



JOINT VALIDATION & VERIFICATION REPORT
Process of Non-Hazardous Agroindustrial Liquid
Organic Waste

PROJECT ID: BCR-AR-763-13-002



ASOCIACIÓN DE NORMALIZACIÓN Y CERTIFICACIÓN

Validation & Verification Report

Project Title	Process of Non-Hazardous Agroindustrial Liquid Organic Waste
Project ID	BCR-AR-763-13-002
Project holder	WORMS ARGENTINA S.A.
Project Type/Project activity	Waste handling and disposal.
Grouped project	Does not apply.
Version number of the Project Document to which this report applies	Version 3.
Applied methodology	AM0057 “Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production”, Version 3.0.1.
Project location	Country: Argentina Region: Santa Fe City: Arroyo Seco
Project starting date	01/01/2019
Quantification period of GHG emissions reductions/removals	01/01/2019 to 31/12/2028
Estimated total and mean annual amount of GHG emission reductions/removals	Total estimated GHG reductions: 328,113.41 tCO₂e Average annual GHG reductions: 32,811.34 tCO ₂ e/year
Monitoring period	01/01/2019 to 31/12/2023
Total amount of GHG emission reductions/removals	Total reductions: 157,696.85 tCO₂e Annual average: 31,539.37 tCO ₂ e/year
Contribution to Sustainable Development Goals	6. Improve clean water and sanitation. 9. Promote inclusive and sustainable industry, innovation and infrastructure.

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	12.Ensure sustainable consumption and production patterns. 13. Take urgent action to combat climate change and its impacts.
Special category, related to co-benefits	Does not apply
Version and date of issue	Version 3.0
Work carried out by	Chief Verifier: Excalibur Acosta. Verifier: Nancy Adriana Barrera Independent Reviewer: Janai Monserrat Hernández
Approved by	Joel Miguel Ramirez.

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1 Executive summary

The "Process of Non-hazardous Agroindustrial Liquid Organic Waste" project, proposed by Worms Argentina S.A., belongs to the Waste Treatment and Disposal sector and focuses on reducing methane emissions to the atmosphere from the recovery of vegetable oil from non-hazardous organic waste from agro-industrial waste bio-oil, which would otherwise have been left to decompose in a solid waste landfill, and which would produce GHG in the region of the industrial belt of Greater Rosario (Rosario - San Lorenzo - Puerto General San Martín - Timbúes).

The crediting period is 10 years. To calculate the estimated GHG emission reductions, the methodology described in sector 13 of the Clean Development Mechanism (CDM): Waste handling and disposal, specifically AM0057 "Avoided emissions from biomass waste through its use as raw material in the production of pulp and paper, cardboard, fiberboard or bio-oil", Version 3.0.1, has been applied. This methodology is applicable because the project uses agricultural residues as raw material for the production of bio-oil, and the final product is similar in characteristics and quality to existing high quality products on the market.

The scope of the GHG Project Validation and Verification under the BioCarbon Registry includes GHG project boundaries, physical infrastructure, activities, technologies and processes, GHG sources, GHG types and reporting period (01/01/2019 to 31/12/2023). For GHG declarations containing emission reductions it includes the material side effects, baseline (verification) and baseline (validation) scenarios described in the Validation and Verification Plan (FOROVV-P01.26).

ANCE carried out a six working day document validation and verification prior to the on-site visit/remote inspection of the GHG reduction project prepared by Worms Argentina S.A., under an approach based on the existing risk analysis of errors, omissions or misrepresentations by the organization. The on-site inspection visit was carried out on December 5 and 6, 2023 (due to logistical and feasibility issues), however, the remote interviews and project evaluation were carried out on February 14 and 15 of this year.

The activities associated with the documentary verification included: a sampling plan, risk analysis of the sampled sources, verification plan and a reproduction of the emission calculations considering emission factors, global warming potentials, conversion factors and calorific powers; analyzing in turn, the consistency of the consumption data collected according to the calculation base and complementary documents provided by the organization, through Worms Argentina S.A.

During the review of the information ANCE found 4 findings of which: 2 corrective actions (CAR) and 2 clarification (CL). After reviewing the documentation and clarifications provided by the project owner, all findings were closed in a clear and transparent manner.

2 Objective, scope and criteria

The main objective of the validation and verification audit was to evaluate the controls linked to the information system and the data related to the Greenhouse Gas (GHG) emission reductions reported by WORMS ARGENTINA S.A. This evaluation was carried out by reviewing the input information during the documentary and on-site phase activities, with the purpose of:

- Confirm that the project, its activities, methods and procedures, described in the WORMS PDD document and its corresponding annexes, comply with the criteria established in section 3.3 of this report.
- Verify that the information related to the project's GHG reporting and associated Emission Sources are properly supported.
- Ensure that the information on reported GHG emission reductions consistently demonstrates the veracity of those reductions.

In summary, the validation and verification audit focused on ensuring the completeness and reliability of the information related to the project and its impacts on GHG emissions, ensuring compliance with the standards set out in section 3.3 of the report.

The scope of the Project Validation and verification is in accordance with the BCR Standard Version 3.2. September 23, 2023 and based on the criteria of ISO 14064-2:2019(es) and the rules, procedures, methodologies and methodological tools of the Clean Development Mechanism.

3 Validation and Verification planning

3.1 Validation and verification plan

The Validation and Verification Plan for the "Process of Non-hazardous Agroindustrial Liquid Organic Waste" project was executed in accordance with the BCR Version 3.2 scope, September 23, 2023, and the provisions of ISO 14064-3. This covers the limits of the project that focuses on the treatment of non-hazardous agroindustrial liquid organic waste to obtain fatty acids; as well as the physical infrastructure, activities, technologies and processes, Greenhouse Gas Emission Sources, types of Greenhouse Gases (GHG) and the reporting period, the Evidence Collection Plan (sampling), risk analysis, audit team, level of assurance, materiality, validation and verification criteria and activities.

Table 1. Project boundary.

GHG sources, sinks and reservoirs (SSRs) or project technologies	PROJECT BOUNDARY						
	Reduction of emission			Increase of removal			
	Direct	Indirect		Direct	Indirect		
Liquid waste treatment	X			N.A.	N.A.		
Others for electricity consumption	X - Category 2		N.A.		N.A.		
Transportation of agricultural waste to landfill	X - Category 3		N.A.		N.A.		
Types of GHGs included in the GHG statement:	CO ₂	CH ₄	N ₂ O	HFC	PFC	NF ₃	SF ₆
Data provenance for baseline scenario and GHG project baseline:	Historical data for one year (X)			Historical data for an average of several years ()			

Regarding the duration of the Validation and Verification activities, ANCE provided a schedule of activities with the duration of the activities:

Table 2. Validation / verification activities

Activity	Responsible	Duration (days)
Elaboration of internal No COI Matrix	ANCE	1
Request for GHG declaration and supporting information.	ANCE	1
Submission of supporting information	WORMS	6
Documentary verification	ANCE	6
Development of Risk Analysis/Evidence Gathering Plan (sampling)	ANCE	1
Preparation and Submission of Verification/Verification/Validation Plan	ANCE	2
On-site Verification/Validation and Submission of Findings Report	ANCE – WORMS	2
Delivery of Findings Report	ANCE	1
Client's attention to findings	WORMS	10
Analysis of findings attention by OVV	ANCE	11
Preparation and submission of Consolidated Findings Report	ANCE	2
Validation/Verification of Findings Report	WORMS	4
Elaboration and sending of draft Statement/Opinion and V/V Report	ANCE	2
Vo.Bo. of the draft by the Client	WORMS	4
BioCarbon Registry technical review	BCR	N.D.
Signature and delivery of Verification Statement/Opinion and Verification Report (digital)	ANCE	N.D.

3.2 Audit team

Table 3. Validation / verification team

Validation / verification team		Activities
Lead Validator/Verifier	Excalibur Ernesto Acosta Miranda	Documentary information review Site visit Preparation of Validation and Verification Report
Validator/verifier:	Nancy Adriana Barrera Gómez	Documentary information review Preparation of Validation and Verification Report
Independent Reviewer		
Revisor independiente:	Janai Monserrat Hernández Contreras	Independent technical review

ANCE is committed to compliance with the BCR Anti-Corruption Policy described in section 8.2. 4 of the BCR Standard Validation and Verification Manual, with the intention of strengthening compliance with this policy ANCE performed the corresponding risk analysis through the Risk Identification and Mitigation Matrix identified as Internal COI Analysis_Worms Argentina, with the intention of determining that there are no conflict of interest, impartiality and operational risks that prevent the execution of the verification process in an impartial manner, as well as the determination of applicable safeguards and mitigation measures.

3.3 Level of assurance and materiality

The activities corresponding to the GHG Project Declaration Validation/Verification Body focused on the validation and verification of the PDD of the Process of Non-Hazardous Agroindustrial Liquid Organic Waste Project prepared by WORMS ARGENTINA S.A., under a reasonable assurance level ($\geq 95\%$) and a materiality of 5%, complying with the requirements of ISO 14064-3:2019 and ISO 14065:2013 standards and what is established in the BCR Standard Project Validation and Verification manual version 2.3, point 10.2.5 Assurance level and materiality:

- (a) the level of assurance of the validation and/or verification of the GHG Project shall not be less than 95%.
- (b) the material discrepancy of the data supporting the project baseline and the estimated GHG emission reductions or removals may be up to $\pm 5\%$.

3.4 Sampling plan

Based on the Validation/Verification Plan, a Sampling Plan was established for the years to be verified (01/01/2019 to 31/12/2023) and for the Project's accreditation period (01/01/2019 to 31/12/2028). This plan identifies the project's emission sources, the type of fuel used and the activity that generates greenhouse gas (GHG) emission reductions, including the amount generated and its respective percentage of significance, which must be equal to or greater than 95%. Those identified with blue color are the ones that should be compared mainly, considering a percentage of emissions covered at the site of 99.98%.

As part of the Validation and Verification activities for the compilation of evidence, the following techniques to be applied are contemplated:

- Observation: it is the ocular evaluation performed to make sure how the operations are executed.
- Recalculation: analysis based on the calculation tools applied.

Table 4. SSRs de reducción de emisiones y su porcentaje de contribución al total de emisiones

Year	Emission Source, Baseline Scenario	Emission Source, Project Scenario	Reductions t CO ₂ e	Representative percentage %
2019	Landfill	Liquid waste treatment	25,714.59	16.31
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		
2020	Landfill	Liquid waste treatment	28,102.79	17.82
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		
2021	Landfill	Liquid waste treatment	30,971.41	19.64
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		
2022	Landfill	Liquid waste treatment	38,824.75	24.62
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		
2023	Landfill	Liquid waste treatment	34,083.31	21.61
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		
2024	Landfill	Liquid waste treatment	34,083.31	21.61
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		

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Year	Emission Source, Baseline Scenario	Emission Source, Project Scenario	Reductions t CO ₂ e	Representative percentage %
2025	Landfill			
		Liquid waste treatment	34,083.31	21.61
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		
	Landfill			
2026	Landfill			
		Liquid waste treatment	34,083.31	21.61
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		
	Landfill			
2027	Landfill			
		Liquid waste treatment	34,083.31	21.61
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		
	Landfill			
2028	Landfill			
		Liquid waste treatment	34,083.31	21.61
		Others for electricity consumption		
		Transportation of agricultural waste to landfill		
	Landfill			

4 Validation and verification procedures and means

4.1 Preliminary assessment

ANCE conducted a documentary verification with a duration of six (6) working days, prior to the site visit of the Project "Process of Non-Hazardous Agroindustrial Liquid Organic Waste" developed by WORMS ARGENTINA S.A. The activities associated with the documentary review included: a sampling plan, risk analysis of the sampled sources, verification plan and a reproduction of the emission calculations considering emission factors, global warming potentials, conversion factors and calorific powers, the application of the methodology AM0057. Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production, Version 03; and Tool 4. Methodological tool Emissions from solid waste disposal sites, analyzing in turn, the consistency of the data collected according to the calculation base and complementary documents provided by the organization, through POLARIS NETWORK ESPAÑA SL as developer; the documentation presented is listed below.

4.2 Document review

- /I/ Project Description Document version 3 (PDD-Worms liquid V3-.docx);
- /II/ Monitoring Plan V.3 (BCR_Monitoring-Report-.docx);
- /III/ Sustainable Development Goals Tool (SDG-Tool-2023-Worms liquid V2-.xlsx);
- /IV/ Emission reduction spreadsheet (WORMS liquid V2-.xlsx);

- /V/ Receipt of waste shipments to the plant -2019 from January through December (2019-20240201T202252Z-001.zip);
- /VI/ Receipt of waste shipments to the plant -2020 from January through December (2020-20240201T203156Z-001.zip);
- /VII/ Receipt of waste shipments to the plant -2021 from January through December (2021-20240201T203158Z-001.zip);
- /VIII/ Receipt of waste shipments to the plant -2022 from January through December (2022-20240210T183901Z-001.zip);
- /IX/ Receipt of waste shipments to the plant -2023 from January through December (2023-20240210T190920Z-001.zip);
- /X/ Worksheets of the tracking of incoming trucks in 2019 (Control Camiones 2019-20240201T214028Z-001.zip);
- /XI/ Worksheets of the tracking of incoming trucks in 2020 (control camiones 2020-20240201T214014Z-001.zip);
- /XII/ Worksheets of the tracking of incoming trucks in 2021 (Control camiones 2021-20240210T192757Z-001.zip);
- /XIII/ Worksheets of the tracking of incoming trucks in 2022 (Control camiones 2022-20240201T213832Z-001.zip);
- /XIV/ Worksheets of the tracking of incoming trucks in 2023 (Control camiones 2023-20240201T202256Z-001.zip);
- /XV/ Fuel worksheet (consumo combustible.xlsx);
- /XVI/ Copy of energy Consumption (Copia de Consumo_energía.xlsx)
- /XVII/ Conservation of resources manual (Resource Conservation Manual.docx);
- /XVIII/ Descriptive memory (Descriptive Memory Worms Argentina.pdf);
- /XIX/ Fatty acid recovery method (P-Fatty Acids Recovery.pdf);
- /XX/ Fatty acid production process (Fatty Acid Production Procedure.docx);
- /XXI/ Declaraion of Assembly (2-WORMS Directory Renewal 2021.pdf);
- /XXII/ Compliant land use (7-Granting conforming land use.pdf)
- /XXIII/ Authorization to develop the activity (34-Habilitation Munic. A. Seco Plant - Resol. N° 024-18 - 16.03.2018.pdf);

- /XXIV/ Considerations of the Environmental Impact Study for the construction and operation of a plant for the treatment of non-hazardous liquid and solid waste from treatment plant for the treatment of non-hazardous industrial liquid and solid waste (27-Resol. N° 523 WORMS ARG. S.A. EIA.pdf);
- /XXV/ Update of the registration status of the industrial complex (55-Disp. 287-19 Renov. Reg. RT 0029.pdf);
- /XXVI/ Effluent discharge permit (Effluent Dumping Permit 21-06-19 WORMS.pdf);
- /XXVII/ Air quality environmental monitoring (Report N° 9985 - Air Quality.pdf);
- /XXVIII/ Groundwater environmental monitoring (Report N° 9986 - Groundwater.pdf);
- /XXIX/ Calculation of the CO₂ Emission Factor of the Argentine Electric Power Grid, Energy Data - Calculation of the CO₂ Emission Factor of the Argentine Electric Power Grid (energia.gob.ar);
- /XXX/ Records of Emission Factors of the Wholesale Electricity Market of Argentina, Emission Factor | CAMMESA;
- /XXXI/ CO₂ emissions calculated on the basis of retail sales of liquid fuels in EESS - año 2018. Government Secretary of Energy, Argentina;
- /XXXII/ Eventual release control of process effluents (PE-8.2-01 Effluent discharge procedure.pdf);
- /XXXIII/ Control of access for solid and liquid waste (PE-8.2-02 Transport entry control instructions.pdf);
- /XXXIV/ Scale certification N°O.T. 307-15719 -2019(Sealing and Verification Reports.jpeg);
- /XXXV/ Scale certification (Certification scale (2).pdf);
- /XXXVI/ Sealing and verification report (OTN° 307-15719 y 28315) – 2019, 2021 y 2022.
- /XXXVII/ LAW ON MINIMUM BUDGETS FOR ADAPTATION AND MITIGATION TO GLOBAL CLIMATE CHANGE, Law 27520:
- /XXXVIII/ Carbon Footprint Certification Services Contract (.pdf)
- /XXXIX/ Technical data sheet, Fatty acids for HVO (.pdf)
- /XL/ SDG-Tool-2023-Worms liquid V2.xlsx
- /XLI/ Environmental letters of obligation to suppliers (.pdf)
- /XLII/ Responses to performance evaluation

/XLIII/ Work environment evaluation response

/XLIV/ Training record

Methodologies reviewed;

/a/ AM00057: Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production, Version 03;

/b/ Tool 04 - Methodological tool - CDM, Emissions from solid waste disposal sites. Version 08.1;

/c/ Tool 05 - Methodological tool, Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, Version 03.;

/d/ Tool 01 -Methodological tool, Tool for the demonstration and assessment of additionality Version 07.0;

4.3 Interviews

The following table shows the people who have been in direct contact with ANCE during the validation and verification process:

Name	Position and/or area	Process/activity or associated input	Interview in
Marcos Méndez	Project Developer – Polaris	Project Description Tour of the project facilities Methodologies Monitoring plan Sustainable development Environmental impact and Baseline and monitoring	Remote
Andres Beltramo	Commercial Manager	Collection and safekeeping of non-hazardous waste manifests and shipments Argentine regulatory framework	On-site/Remote

4.4 On-site visit

An on-site visit was conducted by the lead evaluator on December 5 and 6, 2023. This visit included a tour of the facilities of the Process of Non-Hazardous Agroindustrial Liquid Organic Waste. The entire project base it’s activity in waste valorization, recovering fatty acids from agro-industrial waste for its use in the production of biodiesel, as well as the visit in to thhe tanks area, where the liquid wastes (fatty acids and wastewater) are treated and the pools system, with a total surface area occupied by the system of 19.427m² and a volume of 116.562m³.

The purpose of this visit was to address the questions and issues identified during the desk review and to obtain additional information on the project’s compliance with the relevant criteria applicable to the BCR standard. The assessment team has conducted, internal

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interviews and remote project assessment carried out on February 14 and 15, 2024, with the project owner and the project developer to assess the information included in the project documentation.

4.5 Clarification, corrective and forward actions request

During the documentary review and on-site inspection carried out by ANCE, the information supporting the statements in the Project Document Process of Non-Hazardous Agroindustrial Liquid Organic Waste was reviewed, considering the Methodological tool, Emissions from solid waste disposal sites. Version 08.1 /b/ and the BCR Standard. Derived from the review ANCE found findings categorized as shown below and as specified in Annex 2. Clarification requests, corrective action requests and forward action requests.

4.5.1 Clarification requests (CLs)

Annex 2 of this report describes the results and responses provided by the project owner to two requests for clarification (2 CL) generated by the evaluation team during the validation and verification of the Document Process of Non-Hazardous Agroindustrial Liquid Organic Waste Project, as well as the concluding responses provided by the project owner to these queries.

4.5.2 Corrective actions request (CARs)

Annex 2 of this report details the results and responses provided by the project owner to the two corrective action requests (2 CARs) generated by the evaluation team during the validation and verification of the Process of Non-Hazardous Agroindustrial Liquid Organic Waste project, together with the conclusive responses provided by the project owner to these requests.

This review seeks to clarify and simplify the wording, while maintaining accuracy and consistency in the presentation of information.

4.5.3 Forward action request (FARs)

Not applicable, during the validation and verification process there was no request for corrective actions.

During the validation and verification audit, no corrective actions were required due to lack of solicitations. However, as a result of this evaluation, 4 findings, 2 clarifications and 2 corrective actions were identified. Annex 2 presents a report detailing the attention given by ANCE to the findings and the response implemented by the project proponent.

5 Validation findings

The validation process was conducted in accordance with BCR Standard Version 3.2, the GHG Project Validation and Verification Manual version 2.3, ISO 14064-2:2019 and the internal procedures of ANCE, the Validation and Verification Body. During the validation and verification of the Process of Non-Hazardous Agroindustrial Liquid Organic Waste Project, a documentary review was carried out that lasted six days, followed by an on-site inspection carried out on December 5 and 6 (due to logistics and feasibility issues), however, the interviews and evaluation of the project was carried out on February 14 and 15, 2024, identifying 4 findings, which are related to the validation process:

Table 5. Description of finding

No.	Reference to noncompliance	Description of finding	Type of Nonconformity: (CAR, CL, FAR)
1	6.8 Quantification of emission reductions and increases in GHG removals, ISO 14064 part 2, 2019.	During the validation and verification carried out in documentary form, it was found that the quantities of liquid waste entered (net weight) differ from those found in the manifests and shipments received by the organization (scale weight) (folders: Control of shipments and Trucks 2019-2023).	CL
2	6.8 Quantification of emission reductions and increases in GHG removals, ISO 14064 part 2, 2019.	During the validation and verification carried out remotely, it was found that the evidence presented (control remitos.zip) does not match the data found in the folder income controls (control trucks 2019 to 2023.zip) for the years 2019, 2020, 2021 and 2023.	CL
3	6.9 Data quality management, ISO 14064 part 2, 2019.	During the validation and verification carried out in documentary form it was found that, no data quality management procedures are established, as well as the evaluation of uncertainty.	CAR
4	Item III. Monitoring methodology - Control procedures, Tool AM0057. Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production).	During the validation and verification carried out in documentary form it was found that, as part of the control procedures it is necessary: <ul style="list-style-type: none"> An annual assessment of the conditions of the solid waste landfill (SDS) where the waste would be landfilled in the absence of the project activity. Describe and specify in the PDD-MDL all monitoring procedures, including the type of measurement 	CAR

No.	Reference to noncompliance	Description of finding	Type of Nonconformity: (CAR, CL, FAR)
		instrumentation used, monitoring responsibilities and procedures. <ul style="list-style-type: none"> Measurement gauges should be installed, maintained and calibrated in accordance with the equipment manufacturer's instructions and conform to national or applicable standards. 	

5.1 Project description

The "Process of Non-Hazardous Agroindustrial Liquid Organic Waste" project focuses on environmental treatment for the recovery of fatty acids and bio-oils, which can be used by various industries. This approach avoids organic decomposition that generates greenhouse gases (GHG). ANCE, in its role as validating and verifying agency, assessed the project against BCR Standard 10.1.5, which addresses activities related to waste management and disposal. Since the Project is based on waste valorization, specifically the recovery of fatty acids from agro-industrial waste for use in the production of biodiesel, its objective is to increase waste reception and treatment capacity, which will result in an increase in avoided emissions. In addition, the Project was evaluated according to the methodology /a/ AM0057 "Avoided emissions from biomass wastes through use as feedstock in pulp and paper, cardboard, fibreboard or bio-oil production", Version 3.0.1, described in the Clean Development Mechanism (CDM) Sector 13: Waste handling and disposal. This methodology is applicable because the project uses agricultural residues as raw material for bio-oil production, and the final product is similar in characteristics and quality to existing high quality products on the market.

During the evaluation, it was noted that, according to the /XVII/Resource Conservation Manual, the waste treatment process begins when the truck arrives at the property. At this point, a record is kept of the information related to the vehicle and the origin of the load, which is weighed on a scale and analyzed by the laboratory. Worms weighs the residue to compare it with the information recorded on the consignment note and/or manifest delivered by the carrier, following the fatty acid production procedure /XX/.

Once the vehicle enters the premises, it is driven to the tank farm area, where a sample of the contents is taken, and rapid analyses are made of the following parameters: conductivity, pH, temperature and, if applicable, the percentage of oils it contains. These analyses justify the separation of the residues, and the percentage of oils by centrifugation and their acidity are analyzed. Based on the results obtained, the destination of the load is defined according to the following criteria:

Parameter	Target
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HIGH % OF OILS	Depending on the characterization of the cargo, some of the available tanks are used for its treatment by acid cutting, homogenization, decantation and vacuum separation of fatty acids.
LOW % OF OILS	It goes directly to one of the 2 reception tanks: Reception tank 1 or 2.

However, in the event that deviations or unfit characteristics are detected for the industrial effluents received, it will be the laboratory manager who will decide the rejection by communicating it to the driver and determining the withdrawal of the transport.

Loads will be considered as rejection in the following cases:

- A. Detection of odors and/or presence of coloration that are not characteristic for oil or biodiesel industry effluents, which may indicate the presence of hazardous substances in the cargo.
- B. High temperature or smoke emission, which may indicate the presence of exothermic reactions in the transported liquids.

Also, considering the variables defined within the methodology, it is important to establish that during the on-site inspection, it was verified that pyrolysis is not carried out within the process.

5.2 Project type and eligibility

During the validation and verification process, ANCE evaluated the following criteria based on observation, interviews and review of Project information.

Table 6. Project type and eligibility

Eligibility criteria	Evaluation by validation body
Scope of the BCR Standard	During the evaluation of the Process of Non-Hazardous Agroindustrial Liquid Organic Waste Project, it was validated that the emission reductions are derived from waste treatment (non-hazardous), so the project holder performed the analysis according to Methodological tool 4, Tool to Emissions from solid waste disposal sites, Version 08 /b/, which is allowed by the BCR standard, as it provides procedures to calculate baseline, project or leakage methane emissions from solid waste disposed or whose disposal is avoided in a SDWS.
Project type	During the remote inspection, it was validated that the Project corresponds to the Waste Sector, for the treatment and disposal of waste.

Eligibility criteria	Evaluation by validation body
Project activity(es)	It was validated that the project activity corresponds to waste treatment and disposal. This project includes the recovery of materials from waste with the objective of reducing GHG emissions through the use of waste, an activity that corresponds to Sector 13 of the CDM. During the review of the information, it was validated that the project has enabled the reduction of methane emissions from the recovery of vegetable oil from non-hazardous organic waste from agro-industrial waste bio-oil.
Project scale (if applicable)	Small-Scale in accordance with the provision stated in section 10.3 of BCR standard, version 3.2.

5.3 Grouped project (if applicable)

Through ANCE's evaluation of the project, it was noted that the project is not clustered.

5.4 Other GHG program

During the documentary review and on-site inspection interviews, it was validated that the Project has not been registered in any other program.

5.5 Quantification of GHG emission reductions and removals

ANCE performed the evaluation of the GHG emissions reduction calculation according to VVM 10.3.2 Means of verification and methodology/a// AM0057 "Avoided-emissions-from-biomass-wastes-through-use-as-feed-stock-in-pulp-and-paper-cardboard-fibreboard-or-bio-oil-production" clause 13, the analysis of the calculation file used by the project proponent /IV/(WORMS liquid V2..xlsx) was performed. The analysis begins by considering the following equation:

$$ER_y = BE_y - (PE_y + LE_y)$$

Where:

ER_y : Emission reductions in the year y (tCO₂e)

BE_y : Baseline emissions in year y (tCO₂e)

PE_y : Project emissions in the year y (tCO₂e)

LE_y : Leakage emissions in the year y (tCO₂e)

The following steps were carried out to evaluate the above equation and calculate the estimated emissions in the Project:

Step 1. Identification of baseline variables

To determine baseline emissions, the project manager relied on the /a/ methodology, which states that the most plausible baseline scenario for agricultural residues is disposal

in a landfill (Scenario B3), and the alternative scenario O2, which involves the construction of a new biooil plant and the production of biooil using other locally available biomass sources. Consequently, baseline emissions were calculated as follows:

$$BE_y = BE_{CH_4, SWDS, y}$$

Where:

BE_y = Baseline emissions in year y (tCO₂e/year)

$BE_{CH_4, SWDS, y}$ = Methane emissions avoided during the year y , calculated according to the latest approved version of the methodological tool /b/Tool 4, "Emissions from solid waste disposal sites".

Step 2. Determination of the annual methane generation potential.

The project proponent calculated the annual methane generation potential according to the Methodological Tool, Emissions from solid waste disposal sites V. 8.1 /b/, considering the following constants for the determination of the baseline emissions:

$$BE_{CH_4, SWDS, y} = \varphi_y * (1 - f_y) * GWP_{CH_4} * (1 - OX) * \frac{16}{12} * F * DOC_{f, y} * MCF_y * \sum_{x=1}^y \sum_j (W_{j, x} * DOC_j * e^{-kj*(y-x)} * (1 - e^{-kj}))$$

Variable	Concept	Assessment
x	Years of the time period in which waste is disposed at SWDS, from the first year of the time period ($x = 1$) to year y ($x = y$).	ANCE validated what is established in the PDD /I/ of the Project regarding the durability of the project, which is 10 years.
y	Year of the crediting period for which methane emissions are calculated (y is a consecutive 12-month period).	
$DOC_{f, y}$	Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions given in the SWDS for year y (fraction by weight).	To obtain the Determination of the fraction of DOC that breaks down in the SWDS, the project proponent used Application B (0.5) non-monitorable value, ANCE agrees with the value.
φ_y	Model correction factor to account for model uncertainties for year y .	The project proponent used option 1 of the calculation options for the Model Correction Factor Determination (0.85), it is considered as a non-monitorable value. ANCE agrees with the value.
OX	Oxidation factor (reflects the amount of methane in SWDS that is oxidized in soil or other material covering the waste).	The project proponent used the default value of the tool (0.1). ANCE agrees with the value.
f_y	Fraction of methane captured in SWDS and flared, flared, or otherwise used in a manner	ANCE validated that the Project does not include flaring or any energy use of methane in the scope.

Variable	Concept	Assessment
	that avoids methane emissions to the atmosphere in year y.	
F	Fraction of methane in SWDS gas.	
MCF_y	Methane correction factor for year y	The project proponent used the default value for anaerobically managed solid waste landfills (1), a non-monitorable value. ANCE agrees with the value.
DOC_j	Fraction of degradable organic carbon in waste type j (fraction by weight)	ANCE validated the use of the default value (5%) of DOC_j considering that the residue is released into the domestic sewer system, according with the IPCC and the /b/ tool.
k_j	Decomposition rate of waste type j (1/year)	ANCE validates the use of the default value (0.185), the site is in a mostly temperate location.
j	Type of waste or waste types in MSW	The treatment of one type of waste is validated.
GWP_{CH_4}	Global warming potential of methane	28

Step 3. Quantification of liquids waste

The project owner keeps track of the amount of non-hazardous liquid waste entering the process through manifests and shipments, this activity is part of the Argentine regulation (<https://www.argentina.gob.ar/normativa/nacional/ley-25612-76349>), so these documents have official validity. The project holder files these documents and the quantities are placed in electronic files on a monthly basis with the following name XX - Control Camiones Abril 20XX.xlsx (considering that the accreditation of the project is 01/01/2019 to 31/12/2028).

The project proponent uses the monthly sum of the amount of non-hazardous waste from manifests and shipments, a data subject to constant monitoring. However, for the years 2019 and 2020, due to the lack of evidence and differences between the consumption identified by the shipments (client) and that weighed within the Worms facilities, the client was asked to consider a certain percentage of uncertainty in relation to that entered. ANCE has agreed to obtain this data. Regarding the data for the years 2021-2023, the handling of the information entered has been improved, giving priority to the weight identified by the scale due to the calibrations performed. Since this method provides a more accurate and reliable measurement, it was not considered necessary to apply a corresponding percentage of uncertainty.

Step 4. Calculation of GHG emissions reductions

Considering the equation for calculating emission reductions described in the methodology AM0057 /a/:

$$ER_y = BE_y - PE_y - LE_y$$

The project proponent calculated the baseline according to the methodology /a/ where:

$$BE_y = BE_{CH_4,SWDS,y}$$

The calculation was performed for the years covered by the project accreditation 01/01/2019 to 31/12/2028.

ANCE validated that the Project, according to subsection 3.6 determined in the PDD /I/, and considering the conditions detailed above, the leakage in one year with respect to this project can be omitted.

$$LE_y = 0$$

The project proponent calculated the project emissions as established in the methodology /a/ considering the following equation:

$$PE_y = PE_{FC,j,y} + PEEC_{,y} + PECO_{2,TR,y} + PECO_{2,SWTR,y} + PEP_{y,,y}$$

Step 5. Quantification of the project's emissions

The project proponent calculated these emissions using the methodology /a/ AM0057 "Avoided-emissions-from-biomass-wastes-through-use-as-feed-stock-in-pulp-and-paper-cardboard-fibreboard-or-bio-oil-production" as shown in equation 2:

$$PE_y = PE_{FC,j,y} + PEEC_{,y} + PECO_{2,TR,y} + PECO_{2,SWTR,y} + PEP_{y,,y}$$

Where:

Variable	Concept	Assessment
Y	Year of crediting period for which methane missions are calculated (and it is a consecutive 12-month period)	ANCE validated the PDD /I/ of the Project regarding project durability, which is 10 years.
PE _y	Project emissions in the year y (tCO _{2e} /year)	
PE _{FC,j,y}	Project emissions from fossil fuel consumption in process (j) during year y (tCO ₂ /year)	ANCE validated that there is no fossil fuel consumption, due to the characteristics of the process.
PE _{EC,y}	Project emissions from electricity consumption from project activity during the year y (tCO _{2e} /year)	ANCE validated the calculation of estimated emissions from estimated electricity consumption as described in Step 6.
PECO _{2,TR,y}	Project emissions from increased transport of agricultural residues to the plant in year y (tCO _{2e} /year)	ANCE validated the calculation of estimated emissions from transport of agricultural residues to the plant as described in Step 7.
PECO _{2,SWTR,y}	Project emissions from transporting solid waste from the manufacturing process to a landfill (tCO _{2e} /year)	The project scope does not include transporting waste to a landfill.

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$PEP_{y,y}$	Project emissions in exhaust gases from the pyrolysis process in year y (tCO ₂ e)	The project scope does not contemplate the pyrolysis process.
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Resulting in the reduction of the above equation as follows:

$$PE_y = PEEC_{y,y} + PECO_{2,TR,y}$$

Step 6. Quantification of project emissions from fossil fuel consumption

The project owner has no direct fossil fuel consumption due to the characteristics of the project.

Step 7. Quantification of the project's emissions from electricity consumption

The owner of the Project does not have direct measurements of electricity consumption; therefore, to determine the Project's emissions, an estimate /XVI/ was made based on the equipment and lighting fixtures that use electricity. To carry out the quantification, the Tool to calculate baseline, project and/or leakage emissions from electricity consumption /c/ was applied.

To calculate emissions from electricity consumption, the project owner used the emission factors published by the Wholesale Electricity Market (Emission Factor | CAMMESA) /XXIX/ to /XXXI/. ANCE validated the data used.

Step 8. Calculation of project emissions from transportation of agricultural residues to the plant.

Project emissions from the transport of agricultural residues to the plant ($PECO_{2, TR,y}$) are calculated according to equation 5 (option 2) of the AM0057 methodology, with the controlled variable being fuel consumption in liters.

$$PECO_{2, TR, y} = \sum_i FC_{TR,i,y} * NCV_i * EF_{CO_2,FF,i}$$

Where:

Variable	Concept	Assessment
y	Year of crediting period for which methane missions are calculated (and it is a consecutive 12-month period)	ANCE validated the PDD /I/ of the Project regarding project durability, which is 10 years.
$PE_{CO_2,TR,y}$	Projected emissions from transport of agricultural residues to the plant in year y (tCO ₂ e/year)	
$FC_{TR,i,y}$	Fossil fuel consumption (i) in trucks for the transportation of agricultural residues during the year y (unit of mass or volume)	To obtain the amount of fuel consumed, ANCE validated what is established within the tool /XV/(fuel consumption.xlsx).
NCV_i	CO ₂ emission factor of fossil fuel type (i) (tCO ₂ /MJ)	The project proponent used the default value from the IPCC guidelines, as indicated in Table 1.2

		of Chap. 1, Volume 2 (0.0433 GJ/kg). ANCE agrees with the value.
$EF_{CO_2,FF,i}$	Net calorific value of fuel (MJ/kg)	The project proponent uses the default value from the IPCC guidelines, as indicated in Table 1.4 of Chap. 1, Volume 2 (0.0748 CO ₂ /GJ). ANCE agrees with the value.

Since fuel consumption has been recorded in liters, the mass of fuel is estimated as follows:

$$FC_{i,y} = FC_{i,j,y, L} * \rho_i$$

Where:

Variable	Concept	Assessment
y	Year of the crediting period for which the methane missions are calculated (and it is a consecutive period of 12 months)	ANCE validated the PDD /I/ of the Project regarding project durability, which is 10 years.
$FC_{i,y}$	Fossil fuel consumption in mass (kilograms)	To obtain the data, according to the PDD /I/ I consider the use of two variables.
$FC_{i,j,y,L}$	Fossil fuel consumption (i) in volumetric basis (liters)	ANCE validated the established within the tool /XV/ (fuel consumption.xlsx) where the km traveled, number of trips and reference of liters/100 km are considered. To obtain the total liters consumed.
ρ_i	Density of fossil fuel (kg/liter)	ANCE valid as established in the PDD, with respect to the density of the fuel from the invoice (0.840 kg/liter) https://www.ypf.com/productosyservicios/Descargas/DIESEL-500-1.pdf

The project proponent performed the emissions estimation calculation considering the steps described above, ANCE proceeded to analyze and replicate the calculation, obtaining the following.

Table 7. Project emissions reductios

Year	ANCE	WORMS
2019	25,714.58	25,714.58
2020	28,102.79	28,102.79
2021	30,971.40	30,971.40
2022	38,824.76	38,824.76
2023	34,083.31	34,083.31
2024	34,083.31	34,083.31
2025	34,083.31	34,083.31
2026	34,083.31	34,083.31
2027	34,083.31	34,083.31

2028	34,083.31	34,083.31
Total	328,113.41	328,113.41
	% Materiality:	0.00

5.5.1 Start date and quantification period

During the validation and verification of the Project it was observed that the start of operations of the Project was on 01/01/2019, this was observed in the non-hazardous waste registration logs in conjunction with the shipments and manifests on file.

The accreditation period of the Project is from 01/01/2019 to 31/12/2028, contemplating 10 years of durability, declaring an emissions reduction of 328,113.41 This data was validated by ANCE reporting a materiality of 0.00% and a reasonable assurance level.

5.5.2 Application of the selected methodology and tools

5.5.2.1 Title and Reference

The approved UNFCCC methodology for baseline, project emissions and monitoring is /a/ AM0057. This methodology has been implemented for the GHG mitigation project.

In addition, the project activity also uses the following tools:

- Methodological tool - CDM, Emissions from solid waste disposal sites. Version 08.1 /b/;
- Tool to calculate baseline, project and/or leakage emissions from electricity consumption /c/;

5.5.2.2 Applicability

The project activity meets the applicability criteria of the /a/ methodology as the project consists of waste valorization, recovering fatty acids from non-hazardous agro-industrial waste for use in the production of biodiesel. In addition, the project activity does not recover or burn gas. ANCE validated and verified this claim as follows:

Table 8. Applicability

No.	Applicability	Evaluation by ANCE
1	This methodology is based on NM0220: "Avoided emissions from biomass residues through their use as feedstock in pulp and paper production, Kunak, Sabah", whose baseline and monitoring methodology and project design document.	ANCE validated according to PDD /I/, that the developer applies the methodology described in Clean Development Mechanism (CDM) Sector 13: Waste handling and disposal; specifically, AM0057 "Avoided emissions from biomass waste through its use as feedstock in the production of pulp and paper, paperboard, fiberboard or bio-oil", Version 3.0.1. This methodology is applicable because the project uses agricultural residues as feedstock for the production of bio-oil, and the final product is similar in characteristics

No.	Applicability	Evaluation by ANCE
2	<p>This methodology refers to the following tools:</p> <ul style="list-style-type: none"> • Tool for demonstration and assessment of additionality; • Emissions from solid waste landfills; • Tool for calculating project or leakage CO₂ emissions from fossil fuel combustion; • Tool to calculate baseline, project and/or leakage emissions from electricity consumption; • Tool to determine emissions from flaring projects containing methane; • Evaluation of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period. 	<p>and quality to existing high quality products on the market.</p> <p>ANCE validated that, according to section 10.1.5 of the BCN Standard, this project is classified in CDM sector 13: waste management and disposal. This project includes the recovery of materials from waste with the objective of reducing GHG emissions through the use of waste.</p>
3	<p>This methodology is applicable to project activities that use agricultural residues as raw material for: the production of pulp and paper, cardboard, fiberboard or bio-oil, when the final product is similar in characteristics and quality to existing high quality products on the market and does not require special methods of use or disposal.</p>	<p>ANCE valid, that according to PDD section 3.1.1. Applicability of conditions for the methodology - This methodology is applicable for project activities that use agricultural residues as raw material for: production of pulp and paper, cardboard, fiberboard or bio-oil, when the final product is similar in characteristics and quality to existing high quality products on the market and does not require special methods of use or disposal. In the case of WORMS S.A., the project consists of using fatty acids from agro-industrial waste to produce a biodiesel of the same high quality as other products on the market.</p>
4	<p>This methodology considers the following conditions: The project activity consists of the construction of a new pulp and paper, paperboard, fiberboard or bio-oil production facility that uses agricultural residues as feedstock.</p>	<p>ANCE validated that, according to the information provided, the project activity starts with the new production of bio-oil using agricultural sludge residues as feedstock.</p>
5	<p>The pulp and paper, paperboard, fiberboard or bio-oil produced from agricultural residues are of similar characteristics and quality to existing high quality products on the market and do not require special methods of use or disposal.</p>	<p>ANCE validated according to the PDD, that the quality of the bio-oil produced is superior to that of existing products.</p>
6	<p>Emission reductions are only requested to avoid methane emissions when it can be demonstrated that agricultural residues are allowed to decompose anaerobically.</p>	<p>ANCE validated that, with respect to the PDD, in the absence of the project, the bio-oil used as feedstock would have been allowed to decompose in a solid waste landfill (SDS).</p>
7	<p>This methodology considers as a project boundary, the spatial extent of the production plant is established. This includes facilities to process agricultural residues, any on-site electricity generation and/or consumption, on-site fuel use and thermal energy generation.</p>	<p>ANCE validated during its site visit, that the spatial extent established in Section 3.2 and 3.2.1 of the PDD is comprised of everything involving processing, fuel use and electricity generation.</p>
8	<p>This methodology calls for identifying the most plausible scenario step 1. Identify all realistic and credible alternatives to the project activity. - Tool for demonstration and assessment of additionality.</p>	<p>ANCE validates this information within the PDD, as the proponent states that the current regulations in Argentina do not consider bio-oil waste as hazardous waste, which means that there is no mandatory alternative to the project, being the most common</p>

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No.	Applicability	Evaluation by ANCE
9	<p>This methodology considers for the biooil production baseline, analyzing at least the following alternatives: O1: The project activity carried out without CDM; O2: Construction of a new biooil plant and production of biooil from other local biomass sources and O3: No new biooil plant is installed at the project site, but biooil is produced at other new and/or existing biooil plants at other sites in the region or outside the region, using a locally available and commonly used biomass source in the region.</p>	<p>solution its transportation to landfill or controlled discharge to sewers.</p> <p>ANCE validates this information, according to the PDD support that: For the reference situation of agricultural residues, the scenario is B3 "Agricultural residues are dumped or left to decompose in clearly anaerobic conditions, as in a landfill". And O2 "Construction of a new bio-oil plant and bio-oil production using other locally available biomass sources".</p>
10	<p>This methodology calls for identifying as step 2. Eliminate alternatives with prohibitive or economically unattractive barriers with the "Tool for the demonstration and evaluation of additionality" to determine which of the alternatives mentioned should be excluded from further consideration.</p>	<p>ANCE validates within the PDD, the support that establishes that there are no prohibitive barriers for this project and the project is economically attractive.</p>
11	<p>This methodology calls for identifying as step 3. Selection of the reference scenario, whose methodology is applicable:</p> <ul style="list-style-type: none"> The most plausible reference scenario for agricultural waste is the disposal of the waste in a landfill (scenario B3). In the case of pulp and paper, paperboard or fiberboard production, the most plausible reference scenario for pulp and paper, paperboard or fiberboard production is P2 or P3; In the case of bio-oil production, the most plausible baseline scenario for bio-oil production is O2 or O3. 	<p>ANCE validates that the project proponent states that the methodology is applicable if the identified scenario is B3, because it is common practice in the region to dispose of waste at a solid waste management site; and O2.</p>
12	<p>In case B3 is considered as a situation, any of the conditions shall be demonstrated to ensure that the situation is expected to persist during the crediting period:</p> <ul style="list-style-type: none"> Establish that the identified landfill(s) can be expected to accommodate the agricultural residues to be used for the project activity during the crediting period; or Establish that it is common practice in the region to dispose of agricultural waste at a solid waste management site (landfill). 	<p>ANCE valid that within the PDD the proponent, indicates in subsection 2. General description of the project - a) The large amount of non-hazardous waste in Argentina is estimated at 11,000,000 tons, only 10% is adequately treated. Worms Argentina S.A. efficiently transforms non-hazardous effluents coming mostly from biodiesel and petroleum industries that produce GHG in the region and would not be treated otherwise. Worms Argentina S.A. is certified as a "B Corp" company (a company that measures its social and environmental impact and makes a personal, institutional and legal commitment to take long-term action decisions in the community and the environment).</p>
13	<p>As part of the project activity additionality will be demonstrated and assessed using the latest version of the "Tool for the demonstration and assessment of additionality".</p>	<p>Valid ANCE that the proponent states within the PDD, Item 3.4 Additionality - Steps 1,2,3 and 4: Although Nall - Ndiff does not meet the minimum to be considered common practice (3) it is because the area selected is geographically more limited than the entire country, but the process itself is industry standard, with F being above 0.2 being more relevant.</p>

A
B

No.	Applicability	Evaluation by ANCE
14	<p>Baseline emissions include methane emissions from agricultural residues that would be landfilled, as well as baseline emissions from the production of pulp and paper, paperboard, fiberboard or bio-oil in the absence of the project activity, either at a new plant at the project site (P₂ or O₂) or at other (new) production facilities using locally available raw materials commonly used in the region in the absence of the project activity (P₃ or O₃). As a conservative simplification, baseline emissions from pulp and paper, paperboard or fiberboard production are assumed to be zero.</p>	<p>ANCE validates and in accordance with the developer's statement that baseline emissions would be: O₂ "Construction of a new bio-oil plant and bio-oil production using other locally available biomass sources".</p>
15	<p>With respect to biooil, leakage can occur conceptually in any of the following cases:</p> <ul style="list-style-type: none"> Biooil production at the project activity displaces biooil production from agricultural residues elsewhere, which could result in the dumping of biomass feedstock no longer needed by the displaced plant in a solid waste landfill, which could result in methane emissions from subsequent anaerobic decomposition; Bio-oil produced by the plant displaces bio-oil produced elsewhere, which could result in the dumping of unused bio-oil in a solid waste landfill, which could result in methane emissions from subsequent anaerobic decomposition. 	<p>ANCE valid on site and with respect to the information provided by the proponent that in subsection 3.6 Leakage and non-permanence: Leakage from possible disposal of recycled paper, recycled materials or bio-oil production (Ly,disp) can be ignored because the origin of the bio-oils are industrial wastes that do not condition or affect in any way the production of bio-oil from agricultural residues elsewhere.</p>
16	<p>The methodology calls for clearly defining the geographic boundary of the region and documenting it in the PDD-MDL. As well as taking into account the usual distances for the transport of agricultural residues, i.e. if agricultural residues are transported up to 50 km, the region may cover a radius of 50 km around the project activity. In any case, the region must cover a radius around the project activity of at least 20 km but no more than 200 km.</p>	<p>ANCE valid as stated by the proponent in 3.4 Additionality: The applicable geographic area considered for this project is the region determined by a 200 km ratio rather than the entire country. The reason for this is the significant importance of the agroindustrial companies located in the area that generate most of the waste used for the project activity, making it technologically and economically feasible.</p>
17	<p>It shall also apply the uncontrolled data and parameters used in the methodological tool "Emissions from solid waste landfills", the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion", the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption".</p>	<p>ANCE valid according to the promoter's statement that under 3.7 Mitigation results: This is a retroactive project, so the emission reductions are calculated after project start-up. The results shown in the table are a consequence of the application of the Methodology /a/ AM057 (Version 3.0.1.), where it refers to the use of parameters in section 17 of the monitoring plan.</p>
18	<p>As part of the monitoring procedures: Monitoring involves an annual assessment of the conditions of the solid waste landfill (SDS) where the waste would be dumped in the absence of the project activity.</p>	<p>ANCE validates according to the PDD, that within subsection 3.2 and 17 the evaluation in the absence of the project is determined.</p>
19	<p>Monitoring will also include measuring the quantities of raw materials used as part of the project activity. Where appropriate, the energy produced on site and the amount of agricultural residues used as fuel will be monitored.</p>	<p>ANCE validates that, within the PDD item 17, as well as document /II/ establish the measurement of all factors to be considered as part of the project monitoring.</p>
20	<p>Also, all monitoring procedures, including the type of measurement instrumentation used, monitoring</p>	<p>ANCE validates that, within the PDD item 17, as well as the document "Monitoring Plan" /II/ establish the</p>

A
B

No.	Applicability	Evaluation by ANCE
	responsibilities and QA/QC procedures to be applied, should be described and specified in the PDD-MDL. <ul style="list-style-type: none"> Where the methodology offers different options (e.g. use of default values or in-situ measurements), specify which option will be used. Measurements should be installed, maintained and calibrated in accordance with the equipment manufacturer's instructions and conform to national standards or, if these are not available, international standards (e.g. IEC, ISO). 	measurement of all factors to be considered as part of the project monitoring and procedures.

In conclusion, ANCE agrees with the application of the methodology /a/ AM00057, Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production, Version 03, considering that the applicability criteria were correctly addressed by the project holder.

5.5.2.3 *Methodology deviations (if applicable)*

The *Process of Non-Hazardous Agroindustrial Liquid Organic Waste* project is in accordance with the /a/ methodology, so this section does not apply.

5.5.3 Project boundary, sources and GHGs

Considering what is mentioned in the methodology /a/ referring to the project limits, ANCE validated:

- The project activity replaces the disposal of waste in sanitary landfills and open dumps where direct methane emissions could be generated.
- During the on-site inspection, it was verified that the project does not contemplate pyrolysis.
- It was validated that there is a yard where the waste is received and a specific area where the pool system is located, with a total of two reception pools, three primary pools, three secondary pools, three tertiary pools and two lung pools. The total area occupied by the system is 19,427m² and a volume of 116,562 m³.
- Due to the nature of the project and according to the methodology /a/ the project emits the following GHGs:

Table 9. GHG evaluated

Source	GHG	Included (Yes/No)	Evaluation by ANCE
Baseline scenario-landfill site	CO ₂	No	During organic matter decomposition reactions in landfills, CO ₂ emissions are considered zero, ANCE validates this confirmation.

A
B

	CH ₄	Yes	Methane is the main GHG produced in the decomposition of liquid matter in a landfill, ANCE validates this confirmation. For the estimation, the amount of treated waste /X/ to /XIV/ was used.
	N ₂ O	No	During organic matter decomposition reactions in landfills, N ₂ O emissions are considered to be zero, ANCE validates this confirmation.
Project scenario			Indirect emissions from the transportation of agricultural waste to the project site based on the distance traveled, liters of fuel and the number of trips of the costumers. Indirect emissions from electricity consumption in lighting and pumping equipment (reported in tCO ₂ e), total energy was counted /XVI/.
-Transportación de residuos a la planta -Luminarias (Emsiones indirectas) -Equipo de bombeo (Emsiones indirectas)	CO ₂	Yes	Direct emissions from combustion in mobile sources are not considered due to the characteristics of the project. Indirect emissions from the transportation of waste produced at the plant from the manufacturing process to a landfill are considered zero, since the process does not use any substance that could be considered hazardous waste.
	CH ₄ N ₂ O	No	According to on-site/remote verified information, the project does not involve GHG emissions in the off gases due to the fact that the pyrolysis process is not applied.

ANCE validated the limits of the project according to the activity and established in the methodology /a/, during the on-site visit the sources described in this section were observed.

5.5.3.1 Eligible areas in the GHG project boundaries (for AFOLU projects)

Not applicable.

5.5.4 Baseline or reference scenario

The project activity consists of waste valorization, recovering fatty acids from agro-industrial waste for use in the production of biodiesel /a/, "the baseline scenario is in the absence of the project activity, biomass and other organic matter (including manure, if applicable) are allowed to decompose within the project boundaries and methane is emitted to the atmosphere. Baseline emissions are the amount of methane emitted from the decomposition of waste used to produce fatty acids.

PDD version 2 /I/ correctly identifies the baseline scenario and the development of the variables and parameters used is noted in the calculation tool /IV/.

Step 1. The assessment of the baseline scenario was considered as described in methodology AM0057. Avoided emissions from biomass waste through its use as raw material in the production of pulp and paper, cardboard, fiberboard or bio-oil /a/, where the calculation of estimated emissions from waste treatment was based on the

Methodological Tool Emissions from Solid Waste Landfills (Version 08.1) /b/ and the following parameters were evaluated:

Table 10. Baseline parameters

Parameter	Evaluation
φ_y	Default value
OX	Default value
F	Default value
DOC_f	Default value
MCF_y	Default value
k_y	Default value
W_j	Mesure
DOC_j	Default value

ANCE validated that the parameters and measurements were properly applied according to the methodology /a/, /b/, X to XIV.

Step 2. ANCE validated that the baseline equation parameters were obtained from the methodology /a/, /b/, the project proponent evaluated a low uncertainty (PDD, 3.5).

Step 3. ANCE validated that does not apply.

Step 4. ANCE validated that the baseline and quality scenario identification procedures are in accordance with the methodology /a/, /b/.

5.5.5 Additionality

To demonstrate additionality, the project proponent correctly applied the Methodological Tool for the demonstration and assessment of additionality Version 07. The project proponent performed the additionality analysis considering that the activity, the details of the validation performed by ANCE are described below:

Step 0: Demonstration whether the proposed project activity is the first-of-its-kind

The project proponent determines that, due to the conditions of the project, the project is not considered to be the first of its kind.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations.

The project proponent determines that, according to current regulations in Argentina, bio-oil waste is not considered hazardous waste, which means that there is no mandatory

alternative to the project, the most common solution being its transportation to a landfill or its controlled discharge into sewers.

Step 3: Barrier analysis

This project faces barriers that do not prevent the implementation of the alternatives. The major difference observed between the project and other alternatives with similar activities is the avoidance of the use of catalysts. The most commonly used is sulfuric acid (H_2SO_4) and therefore minimizing the environmental impact of the use of the catalyst.

Step 4: Common practice analysis

The geographical area considered for this project is limited to a region of 200 km instead of covering the entire country, due to the relevance of the agroindustrial companies in this area, which are the main generators of waste used in the project activity, making it both technologically and economically feasible. It should be noted that there is another project with similar activities in the same geographical area, specifically Oleo Química GEO S.R.L. in Rosario, Santa Fe, Argentina.

One of the main differences lies in the elimination of the use of catalysts and the reduction of the amount of energy required to heat the effluents to higher temperatures, which allows the fatty acids to be separated more efficiently.

It is important to mention that this project is not registered as a CDM activity, nor has it been submitted for registration or validation as a project.

In general, according to the methodology, the promoter complies with the established conditions.

5.5.6 Conservative approach and uncertainty management

The Project Proponent evaluated the uncertainty considering official data from the applied methodologies /a/, /b/, /c/ and direct measurements reported in the manifests and shipments (GHG project document, 3.5). In addition, using and referring to the variables and constants of the described methodologies.

5.5.7 Leakage and non- permanence

ANCE valid according to what is established in the Monitoring Plan /II/ and according to what is established by the promoter that, in order to keep possible leaks under control, the criteria established and applied to date will be followed, such as:

- Use of bio-oils exclusively from industrial waste that do not interfere with the production of bio-oils from agricultural waste at other locations.

- Avoiding the increase in the use of fossil fuel by replacing biomass with fossil fuel, through the use of agricultural industrial waste with no commercial value, with the alternative of its disposal in sewers or landfills.
- Prevent leakage derived from the anaerobic decomposition of the bio-oil produced in the project, backing up this action with invoices proving the sale of the bio-oil, being the commercialization of the bio-oil and recovered fatty acids the main objective of the facility.

The data required to monitor and control the reduction of greenhouse gases are the same as those required to verify the proper operation of the company; therefore, the monitoring and control mechanisms apply to both criteria.

The information will be collected and controlled for the Verification of Continuing Compliance (VCC) to be carried out every three years at the latest during the project duration.

Regarding the risk of reversion, as this is an ex-post project with four years of operation, all participants and stakeholders are committed to current contracts. Any potential difficulties, whether financial or social, have been considered in the risk management plan. The project's successful track record and expansion plans support the continued commitment of all parties involved.

5.6 Monitoring plan

The Monitoring Plan submitted by the project proponent complies with the CDM methodologies according to the scope of the project activity AM00057, small-scale methodology: Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production, Version 03 /a/ and Methodological Tool Emissions from solid waste disposal sites V. 8.1 /b/; in addition to the guidelines of the BCR TOOL MONITORING, REPORTING AND VERIFICATION (MRV) Version 1.0. The evidence of monitoring is described in the Project Monitoring Plan /II/ and in section 17 of the PDD /I/.

The information necessary for the estimation of emissions according to the methodology /a/, /b/ used for the project activity is the measurement of non-hazardous waste, this data is directly involved in the equations for the estimation of emissions of the baseline scenario and the project scenario.

For the project emissions, the estimation of electricity consumption used in the project activity is also considered important data.

During the validation and verification carried out by ANCE, it was observed that, through the shipments and manifests /V/ to/ XIV/ there is a continuous monitoring of the weight reported in the documents, ANCE carried out a sample review of physical documents,

reaching a sample of 1,380 documents. The project holder submitted the calibration of the scale of sealing and verification (OTN° 307-15719) - 2019 /XXXIV/.

For electrical energy consumption the project owner made an estimate based on 2023 consumption (Copy of Energy_Consumption) /XVI/, ANCE validated the application of the estimate in the Project's emissions calculation.

The baseline calculation was validated using monitoring data on the amount of waste that would be destined for a disposal site. The key consideration in this process is that the amount of waste treated by the project activity is equivalent to the amount that would have been destined for the disposal site. This allows for an accurate estimation of waste reductions and the positive impact of the project on the environment.

The monitoring for the estimation of emissions is carried out according to the verification periods stipulated by the project and under the guidelines of methodologies /a/, /b/. In each verification period the activity data must be monitored. The emission factors to be considered correspond to those validated and presented in this section of the report.

To estimate the reductions, the values to be monitored are as follows:

Table 11. Monitoring data.

Data	Concept	Monitoring	Data source	Responsible
$W_{j,x}$	Amount of waste of type j disposed of or whose disposal has been avoided in the SWRS in year x (t).	Monitoring in the project / Annual	Shipments and manifests	Andres Beltramo Commercial Manager
$EC_{P,j,\{y\}}$	Amount of electricity that would be consumed by baseline k in year y	Estimate / Annual	Electric energy consumption file "Copia de Consumo_energía.xlsx" /XVI/	Andres Beltramo Commercial Manager
$FCi_{i,j,y}$	Amount of fuel type i burned in process j during year y	Estimate / Annual	Does not apply	Andres Beltramo Commercial Manager
$DOC_{f,y}$	Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions given in the SWDS for year y (fraction by weight).	Not monitorable	Methodology /b/	Marcos Méndez Project Proponent
φ_y	Model correction factor to account for model uncertainties for year y.	Not monitorable	Methodology /b/	Marcos Méndez Project Proponent

Data	Concept	Monitoring	Data source	Responsible
OX	Oxidation factor (reflects the amount of methane from SWDS that is oxidized in soil or other material covering the waste).	Not monitorable	Methodology /b/	Marcos Méndez Project Proponent
MCF_y	Methane correction factor for year y.	Not monitorable	Methodology /b/	Marcos Méndez Project Proponent
DOC_j	Fraction of degradable organic carbon in waste type j (fraction by weight)	Not monitorable	Methodology /b/	Marcos Méndez Project Proponent
k_j	Decomposition rate of waste type j (1/year)	Not monitorable	Methodology /b/	Marcos Méndez Project Proponent
j	Type of waste or types of waste in MSW	Not monitorable	Methodology /b/	Marcos Méndez Project Proponent

ANCE validated that the project owner has operational procedures /XVII/ to /XX/ for the management of liquid waste entering the plant, which guarantee the proper management of the liquid waste entering the plant. These procedures guarantee the quality of the acid obtained and the quantity of waste treated, which is essential for calculating the estimated greenhouse gas (GHG) reductions.

The project owner has stated the project will be monitored annually (01/01/2024 to 31/12/2028). Currently, the period from 01/01/2019 to 31/12/2023 has been validated and verified.

The project owner evaluated the environmental aspects that could have an impact as a result of the project activity:

Table 12. Monitoring of environmental aspect.

Environmental aspect	Evaluation	Monitoring
SOIL RESOURCE PROTECTION PROGRAM	The project owner implements a subprogram for the segregation of hazardous waste at the points of generation. Also, internal and external storm drainage channels are maintained to prevent overflows or flooding.	Yearly
WATER RESOURCE	The project owner evaluates water quality parameters in the extraction well. In order to guarantee the quality of the water extracted and, at the same time, to	Yearly

Environmental aspect	Evaluation	Monitoring
PROTECTION PROGRAM	determine that the extraction does not affect the hydrogeological profile of the resource.	
AIR QUALITY REPORT	The project owner carries out an analysis to determine the concentration of Suspended Particulate Matter (PM ₁₀) and Hydrogen Sulfide in the air, at the assigned monitoring stations, and subcontracts an authorized third party to carry out this operation.	Yearly
WATER QUALITY ANALYSIS	The project owner carries out the evaluation of wastewater discharge parameters, subcontracts an authorized third party to carry out this operation.	Yearly

During the site visit by means of interviews, it was validated that what was established in the Monitoring Report /II/ regarding environmental aspects is correct and that the project activity does not generate impacts that compromise the environment.

The project Process of Non-Hazardous Agroindustrial Liquid Organic Waste, correctly applied the "Tool for the determination of contributions to the Sustainable Development Goals (SDGs) of Greenhouse Gas (GHG) mitigation projects" /III/, in accordance with the provisions of the standard.

The Monitoring Plan established by the project establishes a clear mechanism to identify each SDG, associated activities, requirements, responsible party, indicators and monitoring frequency, among others. This is considered by ANCE as adequate in terms of the procedure established for the evaluation of each monitoring.

According to the SDG Tool, it was identified that some SDGs were indicated by default, which implies that they are mandatory. Consequently, the project identified those indicators and targets applicable by SDG, as follows.

A
B

Table 13. SDG Evaluation

SDG	Indicator	Goal
SDG 6. Clean Water and Sanitation	6.3.1 Proportion of wastewater safely treated	Provide a separation of the water phase from bio-oils and fatty acids from its re-use for watering
SDG 9. Industry, Innovation and Infrastructure.	9.2.2 Manufacturing employment as a proportion of total employment	Proportion of local people employed in total number of employees.
SDG 12. Responsible consumption and production	12.5.1 National recycling rate, tons of material recycled	Bio-oils and fatty acids recovered from effluents and non-hazardous wastewater
SDG 13 - Climate action	13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production.	Emissions Reductions of the Project activity.

The monitoring plan is based on a monitoring methodology approved within the framework of the methods referred to in section 8 of the BCR Standard and the following:

- a) The importance of the project within the national context was validated, being an alternative for the reduction of waste generation, emissions generation and adaptation to a circular economy;
- b) ANCE can confirm that all indicators of importance for project performance monitoring and reporting regarding the frequency, responsibility and authority for recording, monitoring, measuring and reporting of project activities, as well as stipulations explained within the methods and protocols being used, have been incorporated into the project monitoring plan;
- c) Reported parameters, including their source, monitoring frequency and review criteria for measurements and equipment management, as indicated in the PDD /I/, were verified as correct.

After the documentary review and the site visit, ANCE considers that the information expressed in the PDD /I/, the Monitoring Plan /II/ and the BCR monitoring tools are correct.

5.7 Compliance with applicable legislation

The owner of the Project complies with the regulations required locally, regional and national level, in addition to having updated all the necessary permits, that involves the project activity, for compliance with the described, as shown by the following documents /XXI/ to /XXVI/.

5.8 Carbon ownership and rights

Through interviews during the site visit ANCE validated that the ownership of the carbon credits belongs to WORMS ARGENTINA S.A.

The contractual agreement /XXXVIII/ between POLARIS NETWORK ESPAÑA SL and Worms to validate the ownership of the carbon credits was reviewed, in the third section it is specified that Worms contracts with Polaris for the purpose of consulting on carbon footprint issues, in the fourth section the Project for solid waste processing is specified and in the seventh section the payment agreement for credit obtained is specified.

During the validation, it was checked that the project activity is not registered to other emissions trading programs (CDM, Gold Standard, VCS, CERCARBONO, CSA GHG Clean and Climate Action Reserve project registry) or other forms of environmental crediting and is not part of any compliance scheme (binding caps). ANCE reviewed the websites of each of the GHG programs.

Table 14. Assessment and cross-checking of registries projects.

Registry	Website	No	Waste's Projects	Methodology used
BCR	https://globalcarbontrace.io/projects/58	1	Treatment of non-hazardous industrial waste to obtain Biocompost	CDM - AMS.III.F
Cercarbono	https://www.ecoregistry.io/projects-list/cercarbono-co2	0	NA	NA
CDM	https://cdm.unfccc.int/Projects/projsearch.html	9	Granja Tres Arroyos Methane Avoidance in Slaughterhouse Effluents Project	AMS-III.I. ver. 4
			Salta Landfill Gas Capture Project	AMS-I.D. ver. 13 AMS-III.G. ver. 5
			Methane capture and destruction on Las Heras landfill in Mendoza, Argentina	AMS-III.G. ver. 6 AMS-I.D. ver. 13
			Biogas recovery and Thermal Power production at CITRUSVIL Citric Plant in Tucumán, Argentina	AMS-III.H. ver. 10 AMS-I.C. ver. 13
			Methane Gas Capture and Fuel Switching at Compañía	AMS-III.H. ver. 16 AMS-I.C. ver. 18

			Argentina de Levaduras S.A.I.C. Plant Project		
			Pindó Biomass Energy Generation from Forest Biomass		AMS-III.E. ver. 16 AMS-I.C. ver. 16
			Methane recovery in wastewater treatment in Famailla fruit processing plant, Tucuman, Argentina		AMS-III.H. ver. 16
			Las Camelias Biogas Energy Project from Wastewater Treatment.		AMS-III.H. ver. 16 AMS-I.C. ver. 19
			Anaerobic Digestion and Energy Generation at Semino Starch Plant Project		AMS-III.H. ver. 16
VERRA	https://registry.verra.org/app/search/VCS	o		NA	NA
Gold Standard	https://marketplace.goldstandard.org/collections/projects/renewable-energy	o		NA	NA
CSA	https://www.csaregistries.ca/GHG_VR_Listing/CleanProjectProjects	o		NA	NA

5.9 Risk management

The Project has contemplated the evaluation of environmental, social and financial risks, and each one has been assigned the mitigation of the evaluated risk (PDD,7). The Project is considered ex post, because it has been operating since 2019 and this is the period that it is positioned as a necessary activity for the surrounding companies.

The Project proponent used the BCR standard "Risk and permanence" tool.

5.10 Environmental aspects

The project proponent considers the environmental and social impact assessment sub-programs described in section 8 of the PDD, based on the BCR NO NET HARM ENVIRONMENTAL AND SOCIAL SAFEGUARDS (NNH) tool, version 1.0. According to the regulations set forth in the documents /XXVII/ to /XXVIII/ Resolution 201/04 of the Secretary of the Environment of the Province of Santa Fe), and as required by Law 11,220 Annex A, identical parameters and limits established in Provincial Resolution No. 1089/82 Annex A (Limits for the provision of drinking water) the Project has been assessed considering does not generate impacts to the environment.

No negative impacts were identified in these assessments; the transformation of the waste into a new and beneficial product within the market is considered a positive impact. ANCE confirmed the above from the on-site visit and review of the monitoring report.

5.11 Socioeconomic aspects

No negative impacts were identified in these assessments; the transformation of the waste into a new and beneficial product within the market is considered a positive impact. ANCE confirmed the above from the on-site visit and review of the monitoring report.

6 Verification findings

The verification process executed by ANCE, through its Validation/Verification Body for GHG Emission Declarations and Projects was performed under the approach defined by ISO 14064-3:2019. Specification with guidance for the validation and verification of GHG declarations. The above, to provide a reasonable level of assurance that the GHG reductions reported in tons of CO₂ equivalent and the information integrating the Process of Non-Hazardous Agroindustrial Liquid Organic Waste project, were prepared taking into consideration the requirements of the Biocarbon Registry Standard version 3. 2, the GHG Project Validation and Verification Manual version 2.3 and the corresponding 14064-2:2019 Specification with guidance, at the project level, for the quantification, monitoring and reporting of emission reductions or enhancement of greenhouse gas removals.

In order to ratify the information analyzed during the documentary review, the on-site inspection was carried out on December 5 and 6, 2023 (due to logistical and feasibility issues), however, the interviews and evaluation of the project were carried out on February 14 and 15, 2024, of the sources indicated in the sampling plan related to the calculation of the estimated emissions reduction, verifying the evidence supporting the information and data documented by the project proponent.

The following processes were considered for the activities associated with this phase:

- Evaluation of the identification of reportable GHGs associated with project activities.
- Applications of AM0057 “Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production”/a/ and its references /b/, /c/, /d/.
- Evaluation of the processes of emission source identification, emission reduction, request, collection, consolidation, transformation and reporting of consumption and production data used for the quantification and reporting of the GHG emission reduction project.
- Evaluation of the evidence supporting the consumption and production data associated with the project activity.
- Evaluation of the controls associated with the information systems used by the project owner.
- Evaluation of the input, transformation and output error control routines for the data and information used for the project.
- Evaluation of the review processes carried out by the personnel responsible for the project.

- Evaluation of the methods to ensure that the equipment associated with the monitoring and measurement of the project data are calibrated and properly maintained, as well as the methodologies applied for the calculation of the estimated values at the facility.

As a complement to the aforementioned activities, ANCE conducted interviews with people directly and indirectly related to the project activity considering the associated process/activity or fuel/inputs:

Table 15. Interviews

Name	Position and/or area	Process/activity or associated input	Interview in
Marcos Méndez	Project Developer – Polaris	Project Description Methodologies Monitoring plan Sustainable development Environmental impact and Baseline and monitoring	Remote
Andres Beltramo	Commercial Manager	Tour of the project facilities Collection and safekeeping of non-hazardous waste manifests and shipments Argentine regulatory framework	On-site/ Remote

Derived from the verification activities carried out by the lead verifier, the following findings were established (the analysis is shown in Annex 2):

No.	Reference to noncompliance	Description of finding	Type of nonconformity: (CAR, CL, FAR)
1	6.8 Quantification of emission reductions and increases in GHG removals, ISO 14064 part 2, 2019.	During the validation and verification carried out in documentary form, it was found that the quantities of liquid waste entered (net weight) differ from those found in the manifests and shipments received by the organization (scale weight) (folders: Control of shipments and Trucks 2019-2023).	CL
2	6.8 Quantification of emission reductions and increases in GHG removals, ISO 14064 part 2, 2019.	During the validation and verification carried out remotely, it was found that the evidence presented (control remitos.zip) does not match the data found in the input controls folder (control camiones 2019 to 2023.zip) for the years 2019, 2020, 2021 and 2023.	CL
3	6.9 Data quality management, ISO 14064 part 2, 2019	During the validation and verification carried out in documentary form it was found that, no data quality management procedures are established, as well as the evaluation of uncertainty.	CAR

A
B

No.	Reference to noncompliance	Description of finding	Type of nonconformity: (CAR, CL, FAR)
4	Item III. Monitoring methodology - Control procedures, Tool AM0057. Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production)	<p>During the validation and verification carried out in documentary form it was found that, as part of the control procedures it is necessary:</p> <ul style="list-style-type: none"> • An annual assessment of the conditions of the solid waste landfill (SDS) where the waste would be landfilled in the absence of the project activity. • Describe and specify in the PDD-MDL all monitoring procedures, including the type of measurement instrumentation used, monitoring responsibilities and procedures. • Measurement gauges should be installed, maintained and calibrated in accordance with the equipment manufacturer's instructions and conform to national or applicable standards. 	CAR

6.1 Project and monitoring plan implementation

6.1.1 Project activities implementation

The verification of the project Process of Non-Hazardous Agroindustrial Liquid Organic Waste corresponds to the monitoring period 01/01/2019 to 31/12/2023.

ANCE evaluated the implementation of the project activities according to those described in the PDD /I/ as described in the Monitoring Plan /II/. The project holder has a surface area occupied by the pool system is 19,427 square meters to carry out the treatment of fatty acids and wastewater. The first project activity related to monitoring is the release control of process effluents /XXXII/; as well as the entry control process /XXXIII/, in which the scale operator reviews the consignment or manifest to ensure that the waste does not have any hazardous characteristics and weighs the truck (entry and exit) and records the weight /V/ to /XIV/ to compare it with the amount declared on the consignment. During the on-site inspection, it was validated that the laboratory manager performs a visual inspection of the discharged waste; which once released, the process plant personnel proceeds to unload in the following optional ways (as applicable – a, b &c)/XX/; The weighing scale was subject to calibrations for the years 2019, 2021 and 2022 /XXXVI/.

a) Unloading of the truck in conical plastic tanks of 35 m³ capacity.

b) Unloading of the truck into heated tanks or a heated pan.

c) Dumping of the truck contents into treatment basins.

The project proponent also included in the monitoring the consumption of electricity used in the project, however, these values were obtained by estimation /XVI/.

ANCE was able to verify the progress in meeting the objectives with the documents presented in the monitoring matrix of the project activities and its reference documents.

The main activities that support compliance with the emission reduction targets for the period 2019-2023 in the project Process of Non-Hazardous Agroindustrial Liquid Organic Waste were demonstrated with different supporting documents (4.2), there were some deviations in the measurement of the amount of waste, however, in the calculation of the estimated reductions of the project the project proponent applied conservative measures in order not to overestimate the declared reductions.

6.1.2 Monitoring plan implementation and monitoring report

ANCE reviewed and was able to confirm that the PDD monitoring report was performed in consistency with the Monitoring Plan submitted by the project proponent. The monitoring plan is intended to facilitate the monitoring, recording, reporting and verification activities necessary to evaluate the project performance and determine the emission reductions with the applied methodology /a/.

The verification team has verified all parameters presented in the monitoring plan with the requirements of methodologies /a/ and /b/. In this regard, the Monitoring Plan contains all required parameters, with appropriate descriptions regarding: Data source, measurement measurement procedures, monitoring frequency and procedures to be applied.

6.1.2.1 Data and parameters

The values monitored annually and verified during the site visit are as follows:

Responsible for monitoring	Andres Beltramo				
$W_{,y}$	Amount of liquid waste of type j disposed of or prevented from disposal in the SWDS in year x				
Measurement units:	Tons				
Quality procedures:	PE-8.2-01; PE-8.2-02 /XXXII/ and /XXXIII/.				
Measuring equipment	Scale BC-0348				
Year	2019	2020	2021	2022	2023
$W_{,y}$ (t)	87,116.58	94,848.16	104,192.93	130,510.65	114,796.91
Calibration	Not completed.	Minutes of sealing OT N°307-15719	Not completed.	Minutes of sealing OT N°307-15719 - 62325	Minutes of sealing OT N°307-15719 - 68603

Responsible for monitoring		Andres Beltramo			
$EC_{PJ,i,y}$		Amount of electrical energy consumed in the project			
Measurement units:		MWh/yr			
Quality procedures:		Electric power consumption file "Copia de Consumo_energía.xlsx" /XVI/			
Measuring equipment		Estimated			
Year	2019	2020	2021	2022	2023
W_y (t)	15.523	16.900	18.189	22.798	20.124
Calibration	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Responsible for monitoring		Andres Beltramo			
$FC_{TR,j,y}$		Fossil fuel consumption for transportation			
Measurement units:		Liters			
Quality procedures:		Fuel worksheet file "Consumo Combustible.xlsx" /XV/			
Measuring equipment		Estimated			
Year	2019	2020	2021	2022	2023
W_y (t)	180,537.00	157,526,00	136,222,00	159,653,00	165,347,00
Calibration	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Responsible for monitoring		Andres Beltramo			
SDG6		Clean Water and Sanitation			
Monitoreo:		Annual			
Quality procedures:		BCR_Monitoring-Report and the file SDG-Tool-2023-Worms liquid V2			
Responsible for monitoring		Andres Beltramo			
SDG9		Make cities and human settlements inclusive, safe, resilient and sustainable			
Monitoreo:		Annual			
Quality procedures:		BCR_Monitoring-Report- and the file SDG-Tool-2023-Worms liquid V2-			
Responsible for monitoring		Andres Beltramo			
SDG12		Ensure sustainable consumption and production patterns.			
monitoring:		Annual			

Quality procedures:	BCR_Monitoring-Report- and the file SDG-Tool-2023-Worms liquid V2-
Responsible for monitoring	Andres Beltramo
SDG13	Take urgent action to combat climate change and its impacts
monitoring:	Annual
Quality procedures:	BCR_Monitoring-Report- and the file SDG-Tool-2023-Worms liquid V2-

The monitoring plan includes the monitoring of project implementation, the description of the monitoring plan in the PDD includes the following for each of these monitoring tasks:

- Data and parameters used for emission reduction estimation;
- Technical description of monitoring activities;
- Description of data collection;
- Data quality control;
- Data storage; and
- Responsibilities

During monitoring, data will be collected related to the variables/parameters listed in the PDD and Monitoring Report.

The ANCE validation and verification team performed a review of all input data, parameters, formulas, calculations, conversions, resulting uncertainties and output data to ensure consistency with the criteria set out in the calculation methodologies /a/ and /b/ used and the Monitoring Report.

The verification team reproduced the calculations to ensure the accuracy of the results. Where appropriate, references to analysis methods or default values were verified with the corresponding source.

6.1.2.2 *Environmental and social effects of the project activities*

For the monitoring period the Project proponent evaluated the environmental impacts considering the following.:

Aspect	Compliance
SOIL RESOURCE PROTECTION	
Hazardous Waste Management Subprogram	Regulatory compliance
Drainage and Flooding Control Subprogram	Internal safety measure

A
B

WATER RESOURCE PROTECTION PROGRAM	
Groundwater monitoring subprogram	Internal safety measure
AIR QUALITY REPORT	Regulatory compliance
WATER QUALITY ANALYSIS	Regulatory compliance

No negative impacts were identified in these evaluations. ANCE was able to verify this compliance from the on-site inspection visit.

Regarding the evaluation of social aspects, ANCE verified that the project activity does not generate adverse effects involving society.

6.1.2.3 Procedures for the management of GHG reductions or removals and related quality control for monitoring activities

ANCE confirms that all values involved in the Project emission reductions, measurement results and estimates have been incorporated into the monitoring plan, the frequency, responsibility and authority for recording, tracking, measuring and reporting of project activities have been clearly developed with procedures and ongoing communication between the project owner and the developer project.

6.1.2.4 Description of the methods defined for the periodic calculation of GHG reductions or removals, and leakage

ANCE confirms that the methods applied for the calculation of GHG emission reductions of the Project Process of Non-Hazardous Agroindustrial Liquid Organic Waste are in accordance with the /a/ and /b/ methodology in its Monitoring methodology and the evaluation required by the BCR Standard.

6.1.2.5 Assignment of roles and responsibilities for monitoring and reporting the variables relevant to the calculation of reductions or removals

Section 15.2 of the monitoring report shows the workstations responsible for monitoring the variables and parameters for the calculation of the GHG reduction station. During the site visit the ANCE verification team met with the personnel in charge.

6.1.2.6 Procedures related whit the assessment of the project contribution whit the Sustainable Development Goals (SDGs)

The proponent of the project has evaluated compliance with the Sustainable Development Goals for the monitoring period 01/01/2019 to 31/12/2023, following up with the methodological tool of the BCR program, SDG Tool /III/ and the excel file SDG.

For SDG 6 the project aims to achieve target 6.3.1 Proportion of wastewater safety treated. ANCE confirms, through interviews and review of the /III/ tool, that the waste water treatment increased from 531,465.23 to 573,984.53. On the other hand, for the SDG 9 target 9.2.2 "Manufacturing employment as a proportion of total employment", ANCE also confirms that the number of jobs held by local people has increased from 40% to 63%.

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Regarding SDGs 12 and 13, for target 12.5.1 "National recycling rate, tons of material recycled", respectively, the project holder is mainly dedicated to the treatment of non-hazardous waste, its processes contribute to the circular economy where the waste becomes a raw material in another process. This process has been validated and verified by ANCE.

Sustainable Development Goal 13 focuses on achieving a specific indicator that seeks to reduce total greenhouse gas emissions per year. From the monitoring of GHG emissions carried out for the period of analysis, a value of 32,811.34 tCO_e (on average) released into the atmosphere each year was recorded; of which 100% were the result of the transformation of liquid waste into fatty acids.

6.1.2.7 *Procedures associated with the monitoring of co-benefits of the special category, as applicable*

No applicable.

Considering that for the year 2019 and 2020 the Project holder did not submit the calibrations of the weighing scale and weight uncertainties, according to the calibration frequency established in the monitoring plan /II/, the project holder has decided to apply to the emission reduction estimation equation a conservative uncertainty percentage (2%) considering the error that could be generated by the absence of this certification.

The monitoring of variables described in the monitoring report has been carried out in accordance with the monitoring plan contained in the PDD/I/ in a correct and sufficient manner. ANCE has verified the monitored data for the required parameters and has considered them complete, reliable and consistent.

For the remaining accreditation period, the project owner intends to strengthen the measurements of all project variables.

6.2 Quantification of GHG emission reductions and removals

ANCE has evaluated the emission reductions reported for the project Process of Non-Hazardous Agroindustrial Liquid Organic Waste according to the methodology /a/AM00057. Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production, Version 03, and the criteria of the BCR Validation and Verification Manual, the application was verified for the crediting period established in the monitoring report (01/01/2019 to 31/12/2023), in addition, of all the variables involved in said methodology /a/ and the applicable references /b/, /c/ and /d/.

6.2.1 Methodology deviations (if applicable)

No deviations were found for the application of the methodology /a/.

6.2.2 Baseline or reference scenario

The calculation procedure used by the Project proponent to quantify the GHG reductions in the baseline scenario as a result of the implementation of the project activity during the monitoring period is summarized below and its results are summarized below.

According to the formulas presented in Section 5.5 of this report, the Project proponent calculated the baseline as follows:

The methodological tool Emissions from solid waste disposal sites Version 08.1 /b/, describes the steps required for the calculation of the baseline for the project activity, the project proponent carried out the quantification of the records of liquid waste entering the process for the monitored crediting period (01/01/2019 to 31/12/2023), this project does not consider flaring or energy use of waste gases, parameters established in the methodology /b/ and cited by the IPCC were used. The baseline for waste deposited in a landfill is as follows:

Table 16. GHG emissions in the baseline scenario.

Year	GHG emissions in the baseline scenario (tCO ₂ e/year)
2019	26,210.45
2020	28,536.62
2021	31,348.14
2022	39,266.26
2023	34,538.52

The audit team verified all calculations of greenhouse gases emitted during the monitoring period for baseline emissions. No errors were found that materially affected the emissions reported by the project during the monitoring period. The spreadsheet formulas (WORMS liquid V2-.xlsx), conversions, estimates and consistent use of data and parameters have been carefully reviewed by the ANCE audit team.

6.2.3 Mitigation results

ANCE verified the calculation of emission reductions of the Process of Non-Hazardous Agroindustrial Liquid Organic Waste, for the project period established in the monitoring report (01/01/2019 to 31/12/2023), the audit team performed the analysis according to the methodology AM00057.Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production, Version 03, the BCR Standard and the MVV, for the evaluation a reasonable assurance level and a materiality percentage of 5% were contemplated. The verification team performed a comparison of the parameters and calculation variables mentioned in the PDD monitoring plan and the monitoring report.

During the documentary review, the audit team reviewed the calculation tool prepared by the project proponent /II/; during the on-site inspection visit, the quantities of waste

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stated in the shipments and manifests were reviewed; the audit team reviewed a sample of 1,380 shipments without finding any errors during the review; the operation of the compost plant was validated and verified. The emissions of the baseline scenario and the preceding emissions of the project and the estimated emissions reduction of the project were calculated, in each calculation the verification team calculated the materiality, obtaining as a result 0.00%.

ANCE concludes that the project presented by WORMS ARGENTINA S.A. as project owner and POLARIS NETWORK ESPAÑA SL as proponent is correct and complies with the methodology /a/.

6.2.3.1 GHG emissions reduction/removal in the baseline scenario

Section 6.2.2 shows the GHG emissions of the baseline scenario.

6.2.3.2 GHG emissions reduction/removal in the project scenario

For the project Process of Non-Hazardous Agroindustrial Liquid Organic Waste, the reduction of GHG emissions is calculated according to equation 13 of the /a/ AM0057 Methodology, Version 3.0.1.

$$ERy = BEy - PEy - LEy$$

Considering what is described in sections 6.2.2 and 6.2.3 of this report, the annual net reduction of GHG emissions for the project is:

Table 17. GHG reductions in the project

Year	Baseline	Emission	Leakage	Reduction
2019	26,210.45	495.86	-	25,714.58
2020	28,536.62	433.83	-	28,102.79
2021	31,348.14	376.74	-	30,971.40
2022	39,266.26	441.50	-	38,824.76
2023	34,538.52	455.21	-	34,083.31
2024	34,538.52	455.21	-	34,083.31
2025	34,538.52	455.21	-	34,083.31
2026	34,538.52	455.21	-	34,083.31
2027	34,538.52	455.21	-	34,083.31
2028	34,538.52	455.21	-	34,083.31
				328,113.41 -ton CO₂e

6.3 Environmental and social effects of the project activities and no net harm

For the monitoring period, the project proponent considered the assessment of environmental and social impacts sub-programs described in sections 8 and 9 of the

monitoring report, based on the BCR NO NET HARM ENVIRONMENTAL AND SOCIAL SAFEGUARDS (NNH) tool, version 1.0, the project activities do not cause any net harm to the environment or to local communities and society in general.

No negative impacts were identified in these assessments; the transformation of waste into a new and beneficial product within the market is considered a positive impact. ANCE confirmed this from the on-site visit and review of the monitoring report.

6.4 Sustainable Development Goals (SDGs)

The identification of applicable SDGs was carried out according to the BioCarbon Registry TOOL. SUSTAINABLE DEVELOPMENT GOALS (SDGS). Version 1.0. Monitoring indicators and evidence are presented in section 6.1.2.6 of this report and submitted the Excel file with SGD Tool /XL/.

6.5 Climate change adaptation

ANCE considers that within the framework of the National Policy on Climate Change /XXXVII/ "Art. 24.- Measures. The National Climate Change Cabinet, through the National Climate Change Adaptation and Mitigation Plan, and the competent authorities of each jurisdiction, shall establish concrete mitigation measures and actions, especially: (i) Encourage the implementation of practices, processes and technological improvements that allow the control, reduction or prevention of greenhouse gas emissions in activities related to transportation, provision of services and production of goods from their manufacture, distribution and consumption to their final disposal", the project activities promote adaptation to climate change, by reducing methane emissions and promoting responsible, safe and adequate waste treatment, avoiding open dumps and generating circular economy strategies in the environment.

6.6 Co-benefits (if applicable)

This point is not applicable to the project.

6.7 REDD+ safeguards (if applicable)

This point is not applicable to the project.

6.8 Double counting avoidance

According to the BCR Standard, the Avoid Double Counting tool is defined as accounting for GHG mitigation results in tCO₂e, in the following scenarios.:

- a) A ton CO₂e is counted more than once to demonstrate compliance with the same GHG mitigation goal.

- b) One-ton CO₂e is counted to demonstrate compliance with the GHG mitigation goals.
- c) A ton CO₂e is counted more than once to obtain remuneration, benefits or incentives.
- d) A ton CO₂e is verified, certified or credited and assigned more than one serial for a single mitigation outcome.

To avoid double counting, the project holder submitted the following evidence in compliance with numeral No 8.1 of the double counting avoidance tool:

- Project and project holder information, this information is clear in the PDD.
- GHG registration authorization - Evidence is presented on the page with the project registration at the following Link: <https://globalcarbontrace.io/projects/58>.
- Project Description Document (PDD), version 2.0 of the PDD is presented.
- Monitoring Report (MR) - the MR version 2.0 is presented.
- Additional information is the result of the validation and verification process of the project.

The audit team verified 100% of the legal information provided by the project proponent, confirming that the sources of information used were the official ones. Therefore, it considers that the information provided allows concluding that the project complies with the legal requirements.

6.9 Stakeholders' Consultation

The project activity has been involved with government representatives and, to the extent that the project represents an alternative for climate change mitigation and the application of a circular economy, it has received governmental recognition; during verification, in section 10 of the PDD we reviewed the links to the web pages where this is described.

Worms has also identified external and internal stakeholders, which it has defined as suppliers and employees, respectively. During the review of the information, the positive impact statement and Worms' commitment to treat the liquid waste, so that it is not dumped at an illegal destination, were observed /XLI/. In addition, the project owner showed evidence of training to workers where the scope included the positive and negative impact of Worms' activities //.

During the site visit it was observed that there are no communities near Worms and that there are no negative environmental or social impacts, such as noise, emissions or wastewater discharges, inequality, exclusion /XLII/,/XLIII/,/XLIV/.

Worms has an open portal for complaints or suggestions from companies or the surrounding community, however, so far there is no record.

6.9.1 *Public Consultation*

The project has gained recognition from the community for its success in minimizing environmental impact. In operation since 2019, it has exhibited no production of unpleasant odors, noise, waste, or air and water emissions. As confirmed by ANCE during their visit to the site, the project unquestionably brings benefits to society.

7 Internal quality control

ANCE reviewed the monitoring documentation, described in the PDD, considered that they conform to the procedures described in the validated monitoring plan and monitoring report and checked for differences that could cause an increase in GHG emission reduction estimates in the actual monitoring periods.

ANCE has confirmed that there are no significant material discrepancies between the actual monitoring system and the monitoring plan established in the PDD and the applied methodologies /a/, so there is no overestimation of the requested reductions. The project owner monitors the parameters required to determine the project reductions in accordance with the monitoring plan and the applicable methodology. It is worth mentioning that the project proponent applied an uncertainty percentage (2%) to the treated waste due to the lack of accuracy of the measured data.

The reported parameters, including their source, monitoring frequency and review criteria, indicated in the PDD, were verified to be correct. The required management system procedures, including responsibility and authority for monitoring activities, were verified to be consistent with the PDD. The knowledge of the personnel associated with the project activities was considered satisfactory by the ANCE verification team.

Finally, in ANCE's quality management process, there is an independent internal review of the validation and verification process, which ensures the scope, program standards and how the validation and verification report manages to gather this evidence and its proper management to present the final statement.

8 Validation and verification opinion

As the OVV GEI ANCE Conformity Assessment Body, contracted by WORMS ARGENTINA S.A. through POLARIS NETWORK ESPAÑA SL, we have reviewed and

verified the design of mitigation measures for the project "Process of Non-Hazardous Agroindustrial Liquid Organic Waste." We confirm that it fully complies with the BCR Standard, addressing various aspects:

- The project meets all criteria of the BioCarbon Registry standard version 3.2, September 23, 2023;
- The project is in accordance with AM0057 "Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production", Version 3.0.1;
- The Monitoring Plan is transparent and adequate;
- The additionality of the project is justified in the PDD;
- Verification has reached a reasonable level of assurance: 95%;
- The project has been evaluated with a Materiality of less than 5%;
- Based on the processes and procedures performed, the GHG statement is materially correct and a true representation of the GHG data and information and is prepared per the applicable standard;
- The project was assessed on the basis of its contribution to the Sustainable Development Goals (SDG6, SDG9, SDG12 and SDG13).

Based on the risk-based validation approach and the evidence obtained as a result of the activities associated with the validation process and the attention to findings, the OVV GEI ANCE has reached the following conclusion:

The Greenhouse Gas Emissions reductions of the Process of Non-Hazardous Agroindustrial Liquid Organic Waste prepared by WORMS ARGENTINA S.A. and developed by POLARIS NETWORK ESPAÑA SL for the crediting period 01/01/2019 to 31/12/2028, and the monitoring period 01/01/2018 to 31/12/2023 are substantially correct and the validated and verified emissions reductions are a faithful representation of the information and emissions data referenced below:

Quantification period of GHG emissions reductions: **328,113.41 t CO₂e**

Total amount of GHG emission reductions: **157,696.85 tCO₂e**

This Validation and Verification Report is issued, based on the stipulated in the BCR Standard Version 3.2. September 23, 2023, the Validation and Verification Manual and based on the criteria of ISO 14064-3:2019, with a reasonable level of assurance, the above is guaranteed at a materiality level of less than 5%, specifically, 0.00%, between the net

emission reductions reported by the Project and the net reductions validated and verified by the OVV-GEI-ANCE.

In conclusion, the OVV-GEI-ANCE issues a positive opinion because there is sufficient or appropriate evidence to support a claim; considering that there are no material misstatements, there is sufficient and appropriate evidence to support the emissions and the necessary controls are in place for data management for emission reduction reporting.


Excalibur E. Acosta Miranda
Leader Validator/Verifier

9 Validation statement

The validation statement is attached to this document.

10 Verification statement

Attached to this document is the verification statement.

11 Annexes

Annex 1. Competence of team members and technical reviewers

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ASOCIACIÓN DE NORMALIZACIÓN Y CERTIFICACIÓN, S.A. DE C.V.

EJE LÁZARO CÁRDENAS, NO. 869, FRACC. 3, COL. NUEVA INDUSTRIAL VALLEJO, C.P.
07700, ALCALDÍA GUSTAVO A. MADERO, CIUDAD DE MÉXICO, MÉXICO.

(55) 5747-4550

informa@ance.org.mx

Ha sido acreditado como Organismo de Certificación para Validación y/o verificación
de acuerdo con la Norma de referencia:

ISO/IEC 17029:2019 / ISO 14065:2020
para uso en la acreditación u otras formas de reconocimiento e
ISO 14064-3:2019

Gases de efecto invernadero - Parte 3: Especificación con orientación para la validación y
verificación de declaraciones sobre gases de efecto invernadero

Acreditación Número GEI001/15

Número de referencia: 23GEI0093

Fecha de acreditación: 2015/06/26

Fecha de actualización: 2024/03/21

Fecha de emisión: 2024/03/21

Sectores para la verificación de gases de efecto invernadero a nivel organizacional	
Sector verificación de la organización IAF MD 14	Ejemplos de actividades incluidas en el sector
1. Generación de energía y Transacciones de Energía Eléctrica	Transmisión de electricidad
	Generación de energía eléctrica en masa
	Transmisión desde instalaciones generadoras a centros de distribución y/o distribución a usuarios finales
	Sistemas de energía renovable
	Compra de electricidad, vapor
2. Manufactura en general (transformación física o química de materiales y sustancias en productos nuevos)	Manufactura – Equipo eléctrico y electrónico, maquinaria industrial
	Fabricación – Alimentos procesados Nota: Ingeniería civil, ej. Construcción, será cubierta bajo este sector
3. Exploración de petróleo y gas, así como su extracción, producción y refinación, y distribución por tuberías, incluyendo petroquímicos	Exploración y producción convencional
	Arenas bituminosas y procesamiento de derivados de petróleo
	Producción de metano a partir de carbón
	Plantas de procesamiento de gas
	Estructuras para pozos de gas
	Transporte y distribución
	Almacenamiento de gas natural y operaciones con GNL (gas natural licuado)
	Transportación de petróleo crudo
	Refinación
	Manufactura petroquímica
	Emisiones en tratamiento de gas y petróleo
	Emisiones de proceso (ej. Deshidratación de glicol, remoción de gases ácidos/recuperación de azufre, producción de hidrógeno, ruptura catalítica fluida (FCC) regeneración catalítica)
	Emisiones de destoque (ej. Carga de buques petroleros, almacenamiento en tanque y contención y emisiones de gases relacionados)
Emisiones fugitivas (ej. Fugas de equipos y tuberías)	
Eventos extraordinarios (ej. Fugas de gas durante el mantenimiento de gasoductos y equipos, fugas incidentales)	

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Sectores para la verificación de gases de efecto invernadero a nivel organizacional	
Sector verificación de la organización IAF MD 14	Ejemplos de actividades incluidas en el sector
4. Producción de metales	Producción y procesamiento de metales ferrosos
	Producción de aluminio secundario
	Procesamiento de metales no ferrosos, incluyendo producción de aleaciones
	Producción de coque
	Calcinación o sinterización de metales, incluyendo peletización.
6. Minería y producción mineral	Producción de clínkers de cemento y producción de cal o calcinados de dolomita o magnetita
	Vidrio y cerámica, fibra mineral
7. Pulpa, papel e impresiones	
8. Producción química	Producción de negro de carbón
	Producción de amoníaco
	Fabricación de productos químicos orgánicos en bruto mediante craqueo, reformado, oxidación parcial o completa o por procesos similares
	Producción de hidrógeno y síntesis de gas por reformado u oxidación parcial
	Producción de carbonato sódico y bicarbonato sódico
	Producción de ácido nítrico
9. Captura y almacenamiento de carbono	Producción de ácido adípico
	Producción de glicol y ácido glicólico
	Captura y transporte de gases de efecto invernadero por medio de tuberías para almacenaje geológico
10. Transporte	Almacenamiento geológico de gases de efecto invernadero en un sitio de almacenamiento con ese fin
	Aviación
11. Agricultura, silvicultura y otros usos de tierra (AFOLU/ASOUT)	Otros transportes
12. General	Edificio de servicios/Manejo de instalaciones
	Educación
	Hospitales
	Otros
13. Manejo y disposición de residuos	Agua y tratamiento de aguas residuales
	Vertederos y plantas de composteo

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Sectores para la validación / verificación de gases de efecto invernadero a nivel proyecto	
Sector validación y verificación de proyectos IAF MD 14	Ejemplos de actividades incluidas en el sector
1. Industrias energéticas (recursos renovables/no renovables)	Generación de energía térmica a partir de combustibles fósiles y biomasa incluyendo energía solar Generación de energía a partir de recursos energéticos renovables
4. Manejo y disposición de residuos	Manejo y disposición de residuos Manejo de residuos animales

Por la entidad mexicana de acreditación, a.c.

Maria Isabel López Martínez
Directora General



The accreditation number GEI001/15 of the CAB ANCE is emitted by the Mexican accreditation entity (ema) and contemplates the verification GHG inventories and the project validation/ verification of waste sector activities.

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Annex 2. Clarification requests, corrective action requests and forward action requests

Finding ID	Type of finding	Clarification / Corrective / Forward action	Date DD/MM/YY
Section No.			
6.8 Quantification of emission reductions and increases in GHG removals.			
Description of finding			
During the validation and verification carried out remotely it was found that, the quantities reported coming from the primary evidence of liquid waste (Net weight) are different from what was found in the manifests and remittances received by the organization (Scale weight) for the years 2019 and 2020.			
Project holder response (dd/mm/yyyy)			
28/02/2024 and 29/02/2024			
Documentation provided by the project holder			
File containing the compilation of manifests and remittances: REMITOS BV WORMS 2019-20240229T162019Z-001.zip REMITOS BV WORMS 2020-20240228T193356Z-001.zip			
CAB assessment (dd/mm/yyyy)			
Due to the lack of evidence, ANCE opted to expand the sample of shipments for the aforementioned years. Therefore, the project holder shared 10 more shipments for each month for the years in question for analysis. (20/03/2024)			

Finding ID	Type of finding	Clarification / Corrective / Forward action	Date DD/MM/YY
Section No.			
6.8 Quantification of emission reductions and increases in GHG removals.			
Description of finding			
During the validation and verification carried out remotely it was found that, from the evidence provided (control remittances.zip) does not match the data found in the folder entry controls (control trucks 2019 to 2023.zip) for the years 2019, 2020, 2021 and 2023.			
Project holder response (dd/mm/yyyy)			
14/03/2024 and 27/03/2024			
Documentation provided by the project holder			
Files 2021.zip 2022.zip 2023.zip			
CAB assessment (dd/mm/yyyy)			

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The Project holder attached the missing evidence regarding the identified shipments for the years 2021-2023. (27/03/2024)

Finding ID	3	Type of finding	Clarification / Corrective/ Forward action	Date DD/MM/YY
Section No.				
6.9 Data quality management				
Description of finding				
During the validation and verification carried out in documentary form it was found that, there are not procedures established for data quality management, as well as the evaluation of uncertainty.				
Project holder response (dd/mm/yyyy)				
05/04/2024				
Documentation provided by the project holder				
WORMS liquid V2-.xlsx BCR_Monitoring-Report-.docx PDD-Worms liquid V2-.docx				
CAB assessment (dd/mm/yyyy)				
The project owner conducted the uncertainty analysis for the years 2019 and 2020 and recalculated the emissions determined by the methodology, for 2021 he considered the net weight data; while for 2022-2023 the amount of waste entered and weighed by the scale owned by the project was used. As for the management of data, the owner establishes it in the PDD and Monitoring Plan. (05/04/2024)				

Finding ID	4	Type of finding	Clarification / Corrective/ Forward action	Date DD/MM/YY
Section No.				
Section III. Monitoring methodology - Tool AM0057				
Description of finding				
During the validation and verification carried out in a documentary manner it was found that, as part of the control procedures it is necessary: - An annual assessment of the conditions of the solid waste landfill (SWDS) where the waste would be dumped in the absence of the project activity. - Describe and specify in the PDD-MDL all monitoring procedures, including the type of measurement instrumentation used, monitoring responsibilities and procedures. - Measurement gauges should be installed, maintained and calibrated in accordance with the equipment manufacturer's instructions and conform to national or applicable national standards.				
Project holder response (dd/mm/yyyy)				

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05/04/2024
Documentation provided by the project holder
BCR_Monitoring-Report-.docx PDD-Worms liquid V2-.docx
CAB assessment (dd/mm/yyyy)
The project manager details in subsection 17, entitled "Monitoring Plan", a scenario that considers the situation in the absence of the project in relation to the landfills. It includes the monitoring measures and programs to be carried out according to the variables established, as well as the preparation of an integrated manual on the management system that includes responsibilities, records and calibrations. (05/04/2024)

Annex 3. Documentation review

Document review

- /I/ Project Description Document version 3 (PDD-Worms liquid V3-.docx);
- /II/ Monitoring Plan V.3 (BCR_Monitoring-Report-.docx);
- /III/ Sustainable Development Goals Tool (SDG-Tool-2023-Worms liquid V2-.xlsx);
- /IV/ Emission reduction spreadsheet (WORMS liquid V2-.xlsx);
- /V/ Receipt of waste shipments to the plant -2019 from January through December (2019-20240201T20225Z-001.zip);
- /VI/ Receipt of waste shipments to the plant -2020 from January through December (2020-20240201T203156Z-001.zip);
- /VII/ Receipt of waste shipments to the plant -2021 from January through December (2021-20240201T203158Z-001.zip);
- /VIII/ Receipt of waste shipments to the plant -2022 from January through December (2022-20240210T183901Z-001.zip);
- /IX/ Receipt of waste shipments to the plant -2023 from January through December (2023-20240210T190920Z-001.zip);
- /X/ Worksheets of the tracking of incoming trucks in 2019 (Control Camiones 2019-20240201T214028Z-001.zip);
- /XI/ Worksheets of the tracking of incoming trucks in 2020 (control camiones 2020-20240201T214014Z-001.zip);

- /XII/ Worksheets of the tracking of incoming trucks in 2021 (Control camiones 2021-20240210T192757Z-001.zip);
- /XIII/ Worksheets of the tracking of incoming trucks in 2022 (Control camiones 2022-20240201T213832Z-001.zip);
- /XIV/ Worksheets of the tracking of incoming trucks in 2023 (Control camiones 2023-20240201T202256Z-001.zip);
- /XV/ Fuel worksheet (consumo combustible.xlsx);
- /XVI/ Copy of energy Consumption (Copia de Consumo_energía.xlsx)
- /XVII/ Conservation of resources manual (Resource Conservation Manual.docx);
- /XVIII/ Descriptive memory (Descriptive Memory Worms Argentina.pdf);
- /XIX/ Fatty acid recovery method (P-Fatty Acids Recovery.pdf);
- /XX/ Fatty acid production process (Fatty Acid Production Procedure.docx);
- /XXI/ Declaraion of Assembly (2-WORMS Directory Renewal 2021.pdf);
- /XXII/ Compliant land use (7-Granting conforming land use.pdf)
- /XXIII/ Authorization to develop the activity (34-Habilitation Munic. A. Seco Plant - Resol. N° 024-18 - 16.03.2018.pdf);
- /XXIV/ Considerations of the Environmental Impact Study for the construction and operation of a plant for the treatment of non-hazardous liquid and solid waste from treatment plant for the treatment of non-hazardous industrial liquid and solid waste (27-Resol. N° 523 WORMS ARG. S.A. EIA.pdf);
- /XXV/ Update of the registration status of the industrail complex (55-Disp. 287-19 Renov. Reg. RT 0029.pdf);
- /XXVI/ Effluent discharge permit (Effluent Dumping Permit 21-06-19 WORMS.pdf);
- /XXVII/ Air quality environmental monitoring (Report N° 9985 - Air Quality.pdf);
- /XXVIII/ Groundwater environmental monitoring (Report N° 9986 - Groundwater.pdf);
- /XXIX/ Calculation of the CO₂ Emission Factor of the Argentine Electric Power Grid, Energy Data - Calculation of the CO₂ Emission Factor of the Argentine Electric Power Grid (energia.gob.ar);
- /XXX/ Records of Emission Factors of the Wholesale Electricity Market of Argentina, Emission Factor | CAMESA;

- /XXXI/ CO₂ emissions calculated on the basis of retail sales of liquid fuels in EESS - año 2018. Government Secretary of Energy, Argentina;
- /XXXII/ Eventual release control of process effluents (PE-8.2-01 Effluent discharge procedure.pdf);
- /XXXIII/ Control of access for solid and liquid waste (PE-8.2-02 Transport entry control instructions.pdf);
- /XXXIV/ Scale certification N°O.T. 307-15719 -2019(Sealing and Verification Reports.jpeg);
- /XXXV/ Scale certification (Certification scale (2).pdf);
- /XXXVI/ Sealing and verification report (OTN° 307-15719 y 28315) – 2019, 2021 y 2022.
- /XXXVII/ LAW ON MINIMUM BUDGETS FOR ADAPTATION AND MITIGATION TO GLOBAL CLIMATE CHANGE, Law 27520
- /XXXVIII/ Carbon Footprint Certification Services Contract (.pdf)
- /XXXIX/ Thecnical data sheet, Fatty acids for HVO (.pdf)
 - /XL/ SDG-Tool-2023-Worms liquid V2.xlsx
 - /XLI/ Environmental letters of obligation to suppliers (.pdf)
 - /XLII/ Responses to performance evaluation
 - /XLIII/ Work environment evaluation response
 - /XLIV/ Training record

Methodologies reviewed

- /a/ AM00057: Avoided emissions from biomass wastes through use as feed stock in pulp and paper, cardboard, fibreboard or bio-oil production, Version 03;
- /b/ Tool 04 - Methodological tool - CDM, Emissions from solid waste disposal sites. Version 08.1;
- /c/ Tool 05 - Methodological tool, Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, Version 03.;
- /d/ Tool 01 -Methodological tool, Tool for the demonstration and assessment of additionality Version 07.0;

Annex 4. Abbreviations

ANCE	Asociación de Normalización y Certificación, S.A. de C.V.
BCR	BioCarbon Registry
CAR	Corrective action requirement
CDM	Clean Development Mechanism
CL	Clarification request
CS	Competency Standard
FAR	Forward action request
GHG	Green house Gases
N.A.	Not applicable
PDD	Project Description Document
PP	Project Proponent
SDG	Sustainable Development Goals
VCC	Verified Carbon Credits
VVB	Validation and Verification Body
MVV	Validation – Verification Manual
tCO₂e	Tons of carbon dioxide equivalent