building materials, iron and steel, nonferrous metals, papermaking, civil aviation industries and other key emission industries that emitted more than 26,000 tons of CO₂e/year. By checking “List of key emissions in the national carbon emissions transaction quota management in 2019-2020” /32/ issued by Ministry of Ecology and Environment of P.R.China in public information, the project activity is not included in the mandatory emission control scheme and there is no emission cap enforced for the project owner.

Via on-site interviewing with the project implementer and checking the declaration on the double counting/34/ , it is verified that the implementation of the project is consistent with the description in the VCS-Joint PD & MR /03/ and the monitoring system is fully functional to generate Verified Carbon Units (VCUs) without any double counting for this monitoring period from 01-January-2022 to 31-December-2022 (both days included). The verification team also checked the registries of CDM EB, Goldstandard and Verra through website <https://cdm.unfccc.int/>, <http://www.goldstandard.org/> and <http://verra.org/> to confirm the conclusion.

Therefore, the verification team concluded that the eligible to participate under the VCS Program as there is no double counting for the emission reductions during the current and previous monitoring period.

3.2 Methodology Deviations

No deviation from the methodology needs to be submitted for this monitoring period.

3.3 Project Description Deviations

There is a project description deviation applied to this monitoring period.

In the Joint PD&MR (Version 2.1), the total installed capacity will be 10.34 MW included 4 generators with each 1.063 MW and 2 generators with each 3.044 MW. During the on-site inspection, the verification team found that the gas generator model and rated capacity on the nameplates are different from that in the Joint PD&MR (Version 2.1) and MR (Version 1.0).

According to the nameplate of the generators, the total installed capacity is 10.45 MW included 4 generators with each 1.053 MW and 2 generators with each 3.119 MW in this monitoring period. Through the on-site interview with the project implementer, the verification team confirm that the equipment parameters are subject to the nameplates. The Gas generator model and rated capacity in the Joint PD&MR (Version 2.1) and MR (Version 1.0) were written according to the Power Purchase Agreement.

The gas generators model and rated capacity in the MR (Version 2.0) /4/ have been modified according to the actual nameplate.

It has been assessed by CCSC that the project descriptions deviations of the equipment parameters above do not affect the calculation of emissions, and the methodology applied is unchanged, the additionality and the appropriateness of the baseline scenario are not affected, therefore, the project remains in conformance with the VCS rules.

3.4 Grouped Project

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

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project is located at the Solid Resource Recycling Center, Fushan Village, Jiulong Town, Luogang District, Guangzhou City, Guangdong Province, P.R China. The geographical coordinates are verified by GPS system as east longitude 113°30'54" and north latitude 23°17'4". The project is owned and implemented by Guangzhou LEO-KING Environmental Technology Co., Ltd. by checking the VCS-Joint PD & MR /03/, the Joint Validation and Verification Report /05/ and the National Enterprise Credit information Publicity System Report /33/, it has been confirmed that Guangzhou LEO-KING Environmental Technology Co., Ltd. is the project owner and project proponent (PP) of project activity, has the legal right to control and operate the project activities.

The project activity is a MSW Integrated Treatment Plant Project. The main purpose of the project is to treat MSW with anaerobic digesters and utilize recovered biogas for electricity generation. The project was put into operation on 01-April-2020, with an aggregate designed processing capacity of 2,040 tonnes per day for the fresh waste from the Guangzhou City. The fresh waste is mainly kitchen and catering waste. The project activity includes MSW collection, MSW pre-treatment system, biodiesel production system, anaerobic digester, biogas purification, electricity generation system and waste heat recovery. The fresh waste collected by the project will be sent to MSW pre-treatment system, then the uniform organic slurry will be pumped into the anaerobic digestion system and waste oil will be used for biodiesel production system. The anaerobic digestion system will produce biogas under medium temperature anaerobic digestion. After at least 25 days retention time in the anaerobic digester, the solid digestate will be outward transported and incinerated directly in thermal power plant and will not be stored under anaerobic conditions, and the wastewater will be treated aerobically by wastewater treatment plant nearby. The biogas from anaerobic digestion is used for electricity generation with internal combustion generators. The total installed capacity is 10.45 MW included 4 generators with each 1.053 MW and 2 generators with each 3.119 MW. However, in terms of the biodiesel production system and waste heat recovery, waste oil sourced from MSW pre-treatment system is used for biodiesel production, and the waste heat is recovered to be the source of heat supply for the operation. To be conservative, emission reductions is not claimed for waste heat recovery and biodiesel production system.

The annual average amount of exported electricity is estimated to 61,842 MWh in the twice renewable crediting period from 01-April-2020 to 31-March-2041. And the expected total emission reductions are 2,513,097 tCO₂e during the first crediting period, with average annual emission reductions 359,014 tCO₂e. It was confirmed that the project was started construction on 12-October-2017 and was officially put into operation on 01-April-2020 by checking the VCS-Joint PD & MR /03/.

The implementation of the project during the current verification period was verified via on-site checking the nameplate of gas generator /16/ and Statistic of production data/17/. As part of the site visit, the verification team inspected the major technical specifications and confirmed that there is a discrepancy between project implementation and the project description.

Via checking the Joint PD&MR, the MR and on-site inspection, the verification team found the project implementation are different from the project description contained in the Joint PD&MR (Version 2.1)/03/ and the MR/01/. The key technical specifications of the gas generators have been verified against the nameplates /16/, but the gas generator model and rated capacity on the nameplates are different from that in the Joint PD&MR/03/ and MR/01/. In the Joint PD&MR/03/ and MR/04/, the total installed capacity is 10.34 MW included 4 generators with each 1.063 MW and 2 generators with each 3.044 MW. But according the nameplate of the generators, the total installed capacity is 10.45 MW included 4 generators with each 1.053 MW and 2 generators with each 3.119 MW in this monitoring period.

Through the on-site interview with the project implementer, the verification team confirm that the equipment parameters are subject to the nameplates, and the key equipment and technical specifications have no changes since the validation of the project. In the registered VCS-joint PD&MR , the technical parameters of the gas generators were written based on the data of Electricity Purchase Contract, that don't conform with reality. The gas generators model and rated capacity in the MR/4/ have been modified according to the actual nameplate. CCSC verified that the key equipment and technical specifications in the MR/4/ are consist with the gas generators nameplate. The detailed information is shown in the table below.

Table 4-1 Technical parameters of the gas generators and enclosed flare

Gas generator:		
Manufacturer	GE Jenbacher GmbH &Co OG	
Type	J620 GS-F25	JGS 320GS-B.L
Quantity	2	4

Rated capacity	3.119 MW	1.053 MW
Rated power factor	1	1
Rated frequency	50HZ	50HZ
Rated Voltage	10500V	10500V
Rated current	167A	58A
Enclosed flare		
Model	Φ3100*14000	
Temperature range	0~1200℃	
Pressure range	0~20Kpa	
Flow range	450~4500m ³ /h	

On-site training for the related procedures including recording and reporting was verified by checking the training records/27/ and their implementation was further confirmed by interviewing with the key operators and observing the operation.

It is verified that the monitoring system is fully functional to generate Verified Carbon Units (VCUs) without any double counting for this monitoring period from 01-January-2022 to 31-December-2022 (both days included).

The project can reduce GHG emissions through generating electricity with internal combustion generators by utilizing the recovered biogas from anaerobic digestion and replacing equivalent electricity generated by fossil fuel fired power plants connected into China South Power Grid (CSPG). In the monitoring period from 01-January-2022 to 31-December-2022, the total net electricity supplied to the grid by the project is 16,600 MWh. The total verified carbon units (VCUs) achieved in the monitoring period are 312,451 tCO_{2e}, which has been verified by on-site inspection, checking the related documentations, and interviewing with the project implementer.

The electricity generated by the project is supplied to the CSPG which is confirmed by the Power purchase agreement (PPA)/13/ signed between Guangzhou LEO-KING Environmental Technology Co., Ltd. and China Southern Power Grid Guangdong Electric Power Co. Ltd. All the monitoring system in operation period is consistent with the description in the monitoring plan listed in registered in VCS-joint PD&MR /03/. The control system at the power plant is automated and assures continuous operation, including monitoring on malfunction of equipment. By checking the daily operation and maintenance records via on-site visit, CCSC confirms that the project was under normal operation during the current monitoring period.

Through on-site interviewing with the project implementer and checking the UNFCCC website (<https://cdm.unfccc.int>) of the CDM project (Ref. 2746), the verification team confirmed that the net GHG emission reductions during this monitoring period from the project was not used for compliance with emission trading programs or to meet binding limits on GHG emissions.

Besides, based on VVB's local expertise, China has a national emissions trading scheme only cover the high-emission industries, such as power generation sector that emitted at least 26,000 tons of CO₂e/year which has been verified in the public website (https://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202101/t20210105_816131.html) . It is confirmed that the project activity is not included in the mandatory emission control scheme and there is no emission cap enforced for the project owner by checking the enforced company list in public information (https://www.mee.gov.cn/xxgk2018/xxgk/xxgk03/202012/t20201230_815546.html) .

Hence, it is verified that the monitoring system is fully functional to generate Verified Carbon Units (VCUs) without any double counting for this monitoring period from 01-January-2022 to 31-December-2022.

Via on-site inspection, documents/12/13//14//15//17//18//19//29/checking and interview with the project implementer, CCSC also verified that the project contributes the sustainable development goal through the following aspects

Table 4-2 Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
1)	7.2	Renewable	Implemented	16,600MWh of	An accumulated

		energy supplied to the power grid	activities to increase	electricity from renewable sources have been supplied to the SCPG during the 2 nd monitoring period (01-January-2022 to 31-December-2022) , replacing fossil fuel powered electricity.	55,953.6 MWh of electricity from renewable sources has been supplied to the power grid by end of the reporting period.
2)	8.5	Provide job opportunities by implementation of the project	Implemented activities to increase	Provided 308 employment positions for local villagers in this monitoring period.	308 people have been employed by the project as long-term employee by end of the reporting period
3)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	The project has achieved a total GHG emission reduction of 312,451 tCO ₂ e during the 2 nd monitoring period.	An accumulated 645,007 tCO ₂ e of GHG emission reduction have been achieved by the project by end of the 2 nd monitoring period.

In conclusion, based on the information collected during on-site visit and the relevant evidence provided by project owner, CCSC can confirm that:

- The monitoring period from 01-January-2022 to 31-December-2022 (both days included) is compliance with the crediting period and complies with the requirement of the VCS Standard Version 4.4 /06/;
- No project design change occurred during this monitoring period and the project was implemented in accordance the registered VCS-joint PD&MR /03/;
- The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analyzing the monitored data and parameters) is appropriate.

- d) The project has contributed to sustainable development during this monitoring period and over project lifetime;
- e) The GHG emission reductions or removals generated by the project have not included in an emissions trading program or any other mechanism that includes GHG allowance trading;
- f) The project has not sought or received another form of GHG-related environmental credit, including renewable energy certificates, during this monitoring period. None of the credits will be claimed in the same period;
- g) The GHG emission reductions generated by the project during this monitoring period (01-January-2022 to 31-December-2022) will be only claimed under VCS program as VCU for the project to avoid double counting.

The verification team has verified that the accuracy of measure of the monitoring equipment was set according to the requirements and all calibration procedures were carried out according to the monitoring plan and manufacturer specifications, and meet the requirements of the registered VCS-joint PD&MR /03/ and relevant sectoral standard of China. The calibration information of the monitoring meters/19/ in this monitoring period has been listed in Table 4-3 below. The monitoring equipment has been installed in the project in line with the registered monitoring plan. The metering system includes main meters M1 and M2, Weighbridge, Flow meters and Gas analyzer. The calibration of meters is valid for the whole reporting period.

Table 4-3 Verified calibration information of monitoring meters

Monitoring equipment	Monitoring parameter	Serial Number	Type	Accuracy Class	Frequency	Calibration Date	Validity	Calibration Party
Weighbridge	Wx	220504 14BD	SCS- 50	III	Annually	02-February-2021 30-January-2022	01-February-2022 29-January-2023	Guangzhou Institute of Measurement and Testing Technology /19/
Electricity meter	EC _{BL,k,y} EC _{PJ,j,y}	001800 010302	DSSD 71	0.5S	Annually	02-February-2021 29-January-2022	01-February-2022 28-January-2023	South China National Centre of Metrology Guangdong Institute of Metrology /19/
		001800 010306	DSSD 71	0.5S	Annually	02-February-2021 29-January-2022	01-February-2022 28-January-2023	South China National Centre of Metrology Guangdong Institute of Metrology /19/
Flow meter	V _{t,db,n}	2106L3 546001	ZD720 0MT5 HEX	±1.5%	Once every two years	02-February-2020 29-January-2022	01-February-2022 28-January-2024	South China National Centre of Metrology Guangdong Institute of Metrology /19/
Flow meter	V _{RG,t,db}	181015 02	JF63N 2	0.5	once every two years	02-February-2020 29-January-2022	01-February-2022 28-January-2024	South China National Centre of Metrology Guangdong Institute of Metrology /19/
Gas analyzer	v _{i,t,db} / v _{RG,t,db}	62387/2	UE50	±2.5%	Annually	01-January-2022	31-December-2022	South China National Centre of Metrology Guangdong Institute of Metrology /19/

4.2 Safeguards

4.2.1 No Net Harm

The EIA report has been approved by Guangzhou City Environment Bureau on 02-May-2017. By checking the EIA summary and conclusion provided in the registered VCS-joint PD&MR /03/, and reviewing the local stakeholders including local residents and local authority, it is confirmed that the impact caused by the project activity on the surrounding ecosystem and residents, air, water, noise and solid waste is very limited. No net harm caused by the project activity was detected. By checking the National Enterprise Credit information Publicity System Report /33/, no environmental penalties has been found. CCSC confirmed that the environmental impacts of the project are in line with the EIA Report.

Also, no potential social economic matter was found during the site visit. Through interviewing project proponent, local government and local residents, and through checking the payroll statement of employees /30/ by the employer (the project proponent), it is verified that the project has beneficial contributions to the local economy by providing 308 job opportunities.

4.2.2 Local Stakeholder Consultation

As per the VCS requirements, it is necessary to conduct local stakeholder consultation prior to the validation process in order to allow the relevant parties aware of the potential negative impacts during project implementation. Local stakeholder consultation was conducted during EIA stage prior to the plant implementation. The project owner introduced the proposed project and the feedback from the stakeholders was recorded. All comments received have been well addressed prior to the project implementation. There were no significant negative comments received in the project preparation stage.

The verification team checked the relevant actions taken by the project participant in the current monitoring period during the on-site inspection. Communications with local stakeholders have been carried out at periodic intervals. Through reviewing the questionnaires /29/ and interviewing the key personnel including local residents and local authority, the verification team confirmed that in this monitoring period, the project owner carried out questionnaire survey for the local stakeholders to collect the relevant comments and suggestions in this monitoring period from 01-January-2022 to 31-December-2022. No negative comments have been raised for the project according to every questionnaire survey/29/. In line with VCS requirements, all the processes have been implemented to receive comments from local stakeholders as well as communicate with them at periodic interval.

Therefore, the verification team confirms that the local stakeholder consultation in this monitoring period was adequate and appropriate.

4.3 AFOLU-Specific Safeguards

The project is not an AFOLU project, and thus this section is not applicable for the project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

4.4.1 Data and Parameters Available at Validation

Data / Parameter	GWP_{CH_4}
Data unit	t CO ₂ e/t CH ₄
Description	Global warming potential of CH ₄
Source of data	IPCC
Value applied	28
Justification of choice of data or description of measurement methods and procedures applied	Default value of 28 from IPCC Fifth Assessment Report (AR5). Shall be updated according to any future COP/MOP decisions.
Purpose of Data	Calculation of baseline emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against IPCC Fifth Assessment Report (AR5) , and there is no update.

Data / Parameter	NCV_{CH_4}
Data unit	TJ/t CH ₄
Description	Net calorific value of methane at reference conditions
Source of data	Technical literature, ACM0001 version 19.0

Value applied	0.0504
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of Data	Calculation of baseline emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "Technical literature, ACM0001 version 19.0" and confirmed to be correct.

Data / Parameter	$\eta_{PJflare,m}$
Data unit	Dimensionless
Description	Flare efficiency in minute m
Source of data	"Project emissions from flaring" (Version 04.0)
Value applied	90%
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of Data	Calculation of project emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "Project emissions from flaring" (Version 04.0) and confirmed to be correct.

Data / Parameter	ϕ_y
Data unit	-

Description	Model correction factor to account for model uncertainties for year y		
Source of data	"Emissions from solid waste disposal sites" (version 08.1)		
Value applied	0.85		
		Humid/wet conditions	Dry conditions
	Application A	0.75	0.75
	Application B	0.85	0.80
Justification of choice of data or description of measurement methods and procedures applied	Default value suggested in the tool. The project selects Option 1: Use a default value to determine ϕ_y in the tool "Emissions from solid waste disposal sites" (version 08.1), and the project belongs to the situation of Application B, additionally, the climate is wet conditions based on the 23°C of average temperature of Guangzhou city and 1,722mm¹ of annual mean precipitation. Thus 0.85 is chosen for ϕ_y.		
Purpose of Data	Calculation of baseline emissions		
Comments	-		
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "Emissions from solid waste disposal sites" (version 08.1) and confirmed to be correct.		

Data / Parameter	OX
Data unit	-
Description	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value applied	0.1

¹ FSR

Justification of choice of data or description of measurement methods and procedures applied	The landfill is covered with plastic film or soil, for conservative 0.1 was chosen.
Purpose of Data	Calculation of baseline emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "IPCC 2006 Guidelines for National Greenhouse Gas Inventories" and confirmed to be correct.

Data / Parameter	F
Data unit	-
Description	Fraction of methane in the SWDS gas (volume fraction)
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value applied	0.5
Justification of choice of data or description of measurement methods and procedures applied	Using IPCC 2006 Guidelines default value
Purpose of Data	Calculation of baseline emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "IPCC 2006 Guidelines for National Greenhouse Gas Inventories" and confirmed to be correct.

Data / Parameter	DOC _{f,y}
Data unit	Weight fraction

Description	Default value for the fraction of degradable organic carbon (DOC) in MSW that decomposes in the SWDS
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value applied	0.5
Justification of choice of data or description of measurement methods and procedures applied	Using IPCC 2006 Guidelines default value
Purpose of Data	Calculation of baseline emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "IPCC 2006 Guidelines for National Greenhouse Gas Inventories" and confirmed to be correct.

Data / Parameter	MCF _y
Data unit	-
Description	Methane correction factor
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value applied	1.0
Justification of choice of data or description of measurement methods and procedures applied	The nearly landfill of the project is controlled for anaerobic managed, including the following activities: (i) the nearly landfill of the project applies the cover material on the top of the landfill; (ii) Before landfilling, the waste is compacted mechanically; (iii) After landfilling, the waste is levelled. Via on-site audit, VVB confirms that the waste in the SWDS had been controlled for anaerobic managed. Therefore, 1.0 for anaerobic managed solid waste disposal sites is recommended by "Emissions from solid waste disposal sites (Version 08.1)."
Purpose of Data	Calculation of baseline emissions

Comments	-														
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "IPCC 2006 Guidelines for National Greenhouse Gas Inventories", "Emissions from solid waste disposal sites (Version 08.1)" and confirmed to be correct.														
Data / Parameter	DOC _j														
Data unit	-														
Description	Fraction of degradable organic carbon in the waste type <i>j</i> (weight fraction)														
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Tables 2.4 and 2.5)														
Value applied	Apply the following values for the different waste types <i>j</i> for MSW: <table border="1"> <thead> <tr> <th>Waste classification</th><th>DOC_j (% wet waste)</th></tr> </thead> <tbody> <tr> <td>Wood and wood product</td><td>43</td></tr> <tr> <td>Pulp, paper and cardboard (other than sludge)</td><td>40</td></tr> <tr> <td>Food, food waste, beverage and tobacco (other than sludge)</td><td>15</td></tr> <tr> <td>Textiles</td><td>24</td></tr> <tr> <td>Gardens, yard and park was</td><td>20</td></tr> <tr> <td>Glass, metal and other inert waste</td><td>0</td></tr> </tbody> </table>	Waste classification	DOC _j (% wet waste)	Wood and wood product	43	Pulp, paper and cardboard (other than sludge)	40	Food, food waste, beverage and tobacco (other than sludge)	15	Textiles	24	Gardens, yard and park was	20	Glass, metal and other inert waste	0
Waste classification	DOC _j (% wet waste)														
Wood and wood product	43														
Pulp, paper and cardboard (other than sludge)	40														
Food, food waste, beverage and tobacco (other than sludge)	15														
Textiles	24														
Gardens, yard and park was	20														
Glass, metal and other inert waste	0														
Justification of choice of data or description of measurement methods and procedures applied	Using IPCC 2006 Guidelines default value														
Purpose of Data	Calculation of baseline emissions														
Comments	-														
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "IPCC 2006 Guidelines for National Greenhouse Gas Inventories(adapted from Volume 5, Tables 2.4 and 2.5)" and confirmed to be correct.														

Data / Parameter k_j

Data unit	1/yr					
Description	Decay rate for the waste type j					
Source of data	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Table 3.3)					
Value applied	Apply the following default values for the different waste types j:					
	Waste type j		Boreal and Temperate(MAT≤20℃)		Tropical (MAT>20℃)	
			Dry (MAP/PET<1)	Wet (MAP/PET >1)	Dry (MAP <1000 mm)	Wet (MAP >1000m m)
	Slowly degrading	Pulp, paper, cardboard (other than sludge), textiles	0.04	0.06	0.045	0.07
		Wood, wood products and straw	0.02	0.03	0.025	0.035
	Moderately degrading	Other (non-food) organic putrescible garden and park waste	0.05	0.10	0.065	0.17
	Rapidly degrading	Food, food waste, sewage sludge, beverages and tobacco	0.06	0.185	0.085	0.40
	Note: MAT – mean annual temperature, MAP – Mean annual precipitation, PET – potential evapotranspiration. MAP/PET is the ratio between the mean annual precipitation and the potential evapotranspiration.					
Justification of choice of data or description of	The average temperature of Guangzhou city is 23℃. The annual mean precipitation is 1,722mm ² , thus, the climate is classed as: Tropical (MAT>20℃), Wet (MAP >1000mm), and the value of k _j for					

measurement methods and procedures applied	this climate is applied for the project.
Purpose of Data	Calculation of baseline emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Table 3.3)" and confirmed to be correct.

Data / Parameter	$EF_{grid,OM,y}$
Data unit	t CO ₂ /MWh
Description	Operating margin CO ₂ emission factor in year y
Source of data	"2019 Baseline Emission Factors for Regional Power Grids in China" published by DNA of China
Value applied	0.8042
Justification of choice of data or description of measurement methods and procedures applied	Official and authoritative statistic data.
Purpose of Data	Calculation of baseline emissions and project emissions
Comments	$EF_{grid, OM,y}$ is fixed in the crediting period.
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "'2019 Baseline Emission Factors for Regional Power Grids in China" published by DNA of China" and confirmed to be correct.

Data / Parameter	$EF_{grid,BM,y}$
Data unit	t CO ₂ /MWh

Description	Build margin CO ₂ emission factor in year y
Source of data	“2019 Baseline Emission Factors for Regional Power Grids in China” published by DNA of China
Value applied	0.2135
Justification of choice of data or description of measurement methods and procedures applied	Official and authoritative statistic data.
Purpose of Data	Calculation of baseline emissions and project emissions
Comments	$EF_{grid,BM,y}$ is fixed in the crediting period.
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against “2019 Baseline Emission Factors for Regional Power Grids in China” published by DNA of China” and confirmed to be correct.

Data / Parameter	$EF_{grid,CM,y}$
Data unit	t CO ₂ /MWh
Description	Combined margin emission factor for the grid in year y
Source of data	Calculated based on “Tool to calculate the emission factor for an electricity system”
Value applied	0.50885
Justification of choice of data or description of measurement methods and procedures applied	$EF_{grid,CM,y}$ is calculated based on $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ as per the latest version of “Tool to calculate the emission factor for an electricity system” (version 07.0).
Purpose of Data	Calculation of baseline emissions and project emissions
Comments	For the project, the weight ω_{OM} and ω_{BM} are both 0.5 by default for the fixed crediting period. Thus, $EF_{grid,CM,y} = 0.8042 \text{ tCO}_2/\text{MWh} * 0.5 + 0.2135 \text{ tCO}_2/\text{MWh} * 0.5 = 0.50885 \text{ tCO}_2/\text{MWh}$.

	The $EF_{grid,CM,y}$ is fixed during the crediting period.
Is the default values used in the monitoring report appropriate ?	Yes. The value and calculation has been checked against "Tool to calculate the emission factor for an electricity system(version 07.0)" and confirmed to be correct.

Data / Parameter	$EF_{CH4,default}$
Data unit	t CH ₄ leaked / t CH ₄ produced
Description	Default emission factor for the fraction of CH ₄ produced that leaks from the anaerobic digester
Source of data	IPCC (2006), Flesch et al. (2011) and Kurup (2003)
Value applied	0.028
Justification of choice of data or description of measurement methods and procedures applied	The digester with steel and gas tank and monolithic construction are installed by the project proponent
Purpose of Data	Calculation of project emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "IPCC (2006), Flesch et al. (2011) and Kurup (2003)" and confirmed to be correct.

Data / Parameter	$f_{CH4,default}$
Data unit	m ³ CH ₄ / m ³ biogas corrected to reference conditions
Description	Default value for the fraction of methane in the biogas
Source of data	The default value was derived based on reported values from

	registered projects and research papers (Davidsson, 2007)
Value applied	0.6
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of Data	Calculation of project emissions
Comments	Use this value for Option 2 of the step "Determination of the quantity of methane produced in the digester"
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against the reported values from registered projects and research papers (Davidsson, 2007) and confirmed to be correct.

Data / Parameter	R_u
Data unit	Pa.m ³ /kmol.K
Description	Universal ideal gases constant
Source of data	"Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)
Value applied	8,314
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of Data	Calculation of baseline and project emissions
Comments	-
Is the default	Yes. The value has been checked against "Tool to determine the

values used in the monitoring report appropriate ?	mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)" and confirmed to be correct.
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Data / Parameter	MM _i
Data unit	kg/kmol
Description	Molecular mass of greenhouse gas CH ₄
Source of data	"Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)
Value applied	16.04
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of Data	Calculation of baseline and project emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "'Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)" and confirmed to be correct.

Data / Parameter	P _n
Data unit	Pa
Description	Total pressure at normal conditions
Source of data	"Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)
Value applied	101,325 Pa
Justification of choice of data or description of	-

measurement methods and procedures applied	
Purpose of Data	Calculation of baseline and project emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against ""Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)" and confirmed to be correct.

Data / Parameter	T_n
Data unit	K
Description	Temperature at normal conditions
Source of data	"Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)
Value applied	273.15
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of Data	Calculation of baseline and project emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against ""Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)" and confirmed to be correct.

Data / Parameter	$\rho_{i,n}$ & $\rho_{RG,n}$
Data unit	Kg gas i/m ³ gas I, i=RG=CH ₄

Description	Density of greenhouse gas CH ₄ in the gaseous stream at normal conditions
Source of data	Calculated in the section 4 of joint PD&MR as per the latest version of "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)
Value applied	0.71566
Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of Data	Calculation of baseline emissions
Comments	Applicable to Option A, $\rho_{i,n} = \rho_{RG,n} = 101,325\text{Pa} \times 16.04\text{kg/kmol} / (8314\text{Pa} \cdot \text{m}^3/\text{kmol} \cdot \text{K} \times 273.15\text{K}) = 0.71566 \text{ kg gas } i/\text{m}^3 \text{ gas } i$
Is the default values used in the monitoring report appropriate ?	Yes. The value and counting process have been checked against "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 03.0)" and confirmed to be correct.

Data / Parameter	TDL _{j,y} and TDL _{k,y}
Data unit	-
Description	Average technical transmission and distribution losses for providing electricity to source j or k in year y
Source of data	Methodological tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" (version 03.0)
Value applied	TDL _{j,y} : 3% TDL _{k,y} : 3%
Justification of choice of data or description of measurement methods and	According to the tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" (version 03.0), the project belongs to the case of Scenario A, use as default values of 3% for project emission since electricity consumption by all project electricity consumption

procedures applied	sources is smaller than the electricity consumption of all baseline electricity consumption sources, and 3% for baseline emissions.
Purpose of Data	Calculation of baseline and project emissions
Comments	-
Is the default values used in the monitoring report appropriate ?	Yes. The value has been checked against "Methodological tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" (version 03.0)" and confirmed to be correct.

Data / Parameter	$RATE_{compliance,t,y}$
Data unit	Fraction
Description	Rate of compliance with a regulatory requirement to implement the alternative waste treatment t implemented in the project activity
Source of data	Ministry of Ecological Environment ³
Value applied	0
Justification of choice of data or description of measurement methods and procedures applied	There is no regulatory requirement that mandates the use of anaerobic digestion to treat fresh waste according to the most recent information available from website of Ministry of Ecological Environment. Thus, $RATE_{compliance,t,y} = 0$.
Purpose of data	Calculation of baseline emissions
Comments	Calculated based on the number of instances of compliance identified at the time of the investment decision and updated once for every subsequent crediting period
Is the default values used in the monitoring report appropriate ?	Yes. The website of Ministry of Ecological Environment has been checked and confirmed that " There is no regulatory requirement that mandates the use of anaerobic digestion to treat fresh waste according to the most recent information available". Thus, $RATE_{compliance,t,y} = 0$ is correct.

4.4.2 Parameters monitored ex post

³ <http://www.mee.gov.cn/>

The verification team has assessed the implementation of monitoring system by the project owner against the registered monitoring plan. A short summary on the verification of every parameter listed in the monitoring plan and used for emission reduction calculation is provided below:

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	fy 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
Data Unit	-
Description of measurement methods and procedures applied	According to the ACM0022 (Version 03.0), if the requirement does not specify any amount or percentage of LFG that should be destroyed but require the installation of a system to capture and flare the LFG, then it is assumed $fy = 0.2$. According to “2021-2025 Five-Year Plan for the Development of Urban Domestic Waste Sorting and Treatment Facilities” (2021)⁴. local government should strengthen supervision over the operation of existing landfills and continuously optimize the operation and management model and just recommend installing the landfill gas collection and utilization system. In China, although most landfills in China are not required to equipped with gas collection devices, the scenario M2 is more conservative option to M3. then it is assumed $fy = 0.2$.
Measuring frequency:	Annually
Reporting frequency:	Annually
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes

⁴ <https://www.ndrc.gov.cn/xxgk/zcfb/tz/202105/P020210513624038179527.pdf>

Type of monitoring equipment:	-
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	-
Calibration frequency /interval:	-
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	-
Company performing the calibration:	-
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	-
Is(are) calibration(s) valid for the whole reporting period?	-
If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	-
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request	Not applicable.

for deviation been approved?

Monitoring Parameter Requirement	Assessment/ Observation by the VVB										
Data / Parameter: (as in the monitoring plan of PD):	W _x Total amount of waste disposed in a SWDS in year x										
Data Unit	t										
Description of measurement methods and procedures applied	Measure on wet basis										
Measuring frequency:	Continuously, aggregated at least annually for year x										
Reporting frequency:	Recording monthly, aggregated annually										
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes										
Type of monitoring equipment:	Weighbridges install at the gate of the project site. There are four weighbridges install at the gate of the project site, but in this monitoring period, just one weighbridge was applied to monitor the amount of waste disposed by the project. The other three weighbridges were used as backup and were also calibrated regularly. The three backup weighbridges were not used in this monitoring period according to the actual production needs. The weighbridge information used for monitoring the amount of waste disposed by the project is as follows: <table border="1"> <tr> <td>Monitoring equipment</td><td>Weighbridge</td></tr> <tr> <td>Type</td><td>SCS-50</td></tr> <tr> <td>Serial No</td><td>22050414BD</td></tr> <tr> <td>Accuracy</td><td>III</td></tr> <tr> <td>Calibration date</td><td>02-February-2021,30-January-2022</td></tr> </table>	Monitoring equipment	Weighbridge	Type	SCS-50	Serial No	22050414BD	Accuracy	III	Calibration date	02-February-2021,30-January-2022
Monitoring equipment	Weighbridge										
Type	SCS-50										
Serial No	22050414BD										
Accuracy	III										
Calibration date	02-February-2021,30-January-2022										

	Validity date	01-February-2022,29-January-2023
	The information of three backup weighbridges are as follows:	
	Monitoring equipment	Weighbridge (Backup 1, 2, 3)
	Type	SCS-50
	Serial No	22050413BD、22050415BD、22050416BD
	Accuracy	III
	Calibration date	02-February-2021 30-January-2022
	Validity date	01-February-2022 29-January-2023
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Accuracy level of monitoring meters is same as described in the registered joint PD&MR /03/. For details see Section 4.1.	
Calibration frequency /interval:	Annually.	
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes.	
Company performing the calibration:	Yes. See Table 4-3	
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.	
Is(are) calibration(s) valid for the whole reporting period?	Yes. For details see Table 4-3	
If applicable, has the reported data been cross-checked with other	N/A	

available data?	
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The project proponent will monitor the weight of the MSW regularly. The weighbridge will be calibrated annually.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	P _{n,j,x} Weight fraction of the waste type j in the sample n collected during the year x
Data Unit	-
Description of measurement methods and procedures applied	Sample the waste composition, using the waste types j, as provided in the table for DOC _j and k _j , and weigh each waste fraction (measure on wet basis)
Measuring frequency:	Minimum of three samples every three months
Reporting frequency:	Minimum of three samples every three months
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	-

Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	-
Calibration frequency /interval:	-
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	-
Company performing the calibration:	-
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	-
Is(are) calibration(s) valid for the whole reporting period?	-
If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	-.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	Zx Number of samples collected during the year x
Data Unit	-
Description of measurement methods and procedures applied	Minimum of three samples every three months
Measuring frequency:	Continuously, aggregated annually
Reporting frequency:	Continuously, aggregated annually
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	-
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	-
Calibration frequency /interval:	-
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	-
Company performing the calibration:	-
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	-
Is(are) calibration(s) valid for the whole reporting period?	-

If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The sample size and sampling technique must ensure the sample is representative. The samples will be measured by the project owner as per relevant standard.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	$EC_{BL,k,y}$ Quantity of electricity that would be consumed by the baseline electricity consumption source k in year y
Data Unit	MWh
Description of measurement methods and procedures applied	Electricity meter(s) and monthly recorded. All electronic data and paper documents will be archived for two years following the end of the crediting period. In this monitoring period, the electricity is monitored continuously by electricity meter and the recorded at 24:00 on the last day of every month by remote reading system.
Measuring frequency:	Monitoring continuously

Reporting frequency:	Recording monthly																		
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes																		
Type of monitoring equipment:	bidirectional electricity meters M1(main meter) and M2 (backup meter) with accuracy of 0.5S installed in the high voltage switch room of the project site. <table border="1"> <thead> <tr> <th>Monitoring equipment</th><th colspan="2">Electricity meter</th></tr> </thead> <tbody> <tr> <td>Type</td><td>DSSD71</td><td>DSSD71</td></tr> <tr> <td>Serial No</td><td>001800010302</td><td>001800010306</td></tr> <tr> <td>Accuracy</td><td>0.5S</td><td>0.5S</td></tr> <tr> <td>Calibration date</td><td>02-February-2021 29-January-2022</td><td>02-February-2021 29-January-2022</td></tr> <tr> <td>Validity date</td><td>01-February-2022 28-January-2023</td><td>01-February-2022 28-January-2023</td></tr> </tbody> </table>	Monitoring equipment	Electricity meter		Type	DSSD71	DSSD71	Serial No	001800010302	001800010306	Accuracy	0.5S	0.5S	Calibration date	02-February-2021 29-January-2022	02-February-2021 29-January-2022	Validity date	01-February-2022 28-January-2023	01-February-2022 28-January-2023
Monitoring equipment	Electricity meter																		
Type	DSSD71	DSSD71																	
Serial No	001800010302	001800010306																	
Accuracy	0.5S	0.5S																	
Calibration date	02-February-2021 29-January-2022	02-February-2021 29-January-2022																	
Validity date	01-February-2022 28-January-2023	01-February-2022 28-January-2023																	
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Accuracy level of monitoring meters is same as described in the registered joint PD&MR /03/. For details see Section 4.1.																		
Calibration frequency /interval:	annually																		
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes.																		
Company performing the calibration:	Yes. See Table 4-3																		
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.																		

Is(are) calibration(s) valid for the whole reporting period?	Yes. For details see Table 4-3
If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	ECPJ,j,y Quantity of electricity consumed by the project electricity consumption source j in year y
Data Unit	MWh
Description of measurement methods and procedures applied	Electricity meter(s) and monthly recorded. All electronic data and paper documents will be archived for two years following the end of the crediting period. In this monitoring period, the electricity is monitored continuously by electricity meter and the recorded at 24:00 on the last day of every month by remote reading system.
Measuring frequency:	Monitoring continuously

Reporting frequency:	Recording monthly																		
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes																		
Type of monitoring equipment:	bidirectional electricity meters M1(main meter) and M2 (backup meter) with accuracy of 0.5S installed in the high voltage switch room of the project site. <table><tr><td>Monitoring equipment</td><td colspan="2">Electricity meter</td></tr><tr><td>Type</td><td>DSSD71</td><td>DSSD71</td></tr><tr><td>Serial No</td><td>001800010302</td><td>001800010306</td></tr><tr><td>Accuracy</td><td>0.5S</td><td>0.5S</td></tr><tr><td>Calibration date</td><td>02-February-2021 29-January-2022</td><td>02-February-2021 29-January-2022</td></tr><tr><td>Validity date</td><td>01-February-2022 28-January-2023</td><td>01-February-2022 28-January-2023</td></tr></table>	Monitoring equipment	Electricity meter		Type	DSSD71	DSSD71	Serial No	001800010302	001800010306	Accuracy	0.5S	0.5S	Calibration date	02-February-2021 29-January-2022	02-February-2021 29-January-2022	Validity date	01-February-2022 28-January-2023	01-February-2022 28-January-2023
Monitoring equipment	Electricity meter																		
Type	DSSD71	DSSD71																	
Serial No	001800010302	001800010306																	
Accuracy	0.5S	0.5S																	
Calibration date	02-February-2021 29-January-2022	02-February-2021 29-January-2022																	
Validity date	01-February-2022 28-January-2023	01-February-2022 28-January-2023																	
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Accuracy level of monitoring meters is same as described in the registered joint PD&MR /03/. For details see Section 4.1.																		
Calibration frequency /interval:	annually																		
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes.																		
Company performing the calibration:	Yes. See Table 4-3																		
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.																		

Is(are) calibration(s) valid for the whole reporting period?	Yes. For details see Table 4-3
If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	$Q_{CH_4, y}$ Quantity of methane produced in the digester in year y
Data Unit	t CH ₄ /y
Description of measurement methods and procedures applied	-
Measuring frequency:	-
Reporting frequency:	-
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	-

Type of monitoring equipment:	-
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	-
Calibration frequency /interval:	-
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	-
Company performing the calibration:	-
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	-
Is(are) calibration(s) valid for the whole reporting period?	-
If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	-
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request	Not applicable.

for deviation been approved?

Monitoring Parameter Requirement	Assessment/ Observation by the VVB												
Data / Parameter: (as in the monitoring plan of PD):	$V_{t,db,n}$ Volumetric flow of the gaseous stream in time interval t on a dry basis at normal conditions												
Data Unit	m ³ dry gas/h												
Description of measurement methods and procedures applied	The parameters of $V_{t,db,n}$ is measured by a flow meter continuously, which will be converted automatically into standard value $V_{t,db,n}$ (at the normal condition of 0 °C and 101,325 Pa) by the recovery monitoring system												
Measuring frequency:	Monitoring continuously												
Reporting frequency:	Recording monthly												
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes												
Type of monitoring equipment:	Flow meter installed at inlet of the gas tank <table border="1"> <tr> <td>Monitoring equipment</td><td>Flow meter</td></tr> <tr> <td>Type</td><td>ZD7200MT5HEX</td></tr> <tr> <td>Serial No</td><td>2106L3546001</td></tr> <tr> <td>Accuracy</td><td>±1.5%</td></tr> <tr> <td>Calibration date</td><td>02-February-2020 29-January-2022</td></tr> <tr> <td>Validity date</td><td>01-February-2022 28-January-2024</td></tr> </table>	Monitoring equipment	Flow meter	Type	ZD7200MT5HEX	Serial No	2106L3546001	Accuracy	±1.5%	Calibration date	02-February-2020 29-January-2022	Validity date	01-February-2022 28-January-2024
Monitoring equipment	Flow meter												
Type	ZD7200MT5HEX												
Serial No	2106L3546001												
Accuracy	±1.5%												
Calibration date	02-February-2020 29-January-2022												
Validity date	01-February-2022 28-January-2024												
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of	Yes. Accuracy level of monitoring meters is same as described in the registered joint PD&MR /03/.												

the monitoring equipment, does the monitoring equipment represent good monitoring practise?	For details see Section 4.1.
Calibration frequency /interval:	Once every two years
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes.
Company performing the calibration:	Yes. See Table 4-3
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is(are) calibration(s) valid for the whole reporting period?	Yes. For details see Table 4-3
If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	$F_{CH_4, RG, m}$ Mass flow of methane in the residual gas in the minute m
Data Unit	t CH ₄
Description of measurement methods and procedures applied	-
Measuring frequency:	-
Reporting frequency:	-
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	-
Type of monitoring equipment:	-
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	-
Calibration frequency /interval:	-
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	-
Company performing the calibration:	-
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	-

Is(are) calibration(s) valid for the whole reporting period?	-
If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	-
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	$V_{RG,t,db}$ Volumetric flow of the residue gas in time interval t on a dry basis at normal conditions
Data Unit	m ³ dry gas/h
Description of measurement methods and procedures applied	The parameters of $V_{t,db,n}$ is measured by a flow meter continuously, which will be converted automatically into standard value $V_{t,db,n}$ (at the normal condition of 0 °C and 101,325 Pa) by the recovery monitoring system
Measuring frequency:	Monitoring continuously

Reporting frequency:	Recording monthly												
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes												
Type of monitoring equipment:	Flow meter installed at inlet of the flare <table border="1"> <tr> <td>Monitoring equipment</td><td>Flow meter</td></tr> <tr> <td>Type</td><td>JF63N2</td></tr> <tr> <td>Serial No</td><td>18101502</td></tr> <tr> <td>Accuracy</td><td>0.5</td></tr> <tr> <td>Calibration date</td><td>02-February-2020 29-January-2022</td></tr> <tr> <td>Validity date</td><td>01-February-2022 28-January-2024</td></tr> </table>	Monitoring equipment	Flow meter	Type	JF63N2	Serial No	18101502	Accuracy	0.5	Calibration date	02-February-2020 29-January-2022	Validity date	01-February-2022 28-January-2024
Monitoring equipment	Flow meter												
Type	JF63N2												
Serial No	18101502												
Accuracy	0.5												
Calibration date	02-February-2020 29-January-2022												
Validity date	01-February-2022 28-January-2024												
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Accuracy level of monitoring meters is same as described in the registered joint PD&MR /03/. For details see Section 4.1.												
Calibration frequency /interval:	once every two years												
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes.												
Company performing the calibration:	Yes. See Table 4-3												
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.												
Is(are) calibration(s) valid for the whole reporting period?	Yes. For details see Table 4-3												

If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	$v_{i,t,db} (v_{RG,t,db})$ Volumetric fraction of greenhouse gas CH ₄ in a time interval t on a dry basis
Data Unit	m ³ gas CH ₄ /m ³ dry gas
Description of measurement methods and procedures applied	Continuous gas analyzer operating on dry basis. Volumetric flow measurement should always refer to the actual pressure and temperature.
Measuring frequency:	Monitoring continuously
Reporting frequency:	Recording monthly
Is measuring and reporting	Yes

frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)													
Type of monitoring equipment:	gas analyzer installed at inlet of gas tank <table border="1"> <tr> <td>Monitoring equipment</td> <td>Gas analyzer</td> </tr> <tr> <td>Type</td> <td>UE50</td> </tr> <tr> <td>Serial No</td> <td>62387/2</td> </tr> <tr> <td>Accuracy</td> <td>±2.5%</td> </tr> <tr> <td>Calibration date</td> <td>01-January-2022</td> </tr> <tr> <td>Validity date</td> <td>31-December-2022</td> </tr> </table>	Monitoring equipment	Gas analyzer	Type	UE50	Serial No	62387/2	Accuracy	±2.5%	Calibration date	01-January-2022	Validity date	31-December-2022
Monitoring equipment	Gas analyzer												
Type	UE50												
Serial No	62387/2												
Accuracy	±2.5%												
Calibration date	01-January-2022												
Validity date	31-December-2022												
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Accuracy level of monitoring meters is same as described in the registered joint PD&MR /03/. For details see Section 4.1.												
Calibration frequency /interval:	annually												
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes.												
Company performing the calibration:	Yes. See Table 4-3												
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.												
Is(are) calibration(s) valid for the whole reporting period?	Yes. For details see Table 4-3												
If applicable, has the reported data been cross-checked with other available data?	N/A												
How were the values in the	The verification details have been reported in Section												

monitoring report verified?	4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in the monitoring plan of PD):	Operation hours (to calculate $Q_{CH_4,y}$) Operation hours (to calculate $F_{CH_4,RG,m}$) The total operation hours of the project (to calculate $Q_{CH_4,y}$) The total operation hours of the flare (to calculate $F_{CH_4,RG,m}$)
Data Unit	Hours
Description of measurement methods and procedures applied	-
Measuring frequency:	Monitoring continuously
Reporting frequency:	Recording monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring	Yes

methodology? (Yes / No)	
Type of monitoring equipment:	-
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	-
Calibration frequency /interval:	-
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	-
Company performing the calibration:	-
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	-
Is(are) calibration(s) valid for the whole reporting period?	-
If applicable, has the reported data been cross-checked with other available data?	N/A
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	-
In case only partial data are	Not applicable.

available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?

The parameters required by the monitoring plan and the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) that CCSC has verified in the monitoring report are described below:

■ **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 (fy)**

By checking public information, it is confirmed that in China (also in Guangdong Province where the project is located), the requirement does not specify any amount or percentage of LFG that should be destroyed but require the installation of a system to capture and flare the LFG.

As per "Technical code for municipal solid waste sanitary landfill" (CJJ17-2004) /43/, landfills are required to be equipped with effective landfill gas from a safety perspective and shall take the initiative to adopt flaring treatment method. However, due to financial and/or technical difficulties, these regulations have not been widely implemented in China. As per the Development Overview of China's Urban Domestic Waste Treatment Industry in 2014 , by the end of 2013, China had a total of 942 waste landfills, but only about 50 of them collected and utilized landfill gas or burned it by torch. As per published Article "Gas generation and collection and utilization in landfill" in 2015, most landfills in China are not equipped with gas collection devices, and the technology level is low, thus a large amount of gas is discharged in disorder.

For conservativeness, fy is determined as 0.2 as per ACM0022.

■ **Total amount of waste disposed in a SWDS in year x (Wx)**

This parameter was monitored by weightbridge during this monitoring period. Through site visit, it is confirmed that the weightbridge was installed at the project site. By checking Summary Table of quantity and fraction of treated fresh waste /18/, it is confirmed that the readings of weight bridge was continuously monitored and aggregated monthly. Therefore, the assessment team confirmed that the monitoring of this parameter is in compliance with the monitoring plan and the methodology.

W_x was sourced from Summary Table of quantity and fraction of treated fresh waste /18/covering this monitoring period. By checking the same, the assessment team confirmed that total amount of waste disposed in a SWDS in year X in this monitoring period were:

Year	Value (t)
01-January-2022 to 31-December-2022	673,264.78

■ Weight fraction of the waste type j in the sample n collected during the year x ($P_{n,j,x}$)

Weight fraction of the waste was sampled and measured by the project owner during this monitoring period. Each waste fraction was measured on wet basis as per relevant standard. The assessment team confirmed that the monitoring of this parameter is in compliance with the monitoring plan and the methodology.

$P_{n,j,x}$ was sourced from Summary Table of quantity and fraction of treated fresh waste /18/ covering this monitoring period. By checking the same, the assessment team confirmed that Weight fraction of the waste type j in the sample n collected during this monitoring period were:

Year	2022
Food	77.90%
Paper	6.04%
Garden and park waste	0.00%
Wood	0.00%
Others (Glass, plastic, metal, etc)	12.90%
Textile	3.16%

■ Number of samples collected during the year x (Z_x)

The number of samples were monitored continuously and aggregated monthly during this monitoring period. Minimum three samples of waste were weighed every three months. Therefore, the assessment team confirmed that the monitoring of this parameter is in compliance with the monitoring plan and the methodology.

Z_x was sourced from Summary Table of quantity and fraction of treated fresh waste /18/ covering this monitoring period. By checking the same, the assessment team confirmed that number of samples collected during this monitoring period were:

year	Value
01-January-2022 to 31-December-2022	17

■ **Quantity of electricity that would be consumed by the baseline electricity consumption source k in year y ($EC_{BL,k,y}$)**

The parameter is equivalent to $EG_{t,y}$ in ACM0022, which means the net amount of electricity generated by the alternative waste treatment process t and exported to the grid or displacing fossil fuel fired captive energy plant in year y, and is equivalent to the electricity exported by the project activity.

The parameter will be continuously measured by two bidirectional electricity meters (main meter M1 and backup meter M2) and monthly recorded. The electricity meters were installed in the high voltage switch room of the project site with the accuracy of 0.5S. At 24:00 of the last day of each month, the staff from project owner will record the electricity meter readings and generate Statistic of production data covering this monitoring period /17/. At the same cut-off time, meter readings will be recorded remotely and digitally by local power grid company. Based on the recorded data, local power grid company will issue the ETNs /14/.

$EC_{BL,k,y}$ was sourced from Statistic of production data covering this monitoring period /17/ and ETNs of electricity exported by the project activity /14/ issued by the power grid company covering monitoring period. By checking the same, the assessment team confirmed that the amount of electricity exported by the project activity in this monitoring period were;

year	Value (MWh)
01-January-2022 to 31-December-2022	16,600

■ **Quantity of electricity consumed by the project electricity consumption source j in year y ($EC_{PJ,j,y}$)**

The parameter will be continuously measured by two bidirectional electricity meters (main meter M1 and backup meter M2) and monthly recorded. The electricity meters were installed in the high voltage switch room of the project site with the accuracy of 0.5S. At 24:00 of the last day of each month, the staff from project owner will record the electricity meter readings and generate Statistic of production data covering this monitoring period /66/. At the same cut-off time, meter readings will be recorded remotely and digitally by local power grid company. Based on the recorded data, local power grid company will issue the electricity invoices /15/.

EC_{BL,k,y} was sourced from Statistic of production data covering this monitoring period /17/ and electricity invoices of electricity consumed by the project electricity /15/ issued by the power grid company covering monitoring period. By checking the same, the assessment team confirmed that the amount of electricity exported by the project activity in this monitoring period were:

year	Value (MWh)
01-January-2022 to 31-December-2022	3,439.4

■ Quantity of methane produced in the digester in year y (Q_{CH₄,y})

The parameter is calculated as:

$$Q_{CH_4,y} = \frac{V_{t,db} \times v_{i,t,db} \times \rho_{i,n} \times h}{1000}$$

The monitoring of parameters V_{t,db,n}, v_{i,t,db} and operation hours are justified below. The parameter ρ_{i,n} is ex ante determined as 0.71566 tCH₄/m³CH₄ at normal condition. V_{t,db,n}, v_{i,t,db} and operation hours are sourced from Statistic of production data covering this monitoring period /17/, by checking the same, it is confirmed Quantity of methane produced in the digester of this monitoring period is calculated to be:

year	Value (t CH ₄ /y)
01-January-2022 to 31-December-2022	9,804

■ Volumetric flow of the gaseous stream in time interval t on a dry basis at normal conditions (V_{t,db,n})

The volumetric flow of methane in the gaseous stream was measured by a continuous flow meter with temperature sensor and pressure sensor installed at the inlet of the gas tank. By checking recovery monitoring system Display Screen during site visit, the assessment team confirmed that the readings of the flow meter with temperature sensor and pressure sensor was continuously monitored and recorded automatically by Online Recovery Monitoring System through recordable electronic signal and was recorded manually by PP monthly. By checking Monitor System Display Screen during site visit, the assessment team confirmed that the parameter $V_{t,db}$ have been converted automatically into normal condition (0°C and $101,325\text{Pa}$) during the monitoring process.

$V_{t,db,n}$ was sourced from Statistic of production data covering this monitoring period /17/, by checking the same, it is confirmed the hourly average volumetric flow of the gaseous stream on a dry basis at normal conditions of this monitoring period was:

Period	Value(m^3 dry gas/h)
01-January-2022 to 31-January-2022	2,029
01-February-2022 to 28-February-2022	2,689
01-March-2022 to 31-March-2022	3,209
01-April-2022 to 30-April-2022	2,359
01-May-2022 to 31-May-2022	2,474
01-June-2022 to 30-June-2022	2,562
01-July-2022 to 31-July-2022	2,823
01-August-2022 to 31-August-2022	3,062
01-September-2022 to 30-September-2022	3,193
01-October-2022 to 31-October-2022	3,199
01-November-2022 to 30-November-2022	2,180
01-December-2022 to 31-December-2022	2,028

- **Mass flow of greenhouse gas i in the in the residual gaseous stream in time interval t ($F_{\text{CH}_4,\text{RG},m}$)**

The parameter is calculated as:

$$F_{CH_4, RG, m} = V_{RG, t, db} \times v_{RG, t, db} \times \rho_{RG, n} \times \frac{h}{1000}$$

The monitoring of parameters $V_{RG, t, db}$, $v_{RG, t, db}$ and operation hours are justified below. The parameter $\rho_{RG, n}$ is the same as $\rho_{i, n}$ and ex ante determined as 0.71566 tCH₄/m³CH₄ at normal condition. $V_{RG, t, db}$, $v_{RG, t, db}$ and operation hours are sourced from Statistic of production data covering this monitoring period /17/, by checking the same, it is confirmed mass flow of greenhouse gas i in the in the residual gaseous stream in time interval t of this monitoring period is calculated to be:

year	Value (t CH ₄)
01-January-2022 to 31-December-2022	2,072

■ **Volumetric flow of the gaseous stream (residue gas) in time interval t on a dry basis at normal conditions ($V_{RG, t, db}$)**

The volumetric flow of methane in the gaseous stream (residue gas) was measured by a continuous flow meter with temperature sensor and pressure sensor installed at the inlet of the flare. By checking recovery monitoring system Display Screen /65/ during site visit, the assessment team confirmed that the readings of the flow meter with temperature sensor and pressure sensor was continuously monitored and recorded automatically by Online Recovery Monitoring System through recordable electronic signal and was recorded manually by PP monthly. By checking Monitor System Display Screen during site visit, the assessment team confirmed that the parameter $V_{RG, t, db}$ have been converted automatically into normal condition (0°C and 101,325Pa) during the monitoring process.

Period	Value(m ³ dry gas/h)
01-January-2022 to 31-January-2022	2,450
01-February-2022 to 28-February-2022	2,629
01-March-2022 to 31-March-2022	3,072
01-April-2022 to 30-April-2022	1,777
01-May-2022 to 31-May-2022	2,346
01-June-2022 to 30-June-2022	2,164
01-July-2022 to 31-July-2022	2,392

01-August-2022 to 31-August-2022	3,423
01-September-2022 to 30-September-2022	1,810
01-October-2022 to 31-October-2022	1,466
01-November-2022 to 30-November-2022	2,681
01-December-2022 to 31-December-2022	2,746

■ **Volumetric fraction of greenhouse gas CH₄ in a time interval t on a dry basis ($v_{i,t,db} / v_{RG,t,db}$)**

The volumetric fraction of methane in the gaseous stream was measured by gas analyzer which is installed at the inlet of gas tank. By checking Recovery Monitor System Display Screen during site visit, the assessment team confirmed that the readings of the gas analyzer were continuously monitored and automatically recorded by Online Recovery Monitoring System through recordable electronic signal and was manually recorded monthly by PP.

$v_{i,t,db} / v_{RG,t,db}$ was sourced from Statistic of production data covering this monitoring period /17/, by checking the same, it is confirmed the monthly average volumetric fraction of greenhouse gas CH₄ during this monitoring period were:

Period	Value (m ³ gas CH ₄ /m ³ dry gas)
01-January-2022 to 31-January-2022	61.3%
01-February-2022 to 28-February-2022	61.4%
01-March-2022 to 31-March-2022	60.5%
01-April-2022 to 30-April-2022	60.2%
01-May-2022 to 31-May-2022	59.5%
01-June-2022 to 30-June-2022	59.4%
01-July-2022 to 31-July-2022	59.2%
01-August-2022 to 31-August-2022	58.9%
01-September-2022 to 30-September-2022	61.5%
01-October-2022 to 31-October-2022	61.5%
01-November-2022 to 30-November-2022	59.9%
01-December-2022 to 31-December-2022	61.4%

■ **Operation hours (to calculate $Q_{CH_4,y}$) / Operation hours (to calculate $F_{CH_4,RG,m}$)**

The project activity was in normal operational condition during this monitoring period, while the operation hours of generators were monitored by the project owner.

By checking Statistic of production data covering this monitoring period /17/ issued by the project owner, the assessment team confirmed the operational hours of generators in this monitoring period were:

Year	Operation hours (to calculate $Q_{CH_4,y}$)	Operation hours (to calculate $F_{CH_4,RG,m}$)
01-January-2022 to 31-December-2022	8,552	1,875

CCSC 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 assessment 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 /20/ 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 is listed in Table 4-3 above.

The weighbridge was calibrated by a qualified third party, Guangzhou Institute of Measurement and Testing Technology. Calibration records and accreditation certificates /19/ have been verified by the assessment team. All calibration gases have been certified and were under their validity period. In the monitoring plan of the joint PD&MR, it stated that the weighbridge will be calibrated and checked for accuracy. By checking the calibration reports, CCSC found the calibration frequency of the weighbridge is annual, which is in line with the monitoring plan of the joint PD&MR and the calibrations of meters are verified to be valid for the whole reporting period. In addition, through on-site inspection of weighbridges and interviews with the relevant personnels, CCSC confirmed that four weighbridges were installed at the gate of the project site, but only one weighbridge has been used according to the actual production needs in the monitoring period, the other three weighbridges were backup and were also calibrated regularly.

The electricity meters were calibrated by a qualified third party, South China National Centre of Metrology/Guangdong Institute of Metrology. Calibration records and accreditation certificates /19/ have been verified by the assessment team. The accuracy of meters complies with that in the monitoring plan. By checking the industrial metering configuration standard “Technical Administrative Code of Electric Energy Metering (DL/T 448-2016)”, CCSCI can confirm that the accuracy level of all meters meet the requirement stipulated in this standard. CCSC can thus confirm that the accuracy of the meters is in line with the monitoring plan and relevant industry standard. In the monitoring plan of the joint PD&MR, it stated that the meters will be calibrated and checked for accuracy. By checking the calibration reports, CCSC found the calibration frequency of these meters is annual, which is in line with the calibrating standard “Technical Administrative Code of Electric Energy Metering (DL/T 448-2016)”. Hence, CCSC can confirm that the meters’ calibration frequency is in line with the monitoring plan of the joint PD&MR and relevant industry standard, and the calibrations of meters are verified to be valid for the whole reporting period.

The flow meters were calibrated by a qualified third party, South China National Centre of Metrology/Guangdong Institute of Metrology. Calibration records and accreditation certificates /19/ have been verified by the assessment team. In the monitoring plan of the joint PD&MR, it stated that these monitoring instruments will be calibrated and checked for accuracy. By checking the calibration reports, CCSC found the calibration frequency of the flow meter is every two years which is in line with the monitoring plan of the joint PD&MR and the calibrations of these monitoring instruments are verified to be valid for the whole reporting period.

The gas analyzer was calibrated by a qualified third party, South China National Centre of Metrology Guangdong Institute of Metrology. Calibration records and accreditation certificates /19/ have been verified by the assessment team. All calibration gases have been certified and were under their validity period. In the monitoring plan of the joint PD&MR, it stated that the gas analyzer will be calibrated and checked for accuracy. By checking the calibration reports, CCSC found the calibration period of the gas analyzer is one year which is in line with the monitoring plan of the joint PD&MR and the calibrations of these monitoring instruments are verified to be valid for the whole reporting period.

Data management and control

The project owner 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 project management and monitoring manual /28/, including the organization structure with the responsibilities, personnel competencies, monitoring procedures and monitoring management. By interview with the staff and check records during on-site visit, it can be confirmed that the monitoring management system is implemented following the project management and monitoring manual, the internal verifiers appointed by PP is responsible to the internal check of the measurement, collection of relevant receipts, and the calculation of the emission reductions, in order to ensure that the project's emission reduction claims are credible and verifiable.

By interview with the staff and check training records and personnel qualification certificates/36/ during on-site visit, it can be confirmed that there is regular training for all staff of the specific VCS team department about monitoring, measuring, and internal verifying. After each regular training, all staff must be tested before working to assess staff understanding and mastery of the training content. Only staff who pass the test can officially take up their posts to ensure the team's professional level and work quality. Professional monitoring and operation personnels have professional certificates issued by the government.

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.

According to the VCS-MR /4/ of the project and the registered VCS-PD /3/, the quantity of net electricity generation, exported to and imported from the grid are both continuously monitored through the bidirectional electricity meters M1 and M2. The electricity meter readings will be record at 24:00 of the last day of each month, and generate Statistic of production data covering this monitoring period/17/. At the same cut-off time, meter readings will be recorded remotely and digitally by local power grid company. Based on the recorded data, local power grid company will issue the electricity invoices/14//15/. The verification team has cross-checked the data in the emission reductions calculation spreadsheet /02/ with the Statistic of production data/17/, the electricity invoices/14//15/ of the project from the grid company.

The volumetric flow of the biogas was monitored continuously by the flow meter installed at inlet of the gas tank on a dry basis at normal conditions, record and calculated the average value on a monthly basis. The volumetric flow of the remaining biogas was monitored continuously by the flow meter installed at inlet of the flare on a dry basis at normal conditions, record and calculated the average value on a monthly basis. The volumetric fraction of the CH₄ in biogas on a dry basis was monitored continuously by the gas analyzer installed at inlet of gas tank, and record monthly. The meter readings above have been aggregated in the statistic of production data/17/. The statistic of production data of the project have been verified during onsite assessment. The verification team has cross-checked the data in the emission reductions calculation spreadsheet /02/ with the Statistic of production data/17/.

The weight of the MSW disposed was monitored by the weighbridge continuously, recording monthly and annually, the meter readings have been aggregated in Summary Table of quantity and fraction of treated fresh waste/18/. The data have been verified during onsite assessment. The verification team has cross-checked the data in the emission reductions calculation spreadsheet /02/ with the Summary Table of quantity and fraction of treated fresh waste/18/.

It was confirmed that the values in emission reductions calculation spreadsheet /02/ was verified to be in line with the electricity invoices/14//15/, the statistic of production data/17/ and Summary Table of quantity and fraction of treated fresh waste/18/ during this period.

In conclusion, CCSC 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.

4.4.2 Assessment Data and Calculation

Baseline emissions

- Baseline emissions of methane from the SWDS (BE_{CH₄,y})

According to the methodology ACM0022 (version 03.0), baseline emissions are determined based on the section 4.1 of joint-PD&MR (Version 2.1). The BE_y is ex-post determined as the following equations:

$$BE_y = BE_{CH_4,y} + BE_{EC,y}$$

$$= \phi_y \times (1 - f_y) \times GWP_{CH_4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f,y} \times MCF_y \times \sum_{x=1}^y \sum_j (W_x \times \frac{\sum_{n=1}^{Z_x} P_{n,j,x}}{Z_x} \times DOC_j \times e^{-k_j \cdot (y-x)} \times (1 - e^{-k_j}) + \sum_k EC_{BL,k,y} \times EF_{EL,k,y} \times (1 + TDL_{k,y})) \quad (1)$$

By checking data sources listed in section 4.4.2 of this report, the ER calculation spreadsheet) /02/ and based on equations, parameters justified above, the fixed value ($\phi_y \times (1 - f_y) \times GWP_{CH_4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f,y} \times MCF_y$) is calculated as 5.712.

$\sum_{x=1}^y \sum_j (W_x \times \frac{\sum_{n=1}^{Z_x} P_{n,j,x}}{Z_x} \times DOC_j \times e^{-k_j \cdot (y-x)} \times (1 - e^{-k_j}))$ is calculated based on the monitored data and parameters, which is ex-post calculated value during this monitoring period as the follows.

Table 4-4 The ex-post calculation of $\sum_{x=1}^y \sum_j (W_x \times \frac{\sum_{n=1}^{Z_x} P_{n,j,x}}{Z_x} \times DOC_j \times e^{-k_j \cdot (y-x)} \times (1 - e^{-k_j}))$

Period (y=3)	x	Food (t)	Paper (t)	Garden and park waste (t)	Wood (t)	Others (t)	Textile (t)	Total
01-January-2022 to 31-December-2022	1	8,323.80	712.44	0	0	0	225.98	9,262.23
	2	16,868.32	971.38	0	0	0	357.22	18,196.91
	3	25,936.25	1,099.69	0	0	0	345.20	27,381.14

By checking data sources listed in section 4.4.2 of this report and based on equations, parameters justified above, the assessment team confirmed the value of BE_{CH₄,y} of this monitoring period were as follows:

Table 4-5 The ex-post calculation of BE_{CH₄,y}

Period	x	BE _{CH₄,y} (t CO ₂ e)
01-January-2022 to 31-December-2022	1	52,905.85
	2	103,940.73

	3	156,401.05
Total	-	313,247

➤ Baseline emissions associated with electricity generation ($BE_{EN,t,y}$)

By checking data sources listed in section 4.4.1 of this report and based on equations, parameters justified above, the assessment team confirmed the value of $BE_{EN,t,y}$ of this monitoring period were as follows:

Table 4-6 The calculation of $BE_{EN,t,y}$ ($BE_{EC,y}$)

Period	$EC_{BL,k,y}$ (MWh)	$EF_{EL,k,y}$ (tCO ₂ /MWh)	$TDL_{k,y}$	$BE_{EN,t,y}$ ($BE_{EC,y}$) (t CO ₂ e)
01-January-2022 to 31-December-2022	16,600	0.50885	3%	8,700
Total	16,600	-	-	8,700

Therefore, baseline emission of this project activity during this monitoring period is calculated as:

Table 4-7 The ex-post calculation of BE_y

Period	$BE_{EN,t,y}$ ($BE_{EC,y}$) (t CO ₂ e)	$BE_{CH_4,y}$ (t CO ₂ e)	BE_y (t CO ₂ e)
01-January-2022 to 31-December-2022	8,700	313,247	321,947
Total	8,700	313,247	321,947

Project emissions

According to the methodology ACM0022 (version 03.0), project emissions (PE_y) are determined based on the section 4.2 of joint-PD&MR (Version 2.1). The PE_y is ex-post determined as the following equations:

$$PE_y = PE_{AD,y} = PE_{EC,y} + PE_{CH_4,y} + PE_{flare,y} \quad (2)$$

$$PE_{EC,y} = \sum_j EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y}) \quad (3)$$

$$PE_{CH_4,y} = Q_{CH_4,y} \times EF_{CH_4,default} \times GWP_{CH_4} = \frac{V_{t,db} \times v_{i,t,db} \times \rho_{i,n} \times h}{1000} \times EF_{CH_4,default} \times GWP_{CH_4} \quad (4)$$

$$PE_{flare,y} = GWP_{CH_4} \times \sum_{m=1}^{525600} F_{CH_4,RG,m} \times (1 - \eta_{flare,m}) \times 10^{-3}$$

$$= GWP_{CH_4} \times V_{t,db} \times v_{RG,t,db} \times \rho_{RG,n} \times h \times (1 - \eta_{flare,m}) \times 10^{-3} \quad (5)$$

By checking data sources listed in the ER calculation spreadsheet, section 4.4.2 of this report and based on equations, parameters above, the assessment team confirmed the value of $PE_{EC,y}$ of this monitoring period were as follows:

Table 4-8 The calculation of $PE_{EC,y}$

Period	$EC_{PJ,j,y}$ (MWh)	$EF_{EL,j,y} = EF_{grid,CM,y}$ (tCO ₂ /MWh)	$TDL_{j,y}$	$PE_{EC,y}$ (t CO _{2e})
01-January-2022 to 31-December-2022	3,439.4	0.50885	3%	1,803
Total	3,439.4	-	-	1,803

Based on the monitored data and parameters above, $PE_{flare,y}$ and $PE_{CH_4,y}$ are ex-post calculated value during this monitoring period as the follows. $Q_{CH_4,y}$ and $F_{CH_4,RG,m}$ is shown on the monitored parameters in section 4.4.2.

Table 4-9 The calculation of $PE_{CH_4,y}$

Period	$Q_{CH_4,y}$ (t CH ₄)	$EF_{CH_4,default}$ (t CH ₄ leaked / t CH ₄ produced)	GWP_{CH_4} (tCO ₂ /tCH ₄)	$PE_{CH_4,y}$ (t CO _{2e})
01-January-2022 to 31-December-2022	9,804	0.028	28	7,687
Total	9,804	-	-	7,687

Table 4-10 The calculation of $PE_{flare,y}$

Period	$F_{CH_4,RG,m}$ (t CH ₄)	$\eta_{flare,m}$ (%)	GWP_{CH_4} (tCO ₂ /tCH ₄)	$PE_{flare,y}$ (t CO _{2e})
01-January-2022 to 31-December-2022	2,072	90	28	6
Total	2,072	-	-	6

Therefore, during this monitoring period from 01-January-2022 to 31-December-2022, PE_y is ex post calculated value as the following table.

Table 4-11 The ex-post calculation of PE_y

Period	$PE_{EC,y}$ (t CO _{2e})	$PE_{flare,y}$ (t CO _{2e})	$PE_{CH_4,y}$ (t CO _{2e})	PE_y (t CO _{2e})
01-January-2022 to 31-December-2022	1,803	6	7,687	9,496

Total	1,803	6	7,687	9,496
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Thus, during this monitoring period from 01-January-2022 to 31-December-2022, the total project emission of the project is 9,496 tCO₂e.

Leakage

As per ACM0022 (Version 03.0), leakage emissions are associated with composting/co-composting, anaerobic digestion and the use of RDF/SB that is exported outside the project boundary. And the waste by-products of the project do not involve compost or co-compost and the use of RDF/SB outside the project boundary. Leakage emissions associated with anaerobic digestion of waste (LE_{AD,y}) are calculated according to “TOOL14: Project and leakage emissions from anaerobic digesters” (Version 02.0). According to the tool, the leakage emissions associated with the anaerobic digester (LE_{AD,y}) depend on how the digestate is managed. They include emissions associated with storage and composting of the digestate. Since the solid digestate is outward transported and incinerated directly in thermal power plant and not be stored under anaerobic conditions and the wastewater is treated aerobically by wastewater treatment plant nearby during this monitoring period, leakage emission is zero, LE_y =0. Therefore, no leakage effects are accounted in this project.

The verification team has confirmed that the emission reductions of the project have been conservatively calculated in line with Formula mentioned above in the emission reduction calculation spreadsheet/02/. The verification team has checked and confirmed that the emission reduction has be correctly accounted. The total calculated emission reduction in this monitoring period is as following: Verified GHG emission reductions and removals from 01-January-2022 to 31-December-2022 is shown below:

Table 4-12 Verified EG_{facility,y} during this monitoring period

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-January-2022 to 31-December-2022	321,947	9,496	0	312,451
Total	321,947	9,496	0	312,451

This monitoring period is from 01-January-2022 to 31-December-2022 (Both days included), with totally 365 days. Based on the annual estimated emission reductions, the amount of emission reductions for this monitoring period would be 324,942 tCO₂e. The

actual emission reductions in this monitoring period (365 days) are 312,451 tCO₂e, which is 3.84% lower than the estimation and at the normal fluctuation range. Thus, net GHG emission reduction during this monitoring period is considered to be reasonable.

Based on the above assessment, CCSC can conclude that the emission reduction during the monitoring period from 01-January-2022 to 31-December-2022 have been quantified correctly in accordance with the project description and applied methodology /11//21//22//23//24//25//26/, and the emission reduction during this monitoring period is verified as 312,451 tCO₂e. Compared with the estimated emission reductions under the same days from 01-January-2022 to 31-December-2022 in the registered VCS-joint PD&MR /03/, 324,942 tCO₂e, the verified emission reduction is 3.8% less than the estimated value. Through checking the registered PD and on-site interviewing with project implanter, CCSC confirms that the reason for this is the normal fluctuation range caused by generation efficiency, temperature, waste composition, etc.

CCSC is able to confirm that the actual emission reductions reported in this monitoring period are reasonable and appropriate. CCSC verified the input data for calculating emission reductions and the calculating process, and confirmed the result were complete and transparent. And CCSC is able to confirm that GHG emission reductions and removals have been quantified correctly in accordance with the monitoring plan and applied methodology for this verification period.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

As a result of verification of the ER calculation process, the verification team confirmed that all the parameters required for the determination of the emission reductions have been included in the MR /01/ and ER Calculation Spreadsheet /02/ of this monitoring period and are consistent with the applied methodology ACM0022: Alternative waste treatment processes Version 03.0 and the monitoring plan in the joint PD & MR/03/. The parameters are complete in this monitoring period.

After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the ER/02/ and MR/01/ of this monitoring period. The verification process for the same has been clearly described above in section 4 of the report.

The verification team confirmed that all measurements were performed by calibrated equipment, and the key data can be cross-checked via other sources, such as receipts and inventory data. No assumptions are used that have any material influence on reported emission reductions.

CCSC concludes that during this monitoring period, the evidences for determination of emission reductions are sufficient and reasonable, and the calculation of emission reductions is reliable.

4.6 Non-Permanence Risk Analysis

Not applicable since the project is not an AFOLU project.

5 VERIFICATION OPINION

CCSC has carried out the verification of the project “Guangzhou Eastern Solid Resource Recycling Center MSW Integrated Treatment Plant Project”. The verification was performed based on the requirements set by VCS Version 4.2 /06/, relevant UNFCCC requirements/07//08//09//10/ and ISO 14064-3: 2019, as well as criteria given to provide for consistent project operations, monitoring and reporting. This verification covers the period from 01-January-2022 to 31-December-2022 with both days included.

The review of the project documentation and the subsequent follow-up site visits and interviews have provided CCSC sufficient evidence to determine that the project conforms with the verification criteria for projects and their GHG emission reductions or removals set out in VCS Version 4.2/06/ and has been implemented in accordance with the registered VCS-joint PD&MR /03/.

In the course of the verification, 2 Clarification Requests (CL), 2 Corrective Action Request (CAR) was raised while no forward request (FAR) was proposed. Before the issuance of this version of report, the raised CLs and CARs were successfully closed. The verification is based on the baseline and monitoring methodology ACM0022_(v03.0)/11/, VCS-MR /01//04/, the VCS-joint PD&MR /03/, ER calculation spread sheet /02/ and other supporting documents available to CCSC. 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 achieved level of assurance for this verification is a reasonable level of assurance as per the requirements set out in the applied VCS Standard version 4.2.

As the result of the verification, CCSC confirms that:

- The project has been implemented and operated as per the registered VCS-joint PD&MR /03/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- The VCS-MR /04/ and other supporting documents provided are completely in accordance with the latest applicable version of the VCS Registration & Issuance Process /09/ and in accordance with the additional requirements stated by the VERRA;
- The actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the applied methodology ACM0022: Alternative waste treatment processes Version 03.0 /11/;
- The GHG emission reductions are calculated without material misstatements and in a conservative and appropriate manner.

Based on the evidence and information that are necessary to guarantee the appropriate GHG emission reductions calculation, CCSC confirms the following statement:

Verification period: From 01-January-2022 to 31-December-2022

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

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-January-2022 to 31-December-2022	321,947	9,496	0	312,451
Total	321,947	9,496	0	312,451

APPENDIX A: ABBREVIATIONS

CAR	Corrective Action Request
CCSC	China Classification Society Certification Co. Ltd.
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
AFOLU	Agriculture, Forestry, and Other Land Use
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
ETN	Electricity Transaction Note
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
MR	Monitoring Report
CSPG	China South Power Grid
PD	Project Description
PP	Project Proponent
PPA	Power Purchase Agreement
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVB	Validation/Verification Body
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit

APPENDIX B: REFERENCE

Documents provided by the project participant and relevant background documents have been reviewed or referenced for the periodic verification conclusions.

Ref no.	Reference Document
/1/	Climate Bridge (Shanghai) Ltd., VCS Monitoring report Version 1.0 dated 31-March-2023
/2/	Climate Bridge (Shanghai) Ltd., ER calculation spreadsheet Version 01 dated 31-March-2023, Version 2.0 dated 30-July-2024,
/3/	Climate Bridge (Shanghai) Ltd., The VCS-Joint PD&MR version 2.1 dated 14-July-2022
/4/	Climate Bridge (Shanghai) Ltd., VCS Monitoring report Version 1.1 dated 23-May-2023, Version 2.0 dated 24-June-2024
/5/	Shenzhen CTI International Certification Co., Ltd, the joint validation and verification report V01.0 dated 15-July-2022
/6/	VERRA, VCS Standard, version 4.4
/7/	VERRA, VCS Program Guide Version 4.3
/8/	VERRA, Monitoring Report Template Form Version 4.2
/9/	VERRA, Registration & Issuance Process Version 4.3
/10/	VERRA, verification-report-template Version 4.2
/11/	ACM0022 Alternative waste treatment processes (v03.0)
/12/	Business License of Guangzhou LEO-KING Environmental Technology Co., Ltd.
/13/	Power Purchase Agreement signed by both project owner and local grid company issued on 23-Dec.-2020.

/14/	Electricity invoices for electricity export issued by local power grid company covering the monitoring period from 01-January-2022 to 31-December-2022
/15/	Electricity invoices of electricity consumed by the project electricity issued by local power grid company covering the monitoring period from 01-January-2022 to 31-December-2022
/16/	Nameplates of Gas generator
/17/	Guangzhou LEO-KING Environmental Technology Co., Ltd., Statistic of production data covering this monitoring period from 01-January-2022 to 31-December-2022
/18/	Guangzhou LEO-KING Environmental Technology Co., Ltd., Summary Table of quantity and fraction of treated fresh waste covering this monitoring period from 01-January-2022 to 31-December-2022
/19/	Guangzhou Institute of Measurement and Testing Technology, Calibration Certificate of four weighbridges covering this monitoring period from 01-January-2022 to 31-December-2022 South China National Centre of Metrology Guangdong Institute of Metrology, Calibration Certificate of flow meter 、 Gas analyzer and electricity meters covering this monitoring period from 01-January-2022 to 31-December-2022 Accreditation certificates of Guangzhou Institute of Measurement and Testing Technology and South China National Centre of Metrology Guangdong Institute of Metrology
/20/	Photos of recovery monitoring system Display Screen, flow meter, electricity meters, weighbridge, gas analyzer
/21/	am-tool-04-v8.1 Emissions from solid waste disposal sites (version 08.1)
/22/	am-tool-14-v2 Project and leakage emissions from anaerobic digesters
/23/	am-tool-03-v3 Tool to calculate project or leakage CO2 emissions from fossil fuel combustion
/24/	am-tool-05-v3.0 Baseline, project andor leakage emissions from electricity consumption and monitoring of electricity generation

/25/	am-tool-08-v3.0 Tool to determine the mass flow of a greenhouse gas in a gaseous stream
/26/	am-tool-06-v4.0 Project emissions from flaring
/27/	Training Records in this monitoring period from 01-January-2022 to 31-December-2022
/28/	project management and monitoring manual
/29/	Questionnaire survey of Local Stakeholder in this monitoring period from 01-January-2022 to 31-December-2022
/30/	Payroll statement
/31/	Notice on Strengthening Enterprise Greenhouse Gas Emission Report Management
/32/	List of key emissions in the national carbon emissions transaction quota management in 2019-2020
/33/	National Enterprise Credit information Publicity System Report
/34/	Declaration on the double counting
/35/	Maintenance records
/36/	Training records and personnel qualification certificates

APPENDIX C: RESOLUTION OF CLARIFICATION REQUESTS AND CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

Table 1. CL from this verification

CL ID	CL-1	Section no.	2.2	Date: 11-May-2023
Description of CL				
The survey questionnaires collected from local stakeholders are not provided.				
Project participant response				Date: 19-May-2023
PP provided 30 survey questionnaires collected from local stakeholders as evidence.				
Documentation provided by project participant				
30 survey questionnaires collected on 2022 from local stakeholders				
DOE assessment				Date: 22-May-2023
The verification team has checked newly provided survey questionnaires and the revised VCS Monitoring report accordingly, . Hence CL-1 was closed out.				
CL ID	CL-2	Section no.	4.2	Date: 11-May-2023
Description of CL				
The Calibration Certificate of the weighbridge which was applied to monitor the amount of waste disposed was not provided.				
Project participant response				Date: 19-May-2023
PP provided the Calibration Certificate of the weighbridge covering this monitoring period as evidence.				
Documentation provided by project participant				
Calibration Certificate of the weighbridge				
DOE assessment				Date: 22-May-2023
The verification team has checked newly provided Calibration Certificate of the weighbridge and the revised VCS Monitoring report accordingly. CL-2 is closed successfully.				

Table 2. CAR from this verification

CAR ID	CAR-1	Section no.	3.1	Date: 11-May-2023
Description of CAR				
The Gas generator model and rated capacity in the MR (Version 1.0) were different from that on the nameplate verified on site.				
Project participant response				Date: 19-May-2023
The Gas generator model and rated capacity in the MR (Version 1.0) were written according to the Power Purchase Agreement. Through the on-site interview with the project implementer, the equipment parameters are subject to the nameplates. According to the nameplate of generators, the total installed capacity is corrected to 10.45 MW included 4 generators with each 1.053 MW and 2 generators with each 3.119 MW according to the actual nameplate in this monitoring period.				
Documentation provided by project participant				
N/A				
DOE assessment				Date: 22-May-2023
The verification team has checked the revised VCS Monitoring report accordingly. CAR-1 is closed successfully.				
CAR ID	CAR-2	Section no.	4.2	Date: 11-May-2023
Description of CAR				
The Serial No of the flow meter in the Calibration Certificate does not match with that on the nameplate installed at inlet of the flare verified on site.				
Project participant response				Date: 19-May-2023
PP provided the correct Calibration Certificate that can match with that on the nameplate.				
Documentation provided by project participant				
Calibration Certificate of the flow meter				
DOE assessment				Date: 22-May-2023
The verification team has checked newly provided Calibration Certificate and revised VCS Monitoring report accordingly. CAR-2 is closed successfully.				

Table 3. FAR from this verification

FAR ID	N/A	Section no.	N/A	Date: N/A
Description of FAR				

N/A	
Project participant response	Date: N/A
N/A	
Documentation provided by project participant	
N/A	
DOE assessment	Date: N/A
N/A	

APPENDIX D: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

CCS 认证公司
CERTIFICATION

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 30/06/2023

Mr. Wang Guan

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

- CDM validator for Technical Area(s): TA1.2/TA13.1/TA14.1
- CDM verifier for Technical Area(s): TA1.2/TA13.1/TA14.1
- ☐ Technical expert for Technical Area(s): _____



Tian Wei
CCSC General Manager

CCS 认证公司
CERTIFICATION

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 04/01/2023

Ms. Zheng Ruijin

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

- CDM validator for Technical Area(s): TA1.2
- CDM verifier for Technical Area(s): TA1.2
- ☐ Technical expert for Technical Area(s): _____



Tian Wei
CCSC General Manager

CCS 认证公司
CHINA CERTIFICATION SERVICE

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 04/01/2023

Ms. Zhang Xi

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions (CDMI0301)* as

- CDM validator for Technical Area(s): TA1.2
- CDM verifier for Technical Area(s): TA1.2
- Technical expert for Technical Area(s): TA13.1/TA7.1



Tian Wei
CCSC General Manager

CCS 认证公司
CHINA CERTIFICATION SERVICE

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 24/04/2023

Ms. Xie Fengjun

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions (CDMI0301)* as

- CDM validator for Technical Area(s):
TA1.2/ TA13.2/TA13.1
- CDM verifier for Technical Area(s):
TA1.2/ TA13.2/TA13.1
- ☐ Technical expert for Technical Area(s): _____



Tian Wei
CCSC General Manager