

PROJECT REVIEW REPORT

This project review report includes findings raised during Verra's review of the project specified below. The VVB must address the findings before the project request can be considered for approval by Verra. The project review report will be made publicly available on the Verra Registry. Confidential information may be provided in separate attachments.

Project ID	2876
Project Name	Muyuan WJZ AWMS GHG Mitigation Project in Henan Province
Review Type	Registration and Verification Approval
Program(s)	VCS Program
Project Proponent	Muyuan Foods Co., Ltd.
Methodology	ACM0010" GHG emission reductions from manure management systems" Version 8.0
VVB	Shenzhen CTI International Certification Co., Ltd
Assessment Criteria	VCS Standard, v4.3
Date of First Issue	24/02/2023
Review Conclusion	Closed
Date of Final Issue	09/05/2023

FINDINGS

#	Finding Description	VVB Response	Status
1	Inconsistent farm operation dates		
	<u>Issue</u> The operational start date of each of the 7 farms reported in table 1-1 is not consistent with the dates mentioned in table 1.3 of section 1.11 of the Joint PD and MR. <u>Action Required</u> The VVB must ensure that consistent information is reported across all sections of the documents and also update the project start date in section 1.8 of the Joint PD and MR. <u>Program Rule(s)</u> VCS Project Description & Monitoring Report Template, v4.1, Section 1.11.	Round 1 <u>VVB Response</u> The JPM has been checked again, PLS note that none of the 7 swine farms were newly built which has been stated in the JPM and verified in the VVR as the swine farms were not part of the project. The start date of each of the 7 farms reported in Table 1-1 refers to the operational start date of the swine farm instead of the Animal Waste Management System (AWMS). While in Table 1-3, it refers to the operational start date of each of the 7 AWMSs (newly built) in the 7 farms. All of them were formally put into operation on 15-July-2020, which is also the start date of the project crediting period. Therefore, the operational start date in Table 1-1 is different from that of Table 1-3 is verified as reasonable and correct. <u>Verra Response</u> No further action is required. Round 2 <u>VVB Response</u> <u>Verra Response</u>	Closed

#	Finding Description	VVB Response	Status
2	Unclear information on parameters		
	<u>Issue</u> - The details provided in section 4.1, 4.2 and 4.3 of the Joint PD and MR appear to be a copy of the text in the applied methodology. - The text in these sections includes the procedures of all the available options to estimate a particular parameter. - The calculation of each parameter is not provided. These sections only provide the steps used to calculate the same. The MR does not provide stepwise description of how the final values were attained or obtained. <u>Action Required</u> - The VVB must ensure that the Joint PD-MR is revised to indicate only the methodological choices applied, and justified accordingly. - The VVB must ensure that the PP provides the calculation of each parameter in the relevant sections of the Joint PD and MR along with a stepwise description depicting the arrival at the final value. <u>Program Rule(s)</u> VCS Standard v4.3, Section 3.4.1 VCS Project Description & Monitoring Report Template, v4.1, Section 4.1, 4.2, 4.3	Round 1 <u>VVB Response</u> - The updated JPM has been checked, VVB confirmed that only the methodological choices applied by the project has been provided and justified based on the actual situation of the project, all the other choices have been removed accordingly. - The updated JPM has been checked, VVB confirmed that the calculation process and determination of each parameter has been added to section 4.1, 4.2 and 4.3 of the Joint PD and MR. And the ex-ante calculation process for BE, PE and LE are already provided in section 4.4. So VVB confirmed that a stepwise description depicting the arrival at the final value have been listed in the JPM. In addition, Pls refer to the detail calculation process in ERR sheet which has been submitted as an attachment. <u>Verra Response</u> - In leakage emission estimations, the VVB is required to explain how it validated that 80% is the more conservative value for $R_{N,n}$, and give an appropriate assessment in the VR. The VVB shall ensure that all calculated values are consistent between the Joint PD-MR, the VR and the final version of the spreadsheets. Round 2 <u>VVB Response</u> The baseline scenario of the project is uncovered anaerobic lagoon, which belongs to the category of “anaerobic treatment of one-cell lagoon” in Appendix 1 of the applied methodology ACM0010 (version 08.0). The value range of	Closed

		$R_{N,n}$ is from 60% to 80%. As per the applied methodology, leakage is calculated as the following equation $LE_y = (LE_{PJ,N2O,y} - LE_{BL,N2O,y}) + (LE_{PJ,CH4,y} - LE_{BL,CH4,y})$ The results of $(1-R_{N,n})$ is used to calculate $LE_{BL,N2O,y}$. The higher value of $R_{N,n}$ used, the lower results of $LE_{BL,N2O,y}$ calculated. It will lead to a higher leakage emission and a lower emission reduction. Therefore, the value of 80% used for $R_{N,n}$ meets the requirement of the applied methodology and is more conservative. The related assessment has been added in page 64 of the VVR accordingly. <u>Verra Response</u> No further action is required.	
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3	MS% values		
	<u>Issue</u> - Section 6.1 of the PD&MR states that taking MS%_{BI,j} as 100% is conservative. The parameter table further states that 100% is applied. However, in Section 4.4, the value applied for MS%_{BI,j} and MS%_j is 100% and 50% respectively. - Section 4.4 of the PD & MR indicate that different values of MS% i.e., 50%, has been applied in the calculation of the project emissions. <u>Action Required</u> - The VVB must describe the basis on which the above assumptions were accepted for the current monitoring period. - The VVB must ensure the MS% value applied is correct and furnish Verra with the ERR spreadsheet. <u>Program Rule(s)</u> VCS Standard v4.3, Section 2.2.1 VCS Project Description & Monitoring Report Template, v4.1, Section 6.1, 4.4	Round 1 <u>VVB Response</u> - VVB has checked the JPM comparing with the applied methodology and provided the explanation as below, For parameter MS%_{BI,j}, it is used for calculation of baseline emission and does not need to be monitored as per applied methodology. The value of 100% is applied since all manure is handled by the uncovered anaerobic lagoon in the baseline scenario. It is fixed with value of 100% and not same to MS%_j. For parameter MS%_j, it is used for calculation of project emission. Via checking the <i>Description of the Project Activity</i> in Section 1.11 of JPM and the PER and by site inspection, it is confirmed that all of the manure and wastewater (including 50% solid material and 50% liquid material in raw materials) are collected and then be separated first. The separated liquid is treated through anaerobic digestion, during the anaerobic digestion, not only the biogas was generated, but also, biogas residue (account for 15% of separated liquid materials) also be generated. And then the biogas residue was treated by aerobic compost together with the separated solid (50% of raw material). Therefore, for this project, the materials entering the anaerobic treatment process account for 50% of the total materials, and the materials entering the aerobic stage account for 65% of the total materials. Therefore, the number of materials entering the anaerobic system and the number of materials entering the aerobic system is 50% and 65% respectively. To be more clear, PP has added the reasons for applying 50% and 65% in the form of footnote 28 which has been confirmed by VVB as reasonable and actual based on the project implementation.	Closed

		As per the response above, VVB verified the reasonability of the value of 50% and 65% are used respectively in the anaerobic digestion and aerobic phase for the ex-estimated of emission reduction. And the calculation of project emission is revised by PP in JPM accordingly, please refer to updated JPM. The related parts of VVR are also updated with the values changed. However, in the monitoring period, 100% of MS%j is used for emission reduction calculation in the two phases, which is more conservative. The ex ante ERR calculation sheet has been provided as attachment.	
		<u>Verra Response</u> No further action is required.	
		Round 2	
		<u>VVB Response</u>	
		<u>Verra Response</u>	

#	Finding Description	VVB Response	Status
4	Tool 14 and Tool 06 applicability		
	<u>Issue</u> 1. The first applicability condition of tool 14 in section 3.2 of the PD&MR states that CH₄ from flaring (d) is not applicable. However, the project boundary includes an open flare, and PE_{flare} is a component of $PE_{AD,y}$. 2. It is unclear why is TOOL06 required. The flaring component of the project is unclear. Some parts of the Joint PD and MR indicate the presence of project emissions from flaring while the others depict the opposite. Table 3.1 of the Joint PD and MR does not indicate any project emissions from CH₄ flaring. <u>Action Required</u> 1. The VVB must describe how it validated that CH₄ from flaring (d) is not applicable in relevant section of the Val/Ver. 2. The VVB must clearly describe the flaring component of the project in relevant sections of the Joint PD and MR. <u>Program Rule(s)</u> VCS Project Description & Monitoring Report Template, v4.1, Section 3.2 VCS Joint Val/Ver Template, v4.1	Round 1 <u>VVB Response</u> 1.The surplus biogas will be sent to the flaring system to be destroyed. So, the project meets the condition of (a), (c) and (d) of the first applicability condition of tool 14. The description about flaring is updated in Section 3.2 of JPM and 3.4.2 of VVR. 2. As per the paragraph 43 of applied methodology, Project emission associated with the anaerobic digester in year y ($PE_{AD,y}$) should be determined using Tool 14: “Project and leakage emissions from anaerobic digesters”. While according to paragraph 13 of Tool 14 (Version 02.0), $PE_{AD,y} = PE_{EC,y} + PE_{FC,y} + PE_{CH_4,y} + PE_{flare,y}$. Then Tool 06 should be applied to calculate project emission from flaring of biogas ($PE_{flare,y}$). As per Table 2 of the applied methodology ACM0010 (Version 08.0), CH₄ flaring is included in the emissions from the waste treatment processes and the emissions from waste treatment processes have been listed in the table 3-1 of the JPM which is in line with the applied methodology. $PE_{flare,y}$ is included in the calculation process of $PE_{AD,y}$ (the emissions from anaerobic digesters). Therefore, project emissions from flaring should be considered and the content has been provided in Table 3.1 of the Joint PD and MR which is verified is consistent with methodology ACM0010 (Version 08.0) and reflect the actual implementation of the project. <u>Verra Response</u> No further action is required. Round 2	Closed

		<u>VVB Response</u>	
		<u>Verra Response</u>	
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5	Power source excluded from the project boundary		
	<u>Issue</u> The project boundary as shown in figure 3-2 of section 3.3 of the has omitted the power source as per Figure 1 of the applied methodology ACM0010, v8.0. <u>Action Required</u> The VVB must ensure that the project boundary is in line with the applied methodology and update the relevant sections of the Val/Ver report accordingly. <u>Program Rule(s)</u> VCS Project Description & Monitoring Report Template, v4.1, Section 3.3 VCS Joint Val/Ver Template, v4.1 ACM0010, v8.0, Section 5.1	Round 1 <u>VVB Response</u> The updated figure of project boundary has been checked, VVB ensured that the power source is added into Figure 3-2 of section 3.3 of the Joint PD and MR. And the description of power source has been provided in the project boundary as per section 3.4.3 VVR. <u>Verra Response</u> No further action is required. Round 2 <u>VVB Response</u> <u>Verra Response</u>	Closed

#	Finding Description	VVB Response	Status
6	Value of parameters and project emissions reported incorrectly.		
	<u>Issue</u> Section 6.1 of the Joint PD and MR indicates that for the parameter V_f (page 108), there is considerable difference between biogas produced and biogas used for heat generation, yet it is stated that 'For this monitoring period, all the biogas produced is used for heat generation'. However, none was sent to the flare and $PE_{flare} = 0$ in Section 6.3 (page 124) <u>Action Required</u> The VVB must ensure that the PP provides the correct information on all parameter and report the project emissions in a correct and conservative manner. Further, they must provide an assessment on the same in relevant sections of the Val/Ver Report. <u>Program Rule(s)</u> VCS Project Description & Monitoring Report Template, v4.1, Section 6.1, 6.3 VCS Joint Val/Ver Template, v4.1	Round 1 <u>VVB Response</u> Based on the expertise of VVB and by checking the PER of the project, VVB confirmed that the captured biogas contains about 0.1%-3% H_2S and suspended particulate impurities, which will cause corrosion of related equipment. Therefore, it will be sent to the desulfurization and purification system to purify. This technical process has already been described in the section 1.11 of the JPM. And in this process, a small amount of gas will be lost due to the purification and pipeline transportation. The amount of biogas for heat generation is about 1.39% less than the captured biogas. Therefore, there is small difference between biogas produced and biogas used for heat generation which has been monitored by the biogas flowmeters (biogas flowmeter 1 installed at the outlet of the anaerobic digestion, biogas flowmeter 2 installed at the inlet of boiler). Furthermore, the remaining unused biogas after heat generation will be sent to the flaring system, and the amount of biogas for flaring is monitored by the flowmeter 3. As per record of flowmeter 3 installed in the inlet of flare during this monitoring period, it is verified that there is no residual gas flared as all the biogas after purification has been used for heat generation and thus $PE_{flare} = 0$. Page 88 of the VVR has been updated with related assessment. <u>Verra Response</u> No further action is required. Round 2	Closed

		<u>WVB Response</u>	
		<u>Verra Response</u>	