

M.O., 2023**Order 2023-1010 of the Minister of the Environment, the Fight Against Climate Change, Wildlife and Parks dated 29 November 2023**

Regulation respecting manure anaerobic digestion projects eligible for the issuance of offset credits

THE MINISTER OF THE ENVIRONMENT, THE FIGHT AGAINST CLIMATE CHANGE, WILDLIFE AND PARKS,

CONSIDERING section 46.1 of the Environment Quality Act (chapter Q-2), which provides that subdivision 1 of Division VI of Chapter IV of Title I of the Act applies to a person or municipality (the “emitter”) that carries on or operates a business, facility or establishment which emits greenhouse gases, that distributes a product whose production or use entails the emission of greenhouse gases or that is considered to be such an emitter by regulation of the Government;

CONSIDERING section 46.5 of the Act, according to which a cap-and-trade system is established to contribute to the achievement of the greenhouse gas reduction and limitation targets and mitigate the cost of reducing or limiting greenhouse gas emissions;

CONSIDERING subparagraph 2 of the first paragraph of section 46.8 of the Act, which allows the Minister of the Environment, the Fight Against Climate Change, Wildlife and Parks, subject to the conditions determined by regulation of the Government, to grant offset credits in particular to any person or municipality having carried out, in whole or in part, in accordance with the regulation made under section 46.8.2 of the Act, a project eligible for such credits that has resulted in a reduction of greenhouse gas emissions;

CONSIDERING section 46.8.2 of the Act, according to which the Minister may, by regulation, determine the projects that are eligible for offset credits, the conditions and methods applicable to those projects, and the information or documents, in particular, that must be kept or provided to the Minister by the person or municipality responsible for carrying out the project;

CONSIDERING the first paragraph of section 30 of the Act respecting certain measures enabling the enforcement of environmental and dam safety legislation (M-11.6), according to which the Government may, in a regulation made in particular under the Environment Quality Act, specify that failure to comply with a provision of the regulation may give rise to a monetary administrative penalty

and the regulation may set out the conditions for applying the penalty and determine the amounts or the methods for calculating them, which amounts may vary in particular according to the extent to which the standards have been violated;

CONSIDERING the first paragraph of section 45 of that Act, according to which the Government may determine in particular the provisions of a regulation the Government has made in particular under the Environment Quality Act whose contravention constitutes an offence and renders the offender liable to a fine the minimum and maximum amounts of which are set by the Government;

CONSIDERING the publication in Part 2 of the *Gazette officielle du Québec* of 5 April 2023, in accordance with sections 10 and 11 of the Regulations Act (chapter R-18.1), of the draft Regulation respecting manure anaerobic digestion projects eligible for the issuance of offset credits with a notice that it could be made by the Minister of the Environment, the Fight Against Climate Change, Wildlife and Parks on the expiry of 45 days following that publication;

CONSIDERING the comments received during the consultation and that it is appropriate to take them into account;

CONSIDERING that it is expedient to make the Regulation with amendments;

ORDERS AS FOLLOWS:

The Regulation respecting manure anaerobic digestion projects eligible for the issuance of offset credits, attached to this Order, is hereby made.

Québec, 29 November 2023

BENOIT CHARETTE

Minister of the Environment, the Fight Against Climate Change, Wildlife and Parks

Regulation respecting manure anaerobic digestion projects eligible for the issuance of offset credits

Environment Quality Act
(chapter Q-2, ss. 46.1, 46.5 and 46.8.2)

Act respecting certain measures enabling the enforcement of environmental and dam safety legislation
(chapter M-11.9, s. 1 (s. 30, 1st par., and s. 45, 1st par.))

CHAPTER I**OBJECT, SCOPE AND INTERPRETATION**

1. The object of this Regulation is to

- (1) determine the manure anaerobic digestion projects that are eligible for the issuance of offset credits pursuant to section 46.8.2 of the Environment Quality Act (chapter Q-2);
- (2) determine the conditions and methods applicable to such projects; and
- (3) determine the information and documents that a person or municipality responsible for carrying out an eligible project or a project whose eligibility must be determined must keep or provide to the Minister.

2. In this Regulation, unless otherwise indicated by context,

“biogas” means the raw gas produced by the fermentation of organic matter in the absence of oxygen;

“cap-and-trade system for emission allowances” means a cap-and-trade system for greenhouse gas emission allowances established pursuant to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances;

“cover crop” means a plant or mixture of plants that are sown after or during the growth of crop plants and that are not mowed, harvested or grazed before a period of 2 years following the harvest of the crop plants;

“crop residue” means aboveground biomass from cereal crops and oil crops left on the ground after harvest, except biomass used as litter;

“digester” means any hermetically closed and impervious tank or set of tanks within which a biological degradation process for organic matter takes place by fermentation in the absence of oxygen. For the purposes of this Regulation, a manure storage facility with a methane capture cover is not a digester;

“greenhouse gas” or “GHG” means a gas referred to in the second paragraph of section 46.1 of the Environment Quality Act (chapter Q-2) or in the second paragraph of section 70.1 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1), namely carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆), nitrogen trifluoride (NF₃), chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs);

“manure” means animal waste under liquid manure management within the meaning of section 3 of the Agricultural Operations Regulation (chapter Q-2, r.26);

“methane destruction device” means any device or operation referred to in Appendix A that allows methane to be destroyed;

“methane reclamation device” means any device or operation referred to in Appendix A that allows methane to be reclaimed;

“officer” means the president, chief executive officer, chief operating officer, chief financial officer or secretary of a legal person or a person holding a similar position, or any person designated as an officer by a resolution of the board of directors;

“professional” means a professional within the meaning of section 1 of the Professional Code (chapter C-26); any other person authorized by a professional order to carry on an activity reserved to a member of that order is also deemed to be a professional;

“promoter” means any person responsible for carrying out a project eligible for the issuance of offset credits.

CHAPTER II

ELIGIBILITY

DIVISION I

ELIGIBILITY CONDITIONS

3. A project to prevent methane emissions by the anaerobic digestion of manure is eligible for the issuance of offset credits pursuant to section 46.8.2 of the Environment Quality Act (chapter Q-2), for the eligibility period provided for in Division II of this Chapter, if it meets the following conditions:

(1) the project is carried out by a promoter registered for the cap-and-trade system for emission allowances in accordance with the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1), that is domiciled in Québec in the case of a natural person or has an establishment in Québec in other cases;

(2) the GHG emission reductions attributable to the project are achieved as an initiative of the promoter, without the promoter being required to do so, on the date of filing of the project notice or renewal notice provided for in Chapter IV, under a law or regulation, an authorization, an order made pursuant to a law or regulation or a court decision;

- (3) the manure anaerobic digestion process takes place in a digester as defined in paragraph 1 of section 2;
- (4) the methane is reclaimed or destroyed using a reclamation device or destruction device referred to in Appendix A;
- (5) the anaerobic digestion facility is situated in Québec;
- (6) subject to the second paragraph, the proportion of crop residues that supply the anaerobic digestion facilities may not exceed, during the eligibility period referred to in section 6, 10% of the annual gross tonnage of the solid or liquid manure of those facilities.

Despite paragraph 6 of the first paragraph, the project is not eligible for the issuance of offset credits if the crop residues that supply the anaerobic digestion facilities do not comply with the following requirements:

- (1) the rate of organic materials present in the soil where the crop residues are sourced must be 4% or greater;
- (2) the crop residues are not sourced from a cover crop;
- (3) the soils where the crop residues are sourced must be covered by a cover crop that took root not later than the 1 December that precedes the removal of the residues;

The rate of organic materials referred to in subparagraph 1 of the second paragraph is determined by a soil analysis carried out at least 2 years preceding the removal of the crop residues from the soil.

4. For the purposes of this Regulation, the manure used in the anaerobic digestion process must

- (1) come from swine or cattle;
- (2) come from an agricultural operation equipped with a liquid manure management system; and
- (3) come only from structures situated upstream from a manure storage works and not have been stored in a structure from which some of the methane may have been emitted into the atmosphere.

DIVISION II

ELIGIBILITY PERIOD

5. For the purposes of this Regulation, “eligibility period” means the period during which a project remains eligible for the issuance of offset credits, subject to compliance with the eligibility conditions in force when the project notice provided for in either section 11 or the second paragraph of section 13, or the renewal notice provided for in section 14, is filed.

6. The eligibility period has a term of 10 consecutive years and begins on the project start date.

The eligibility period may be renewed for the same term by filing the renewal notice provided for in section 14. The renewed eligibility period begins on the day following the end of the preceding period.

For the purposes of this Regulation, a project eligible for the issuance of offset credits is deemed to begin on the date on which the first GHG emission reductions attributable to the project occur.

CHAPTER III

GENERAL CONDITIONS APPLICABLE TO AN ELIGIBLE PROJECT

7. A project eligible for the issuance of offset credits must be carried out in accordance with all the requirements applicable to the project based on its type and the place where it is carried out.

8. The promoter must send to the Minister, within 30 days, a notice informing the Minister of any of the following events:

- (1) the promoter terminates the project before the end of the eligibility period referred to in section 6;
- (2) the promoter transfers responsibility for carrying out the project to another person.

The promoter must, for the purposes of the first paragraph, send a notice containing the following documents and information:

- (1) in the case of a project termination,
 - (a) the date of the project termination;
 - (b) the reason for the project termination;
 - (c) an estimate of the offset credits that will be requested by the promoter, for the reporting period during which termination occurs, in accordance with the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1); and
 - (d) a declaration by the promoter or the promoter's representative that the information provided is complete and accurate;
- (2) in the case of a transfer,
 - (a) the date of the transfer;
 - (b) the name of the transferee and all the information needed to identify the transferee, including the number of the general account opened by the Minister for the transferee pursuant to section 14 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances after the transferee registers for the cap-and-trade system for emission allowances;

(c) an estimate of the offset credits that will be requested by the promoter and by the transferee for the reporting period during which the transfer is carried out, in accordance with the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances; and

(d) a declaration by the promoter and the transferee, or their representatives, that the information provided is complete and accurate.

9. The promoter must use the forms or templates available on the website of the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs to submit any information or document required pursuant to this Regulation.

10. The promoter must keep a copy of any information or document that must be submitted pursuant to this Regulation for the duration of the project and for a minimum period of 7 years after the project's end date.

The promoter must also keep any other information or document needed to quantify the GHG emission reductions attributable to the promoter's project pursuant to Chapter V of this Regulation for the duration of the project and for a minimum period of 7 years after the project's end date.

The information and documents referred to in this section must also be provided to the Minister on request.

CHAPTER IV

PROJECT NOTICE AND RENEWAL NOTICE

11. The promoter must, not later than the date of filing of the first issuance request for offset credits under the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1), file a project notice with the Minister containing the following information and documents:

(1) the information needed to identify the promoter and the promoter's representative, if any;

(2) the number of the general account opened by the Minister for the promoter pursuant to section 14 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances following the promoter's registration for the cap-and-trade system for emission allowances;

(3) a summary description of the project and information about its location;

(4) an estimate of the expected annual and total GHG emission reductions attributable to the project, in metric tonnes CO₂ equivalent;

(5) the duration of the project and the start date for the project, when known, or in other cases an estimate of the duration and start date;

- (6) when the promoter has retained or intends to retain the services of a professional or another person to prepare or carry out the project,
 - (a) the information needed to identify that professional or person;
 - (b) a summary of the tasks that have been or will be entrusted to that professional or person; and
 - (c) where applicable, a declaration by the professional or person that the information and documents provided are complete and accurate;
- (7) the information needed to identify the owner of the anaerobic digestion site where the project is carried out and the owner's representative, if any;
- (8) the information needed to identify any person involved in reclaiming methane, in particular by purchasing the gas, and a description of the role played in reclamation by that person;
- (9) a declaration by the promoter or the promoter's representative that the information and documents provided are complete and accurate.

12. On receiving a project notice, the Minister assigns a project code and communicates the code to the promoter.

13. The project described in a notice filed in accordance with section 11 must start within 2 years following the filing.

After that time, a promoter that has not yet started the project must file a new project notice containing the information and documents referred to in section 11.

14. The promoter may, between the sixth and the first month preceding the end of the eligibility period for the project, ask the Minister to renew the eligibility period by filing a renewal notice containing, in addition to what is required by section 11, the following information:

- (1) the project code given to the project by the Minister pursuant to section 12;
- (2) a description of any change planned to the project for the new eligibility period.

CHAPTER V

QUANTIFICATION OF GHG EMISSION REDUCTIONS ATTRIBUTABLE TO AN ELIGIBLE PROJECT

15. The object of this Chapter is to

- (1) identify the GHG sources, sinks and reservoirs forming the project boundaries and determine the GHG emission reductions attributable to the project for quantification purposes;
- (2) define the period during which the GHG emission reductions attributable to the project are quantified and specify the calculation methods used for quantification; and

(3) establish the conditions for project monitoring, including the conditions for collecting and recording the data needed to quantify the GHG emission reductions attributable to the project, for installing, using, maintaining, verifying and calibrating the measuring instruments and other equipment used for data collection, and for using, maintaining and monitoring the reclamation devices and destruction devices used for the project.

DIVISION I

PROJECT BOUNDARIES AND GHG EMISSION REDUCTIONS ATTRIBUTABLE TO THE PROJECT

16. Only the GHG sources, sinks and reservoirs identified in the area of Figure 1 that lies within the dotted line and are described in Table 1 of Appendix B may be used by the promoter to quantify the GHG emission reductions attributable to the promoter's project. The GHG sources, sinks and reservoirs identified in this way form the project boundaries.

17. GHG emission reductions may only be deemed to be attributable to an eligible project for quantification purposes pursuant to this Chapter if no offset credits have previously been issued for those emission reductions pursuant to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1) and if no credits have been issued under another GHG offset program.

DIVISION II

REPORTING PERIOD AND CALCULATION METHODS FOR QUANTIFICATION

§ 1. – Reporting period

18. For the purposes of this Regulation, “reporting period” means a continuous period, within an eligibility period, during which the GHG emission reductions attributable to a project eligible for the issuance of offset credits are quantified in accordance with this Chapter for the issuance of offset credits.

The reporting periods of a project eligible for the issuance of offset credits cover 12 months and succeed each other in an uninterrupted fashion during the eligibility period for the project.

Despite the second paragraph, the first reporting period covers a minimum period of one month and a maximum period of 18 months.

§ 2. – Calculation methods

19. To quantify the GHG emission reductions attributable to a project during the reporting period, the promoter must use Equation 1:

Equation 1: Quantification of GHG emission reductions attributable to the eligible project

$$ER = CH_4 \text{ avoided} - FFE$$

Where:

ER = GHG emission reductions attributable to the project, in metric tonnes CO₂ equivalent;

CH₄ avoided = CH₄ emissions avoided by the project, calculated using Equation 2, in metric tonnes CO₂ equivalent;

FFE = GHG emissions attributable to the use of fossil fuels, calculated using Equation 13, in metric tonnes CO₂ equivalent.

20. To quantify the avoided CH₄ emissions attributable to the project, the promoter must use Equation 2:

Equation 2: Calculation of avoided CH₄ emissions attributable to the project

$$CH_4 \text{ avoided} = (BE - PE) \times GWP_{CH_4}$$

Where:

CH₄ avoided = Avoided CH₄ emissions attributable to the project, in metric tonnes CO₂ equivalent;

BE = CH₄ emissions in the baseline scenario, calculated using Equation 3, in metric tonnes;

PE = CH₄ emissions in the project scenario, calculated using Equation 8, in metric tonnes;

GWP_{CH₄} = Global warming potential of CH₄, taken from Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15).

§§ 1. – *Calculation of avoided CH₄ emissions attributable to the baseline scenario*

21. To quantify the avoided CH₄ emissions attributable to the project, the promoter must calculate the CH₄ emissions in the baseline scenario using Equations 3 to 8:

Equation 3: Calculation of total CH₄ emissions from manure pits at all agricultural facilities

$$DE = \sum_{i=1}^n Q_{CH_4 \text{ max},i} \times \rho_{CH_4} \times MCF_{pit} \times 0.001$$

Where:

DE = Total CH₄ emissions from the decomposition of manure in manure pits, in metric tonnes CH₄;

n = Number of agricultural facilities;

i = Agricultural facility;

$Q_{CH_4 max,i}$ = Maximum CH₄ production from manure for the eligible project at facility i , in cubic metres at standard conditions, calculated using Equation 4;

ρ_{CH_4} = Density of CH₄, in kilograms per cubic metre = 0.668;

MCF_{pit} = conversion factor for CH₄ in manure pits, as determined in Table 1 of Appendix D;

0.001 = Conversion factor, kilograms to metric tonnes.

Equation 4: Calculation of maximum methane production from eligible manure, by agricultural facility

$$Q_{CH_4 max,i} = QL_i \times \sum_{j=1}^k (R_{QL,i,j} \times VS_j \times B_{0,j})$$

Where:

$Q_{CH_4 max,i}$ = Maximum CH₄ production from eligible manure at facility i , in cubic metres at standard conditions;

k = Number of livestock categories;

j = Livestock category from Table 1 in Appendix C;

QL_i = Quantity of manure from agricultural facility i processed by anaerobic digestion, in kilograms;

$R_{QL,i,j}$ = Estimated rate of manure production by livestock category j at facility i , calculated using Equation 5;

VS_j = Volatile solids for livestock category j , determined in Table 1 in Appendix C, in kilograms per kilogram of manure;

$B_{0,j}$ = Maximum potential CH₄ production for livestock category j , determined in Table 1 in Appendix C, in cubic metres of methane per kilogram of volatile solids.

Equation 5: Estimated rate of manure production for each livestock category, by agricultural facility

$$R_{QL,i,j} = (LF_{i,j} \times FD_j) \div \sum_{j=1}^k (RA_{i,j} \times EF_j)$$

Where:

$R_{QL,i,j}$ = Estimated rate of manure production for livestock category j at facility i ;

$LF_{i,j}$ = Fraction of livestock category j in the herd at facility i , using the value established for each case in the paragraphs below;

EF_j = Excretion factor for livestock category j , determined in Table 1 in Appendix C, in kilograms per head per day;

k = Number of livestock categories at facility *i*;

j = Livestock category from Table 1 in Appendix C.

The fraction of a livestock category per facility (LF) is established as follows:

(1) for cattle facilities, the promoter must determine the average percentage using the headcount for each livestock category in the herd, where the excrement is processed by anaerobic digestion during the reporting period;

(2) for swine facilities, the promoter must determine the average percentage using the number of places for each livestock category in the herd, where the excrement is processed by anaerobic digestion during the reporting period.

22. The promoter may correct the volatile solids rate in the manure prior to anaerobic digestion by replacing Equations 4 and 5 by Equations 6 and 7 and by measuring the volatile solids rate in accordance with the following conditions:

(1) the volatile solids rate is sampled at least quarterly for each source of manure for which the volatile solids rate is corrected;

(2) the sampling must take place after the separation of the solid and liquid phases of the manure, where applicable;

(3) the manure sampled must not have been mixed with other inputs.

The collection and storage of samples must be carried out in accordance with the most recent version of the section concerning the analysis of inorganic chemical parameters in the Protocole d'échantillonnage de matières résiduelles fertilisantes et dispositions particulières liées à l'accréditation (DR-12-MRF-02) published by the Centre d'expertise en analyse environnementale du Québec of the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs.

The analysis of the volatile solids rate must be conducted by a laboratory accredited by the Centre d'expertise en analyse environnementale du Québec of the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs in accordance with the most recent version of the Méthode d'analyse MA.100-S.T.1.1 it publishes.

The volatile solids rate to be used in Equation 7 is the lower limit of the 95% confidence interval for the annual average measured.

If the volatile solids rate has not been measured in compliance with the conditions mentioned in the first paragraph, manure that has undergone a treatment to separate the liquid and solid phases must be considered as raw manure and no correction is possible.

Equation 6: Correction of the maximum production of eligible manure based on the volatile solids rate measured, by agricultural facility

$$Q_{CH4 \max \text{ corrected}, i} = QL_i \times \sum_{j=1}^k (VS_{\text{measured}, i} \times R_{VS, j} \times B_{0, j})$$

Where:

$Q_{CH4 \max \text{ corrected}, i}$ = Maximum production of CH₄ from eligible manure at facility i corrected based on the volatile solids rate measured in the solid phase of the liquid manure, in cubic metres at standard conditions;

QL_i = Quantity of manure from agricultural facility i processed by anaerobic digestion, in kilograms;

k = Number of livestock categories;

j = Livestock category from Table 1 in Appendix C;

$VS_{\text{measured}, i}$ = Average volatile solids measured quarterly in manure at agricultural facility i , in kilograms per kilogram of manure;

$R_{VS, j}$ = Estimated rate of volatile solids produced by livestock category j at facility i , calculated using Equation 7;

B_0 = Maximum potential CH₄ production by livestock category j , determined in Table 1 in Appendix C, in cubic metres per kilogram of volatile solids.

Equation 7: Estimated rate of volatile solids attributable to various livestock categories, by agricultural facility

$$R_{VS, i, j} = (RA_{i, j} \times VS_j) \div \sum_{j=1}^k (RA_{i, j} \times VS_j)$$

Where:

$R_{VS, j}$ = Estimated rate of volatile solids produced by livestock category j at facility i ;

k = Number of livestock categories;

j = Livestock category from Table 1 in Appendix C;

$RA_{i, j}$ = Fraction of livestock category j in herd at facility i , using the value established in the cases provided for in the paragraphs following Equation 5;

VS_j = Volatile solids for livestock category j , determined in Table 1 in Appendix C, in kilograms per kilogram of manure.

§§ 2. – Calculation of avoided CH₄ emissions attributable to the project scenario

23. For the quantification of avoided CH₄ emissions attributable to the project, the promoter must calculate the CH₄ emissions in the project scenario using Equations 8 to 11:

Equation 8: Calculation of CH₄ emissions from the anaerobic digestion of manure

$$PE = CLE + DE$$

Where:

PE = CH₄ emissions from the project, in metric tonnes CO₂ equivalent;

CLE = CH₄ emissions attributable to constant leaks of biogas during normal operation of the project facilities, calculated using Equation 9, in metric tonnes CH₄;

DE = CH₄ emissions attributable to the decomposition of liquid digestate in the manure pits, calculated using Equation 11, in metric tonnes CH₄.

Equation 9: Calculation of CH₄ emissions attributable to constant leaks of biogas

$$CLE = \sum_{i=1}^n Q_{CH_4 \max, i} \times MCF_{digester} \times [0.02 + (1 - 0.02) \times (1 - WAE)] \times 0.668 \times 0.001$$

Where:

CLE = CH₄ emissions attributable to constant leaks of biogas during normal operation of the project facilities, in metric tonnes de CH₄;

n = Number of agricultural facilities;

i = Agricultural facility;

Q_{CH₄ max, i} = Maximum CH₄ production from eligible manure by agricultural facility *i*, calculated using Equation 4 or Equation 6 for the correction of the volatile solids rate, in cubic metres CH₄;

MCF_{digester} = Conversion factor for CH₄ in the digester, default value = 0.70;

0.02 = Default leak factor at anaerobic digestion facility;

WAE = Weighted average efficiency of all CH₄ reclamation and destruction devices used, calculated using Equation 10;

0.668 = Density of CH₄, in kilograms per cubic metre;

0.001 = Conversion factor, kilograms to metric tonnes.

Equation 10: Calculation of the weighted average efficiency of all CH₄ reclamation or destruction devices

$$WAE = \sum_{d=1}^y \frac{(BG_d \times DEF_d)}{\sum BG_d}$$

Where:

WAE = Weighted average efficiency of all CH₄ reclamation and destruction devices used;

y = Number of reclamation or destruction devices used;

d = Reclamation or destruction device;

BG_d = Biogas sent to reclamation or destruction device *d*, in cubic metres of CH₄ at standard conditions;

DEF_d = Efficiency factor for CH₄ reclamation or destruction device, determined in Appendix A.

Equation 11: Calculation of CH₄ emissions from digestate storage

$$DE = \sum_S^a \sum_i^n (Q_{CH_4 \max, i} \times 0.668 \times 0.001) \times (1 - MCF_{digester}) \times D_S \times MCF_S$$

Where:

DE = CH₄ emissions attributable to the decomposition of digestate while in storage, in metric tonnes CH₄;

a = Number of digestate storage systems;

S = Digestate storage system;

n = Number of agricultural facilities

i = Agricultural facility

Q_{CH₄ max, i} = Maximum CH₄ production from eligible manure at agricultural facility *i*, calculated using Equation 4 or Equation 6 for the correction of the volatile solids rate, in cubic metres CH₄;

0.668 = Density of CH₄, in kilograms per cubic metre

MCF_{digester} = Conversion factor for CH₄ in the digester, default value = 0.70;

D_S = Fraction of digestate sent to storage system S;

MCF_S = CH_4 conversion factor achieved in the digestate storage system, determined in Table 1 of Appendix D.

When the solid and liquid phases of the digestate are separated, the fraction of the digestate stored in various storage systems must be calculated taking into account the volatile solids removed at separation, as determined in Table 2 of Appendix D.

24. For the purposes of Equations 9 and 11, the promoter may replace the default conversion factor for CH_4 in the digester by a conversion factor for methane specific to the anaerobic digestion facility, determined using the method in Appendix F.

25. When the flow meter used for quantification purposes does not correct for the temperature and pressure of the biogas at standard conditions, the promoter must measure the biogas pressure and temperature separately and correct the flow values using Equation 12. The promoter must then use the corrected flow values for quantification purposes.

Equation 12: Correction of biogas volume at standard conditions

$$BG_{d,t} = BG_{uncorrected} \times \frac{293.15}{T} \times \frac{P}{101.325}$$

Where:

BG_t = Corrected volume of biogas sent to reclamation or destruction device d during time interval t , in cubic metres at standard conditions;

d = Reclamation or destruction device;

t = Time interval shown in Appendix E for which CH_4 flow and content measurements are aggregated;

$BG_{uncorrected}$ = Uncorrected volume of the biogas captured during time interval t , in cubic metres;

T = Measured temperature of the biogas for the given time interval, in Kelvin ($^{\circ}C + 273.15$);

P = Measured pressure of the biogas for the given time interval, in kilopascals.

§§ 3. – *Calculation of GHG emissions attributable to the use of fossil fuels*

26. For the quantification of the GHG emission reductions attributable to the project, the promoter must calculate the quantity of GHG emissions attributable to fossil fuel consumption for the purposes of the project using the following equation:

Equation 13: Calculation of GHG emissions attributable to the portion of fossil fuels used to treat manure

$$FFE = \sum_{f=1}^z \left[CF_f \times \frac{QL}{QI} \times \left[(FFF_{CO_2,f} \times 10^{-3}) + (FFF_{CH_4,f} \times GWP_{CH_4} \times 10^{-6}) + (FFF_{N_2O,f} \times GWP_{N_2O} \times 10^{-6}) \right] \right]$$

Where:

FFE = Total GHG emissions attributable to fossil fuel consumption, in metric tonnes CO₂ equivalent;

z = Number of types of fossil fuel;

f = Type of fossil fuel;

CF_f = Total quantity of fossil fuel *f* consumed, expressed

— in kilograms, in the case of fuels whose quantity is expressed as a mass;

— in cubic metres at standard conditions, in the case of fuels whose quantity is expressed as a volume of gas;

— in litres, in the case of fuels whose quantity is expressed as a volume of liquid;

QL = Quantity of manure treated by anaerobic digestion, in metric tonnes;

QI = Total quantity of inputs treated by anaerobic digestion, in metric tonnes;

FFF_{CO₂,f} = CO₂ emission factor for fossil fuel *f* specified in Tables 1-3 to 1-8 of QC.1.7 for stationary equipment and in Table 27-1 of QC.27 for mobile equipment in Schedule A.2 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15), expressed

— in kilograms of CO₂ per kilogram, in the case of fuels whose quantity is expressed as a mass;

— in kilograms of CO₂ per cubic metre at standard conditions, in the case of fuels whose quantity is expressed as a volume of gas;

— in kilograms of CO₂ per litre, in the case of fuels whose quantity is expressed as a volume of liquid;

10⁻³ = Conversion factor, kilograms to metric tonnes;

FFF_{CH₄,f} = CH₄ emission factor for fossil fuel *f* specified in Tables 1-3 to 1-8 of QC.1.7 for stationary equipment and in Table 27-1 of QC.27 for mobile equipment in Schedule A.2 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere, expressed

— in grams of CH₄ per kilogram, in the case of fuels whose quantity is expressed as a mass;

— in grams of CH₄ per cubic metre at standard conditions, in the case of fuels whose quantity is expressed as a volume of gas;

— in grams of CH₄ per litre, in the case of fuels whose quantity is expressed as a volume of liquid;

GWP_{CH₄} = Global warming potential of CH₄, taken from Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere;

10⁻⁶ = Conversion factor, grams to metric tonnes;

FFF_{N₂O,f} = N₂O emission factor for fossil fuel *f* specified in Tables 1-3 to 1-8 of QC.1.7 for stationary equipment and in Table 27-1 of QC.27 for mobile equipment in Schedule A.2 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere, expressed

— in grams of N₂O per kilogram, in the case of fuels whose quantity is expressed as a mass;

— in grams of N₂O per cubic metre at standard conditions, in the case of fuels whose quantity is expressed as a volume of gas;

— in grams of N₂O per litre, in the case of fuels whose quantity is expressed as a volume of liquid;

GWP_{N₂O} = Global warming potential of N₂O, taken from Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere.

§ 3. – *Missing data*

27. Where the data needed to quantify the GHG emission reductions attributable to an eligible project are missing and the following conditions are met, the promoter uses the upper or lower limit of the 95% confidence interval for the 72 hours preceding and following the period for which the data are missing, based on the most prudent result:

- (1) the data are missing for 7 or fewer days;
- (2) the data concern CH₄ concentration parameters or biogas flow measurements that are discontinuous, non-chronic and due to unforeseen circumstances;
- (3) the proper functioning of the digester can be shown by pressure readings from the vessel;
- (4) the proper functioning of the reclamation or destruction device can be shown by thermocouple readings for a flare, or by the monitoring device for a reclamation or destruction device for any other reclamation or destruction device;

- (5) the data concern either the biogas flow or the CH₄ concentration, but not both;
- (6) the missing data concern biogas flow rate measurements, a continuous analyzer is used to measure the CH₄ concentration and it is shown that the CH₄ concentration was consistent with normal operations for the time when the data are missing; and
- (7) the missing data concern the CH₄ concentration measurements and it is shown that the biogas flow rate was consistent with normal operations for the time when the data are missing.

For missing data for more than 7 days, no data may be replaced and no GHG emission reduction may be counted.

DIVISION III

CONDITIONS APPLICABLE TO PROJECT MONITORING

28. The promoter is responsible for project monitoring, which includes all tasks relating to the collecting and recording of the data needed to quantify the GHG emission reductions attributable to the project, and all tasks relating to the installation, use, maintenance, verification and calibration of the measurement instruments and other equipment used for data collection and to the use, maintenance and monitoring of reclamation and destruction devices.

The promoter must ensure that the measurement and monitoring of monitoring parameters are carried out in accordance with the table in Appendix E.

29. To monitor the proper operation of the project, the promoter must calculate the quantity of CH₄ reclaimed or destroyed that can be attributed to the anaerobic digestion of eligible manure as part of the project, using the following equation:

Equation 14: Calculation of the quantity of CH₄ reclaimed or destroyed by the project that can be attributed to the anaerobic digestion of manure

$$CH_4_{V-D} = \sum_{t=1}^x \sum_{d=1}^y \left[BG_{d,t} \times CMD_t \times \left(\frac{QL_t}{QI_t} \right) \times EFD_d \right] \times 0.668 \times 0.001 \times PRP_{CH_4}$$

Where:

CH₄_{V-D} = Quantity of CH₄ reclaimed or destroyed that can be attributed to eligible manure, in metric tonnes CO₂ equivalent;

x = Number of time intervals;

t = Time interval referred to in Appendix E during which measurements of the CH₄ content of the biogas are aggregated;

y = Number of reclamation or destruction devices used;

d = Reclamation or destruction device;

$BG_{d,t}$ = Biogas sent to reclamation or destruction device d , during time interval t , in cubic metres of biogas at standard conditions;

CMD_t = Concentration of CH_4 in the biogas measured at the closest point to the reclamation or destruction device and after purification of the biogas where applicable, during time interval t , in cubic metres of CH_4 per cubic metre of biogas at standard conditions;

QL_t = Quantity of eligible manure treated by the anaerobic digestion facility during time interval de temps t , in metric tonnes;

QI_t = Total quantity of input treated by the anaerobic digestion facility during time interval t , in metric tonnes;

EFD_d = Efficiency factor for CH_4 reclamation or destruction device d , determined in Appendix A;

0.668 = Density of CH_4 , in kilograms per cubic metre;

0.001 = Conversion factor, kilograms to metric tonnes;

GWP_{CH_4} = Global warming potential of CH_4 , taken from Schedule A.1 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15).

30. When the CH_4 reclaimed or destroyed through the anaerobic digestion of eligible manure, calculated using Equation 14, is less than the CH_4 avoided by the project, calculated using Equation 2, the fraction of volatile solids in the digestate after anaerobic digestion in Equation 9 must be replaced by 1.

§ 1. – *Installation and use of measurement instruments and other equipment*

31. Every measurement instrument, biodigester or other equipment used for quantification purposes pursuant to this Chapter must be installed and used in accordance with the manufacturer's instructions, be maintained in good working order and work reliably during operating hours.

32. The quantity of input materials or digestate must be measured using a charging scale that is stationary or installed on a tank truck, or using a level detector installed in the system where inputs are received.

33. The flow meter and the CH_4 analyzer for the biogas must meet the following conditions:

- (1) they must not be separated by a component that eliminates moisture;
- (2) they must be installed in a way that allows them to measure the gas flow and CH_4 concentration in the biogas sent to the reclamation or destruction device before any additional fuel is added.

In addition to the conditions set out in the first paragraph, the flow meter and CH₄ analyzer must measure

- (1) the flow of biogas before it is sent to the reclamation or destruction device, at least once per hour, adjusted for temperature and pressure; and
- (2) the CH₄ concentration of the biogas sent to each reclamation or destruction device, at least once per hour in the case of a stationary methane analyzer or quarterly in the case of a portable methane analyzer.

When the temperature and pressure must be measured to correct flow values at standard conditions, they must be measured at the same frequency as the biogas flow.

§ 2. — *Maintenance, verification and calibration of measurement instruments*

34. Every measurement instrument used for quantification purposes pursuant to this Chapter must be maintained, cleaned and inspected as specified in the project's monitoring plan and at the minimum maintenance, cleaning and inspection frequency specified by the manufacturer.

Not more than 3 months before the end date of the reporting period for which quantification is carried out, the promoter must, for all biogas flow meters, fixed or portable CH₄ analyzers, charging scales or level detectors used for quantification purposes pursuant to this Chapter,

- (1) have the accuracy of every flow meter used verified by a qualified and independent person. The person must, for that purpose, use a Type L Pitot tube or a reference flow meter with a valid calibration certificate issued by the manufacturer or by a third party certified for that purpose, and compare the values obtained using that device with the values measured by the flow meter used for the project; and
- (2) for every CH₄ concentration analyzer, charging scale or level detector used, either
 - (a) have the accuracy of the instrument verified by a qualified and independent person. The person must, for that purpose, use a reference device with a valid calibration certificate issued by the manufacturer or by a third person certified for that purpose, and compare the values obtained using that device with the values measured by the instrument used for the project; or
 - (b) have the instrument calibrated by the manufacturer or by a third party certified for that purpose by the manufacturer.

The promoter must also have the instruments calibrated by the manufacturer or by a third party certified for that purpose by the manufacturer at the frequency specified by the manufacturer or, if that frequency is greater than 5 years, every 5 years.

The verification of the accuracy of charging scales, level detectors, flow meters and CH₄ analyzers performed in accordance with subparagraph 2 of the second paragraph must determine if the relative error in the reading of the mass or volume of inputs, the volumetric flow or the CH₄ concentration is within a +/-5% range from the reference value calculated using the following equation:

Equation 15: Calculation of the relative error of measurement instruments

$$\text{Relative error (\%)} = \frac{M_{\text{project inst}} - M_{\text{reference inst}}}{M_{\text{project inst}}} \times 100$$

Where:

Relative error = Percentage difference between the measurements of the mass or volume of inputs or the volumetric flow or CH₄ concentration of biogas by the project instruments compared to the reference instruments;

$M_{\text{project inst}}$ = Measurement made by measurement instruments for the project, being the mass or volume of inputs measured by charging scales or level detectors, the volumetric flow of biogas measured by the flow meter for the project, or the CH₄ concentration in the biogas measured by the CH₄ analyzer for the project;

$M_{\text{reference inst}}$ = Measurement made by reference instruments, being the mass or volume of inputs measured by the reference charging scales or level detectors, the volumetric flow of biogas measured by the reference flow meter or Type L Pitot tube, or the CH₄ concentration in the landfill gas measured by the reference CH₄ analyzer.

35. When the verification of the accuracy of the measurement instruments in accordance with section 34 shows that the mass or volume of inputs at the charging scales or level detectors, the volumetric flows of biogas at the flow meters, or the CH₄ concentrations at the CH₄ analyzers have a relative error outside the +/-5% range, the promoter must take the necessary corrective actions, such as cleaning or adjusting the sensor on the instruments, as specified by the manufacturer. The promoter must then verify the accuracy of the instruments again in accordance with section 34.

When the corrective actions taken by the promoter do not, following a new verification, ensure that the instruments can maintain a relative error within the +/-5% range, the promoter must have the instruments calibrated by the manufacturer or by a third party certified by the manufacturer. The calibration must be performed not more than 2 months after the end date of the reporting period for which quantification is carried out.

36. Data collected by a measurement instrument between the time of the last verification of the accuracy of the instrument with a relative error within the +/-5% range and the time when a calibration is performed pursuant to the section 34 must be used or corrected to quantify the GHG emission reductions attributable to the project as follows:

- (1) when the relative error calculated using Equation 15 is negative, the promoter must use the measured values without correction;
- (2) when the relative error calculated using Equation 15 is positive, the promoter must correct the measurements by multiplying them by the relative error obtained using that equation.

§ 3. – *Use, maintenance and monitoring of reclamation or destruction devices*

37. Every reclamation or destruction device must be used in accordance with the manufacturer's instructions, be maintained in good working order and work reliably during operating hours.

38. The operating status of reclamation or destruction devices must be monitored and recorded at least hourly, as follows:

- (1) for flares, by thermocouple readings above 260°C;
- (2) for other reclamation or destruction devices referred to in Appendix A, using a monitoring device to verify the operating status of the reclamation or destruction device.

Where methane is injected into a natural gas distribution network, or compressed or liquefied before being injected into a natural gas distribution network, the monitoring device used must be placed at the injection station of the natural gas distribution network.

39. If a monitoring device for any other reclamation or destruction device, or the reclamation or destruction device itself, is not in good working order, the efficiency factor for a device listed in Appendix A is zero.

40. The quantity of methane not reclaimed or destroyed by a reclamation or destruction device that is emitted into the atmosphere during an occasional leak must be identified and quantified. That quantity of methane must be subtracted from the quantification in proportion to the quantity of manure present in the inputs during the 30-day period preceding the occasional leak.

41. When biogas is reclaimed by a person other than the promoter, the promoter must ensure that the conditions of this Division are complied with.

§ 3. – *Monitoring plan*

42. To ensure monitoring of the project, the promoter must establish a project monitoring plan covering the measurement of the parameters in Appendix E as provided for in that Appendix, which must also

- (1) specify the methods used to collect and record the data required for all the parameters in Appendix E, and specify the frequency of data acquisition;
- (2) specify
 - (a) the maintenance, cleaning and inspection frequency specified by the manufacturer;
 - (b) the dates of the maintenance, cleaning and inspection of the equipment used for the project;
 - (c) the frequency of the verification of measurement instrument accuracy and calibration, in accordance with subdivision 2 of this Division; and

- (d) the methods used to replace missing data, where applicable, in accordance with subdivision 3 of Division II of this Chapter;
- (3) specify the role of the person responsible for each monitoring activity and the quality assurance and quality control measures taken to ensure that data acquisition and the verification of measurement instrument accuracy and calibration are carried out consistently, precisely and in accordance with this Chapter; and
- (4) include a template for the maintenance logs for project components.

CHAPTER VI

PROJECT REPORT

DIVISION I

GENERAL CONDITIONS

43. The promoter must produce a project report for each reporting period referred to in section 18 not later than 4 months following the end of the reporting period concerned, with the content specified in Division II of this Chapter.

A promoter whose project ends during a period covering a reporting period is not bound by the requirement in the first paragraph for that reporting period. The promoter must notify the Minister of the situation within 30 days following the end of the reporting period.

44. Every project report verified in accordance with Chapter VII in which the verifier has noted errors, omissions or inaccuracies must be corrected by the promoter before any issuance request for offset credits is made under the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1).

45. The promoter must, on request, provide the Minister with the project reports produced.

DIVISION II

CONTENTS OF THE PROJECT REPORT

46. The project report produced for the first reporting period must contain the following information and documents:

- (1) the information needed to identify the promoter and the promoter's representative, if any;
- (2) where the promoter has retained the services of a professional or of another person to prepare or carry out the project,
 - (a) the information needed to identify the professional or person;
 - (b) a summary of the tasks entrusted to the professional or person; and
 - (c) where applicable, a declaration by the professional or person that the information and documents provided are complete and accurate;

- (3) the project code given to the project by the Minister upon receipt of the project notice referred to in Chapter IV;
- (4) a detailed description of the project;
- (5) information about the location of the project;
- (6) the information needed to identify the owner of the project site and the owner's representative, if any, if the promoter is not the owner;
- (7) the herd breeding records for the agricultural operations from which the manure is sourced, detailing the headcount or the number of places for each livestock category during the reporting period, as presented in Table 1 in Appendix C;
- (8) a log kept by the transporter of the manure detailing, for each load, the volume of manure collected, the date, the agricultural operation, and the point in the manure management system where the manure was loaded;
- (9) a demonstration that the project meets the conditions set out in Division I of Chapter II, including a copy of any relevant document;
- (10) a description of the GHG sources, sinks and reservoirs forming the project boundaries;
- (11) when an analysis of the environmental impacts of the project has been performed, a summary of the analysis and its conclusions;
- (12) a copy of all authorizations needed for the project;
- (13) information about financial assistance received for the project under any other program for GHG emission reductions;
- (14) the project monitoring plan referred to in subdivision 3 of Division III of Chapter V;
- (15) a detailed plan showing the layout of the various project components, in particular the measurement instruments and equipment connected with the GHG sources, sinks and reservoirs defining the project boundaries;
- (16) information on the charging scales, level detectors, flow meters, CH₄ analyzers and biogas destruction devices used for the project, including their type, model number, serial number and most recent calibration certificate;
- (17) a description of any problem occurring during the operation of the project that may affect the quantity of GHG emission reductions attributable to the project;
- (18) the start and end dates for the reporting period covered by the project report;

- (19) the GHG emission reductions attributable to the project for the reporting period quantified annually in accordance with Chapter V, in metric tonnes CO₂ equivalent, along with the calculation methods and all the information and documents used for the quantification, including a copy of the raw measurement data used for quantification purposes;
- (20) periods of missing data, the nature of the missing data and the methods used to replace them in accordance with section 27;
- (21) a demonstration that the thermocouple or monitoring device has successfully monitored and confirmed the proper operation of the reclamation or destruction device;
- (22) a copy of the maintenance and monitoring log for all measurement instruments, devices and other project equipment;
- (23) a copy of the verification reports showing the accuracy of all measurement instruments and the calibration certificates referred to in subdivision 2 of Division III of Chapter V;
- (24) where a flow meter has been calibrated, a demonstration that the calibration was performed in variable flow conditions matching the conditions of the anaerobic digestion site;
- (25) where a CH₄ analyzer has been calibrated, a demonstration that the calibration was performed in temperature and pressure conditions matching the conditions of the anaerobic digestion site;
- (25) where a charging scale or level detector has been calibrated, a demonstration that the calibration was performed in variable mass and volume conditions matching the conditions of the anaerobic digestion site;
- (26) where the promoter is not the owner of the project site, a declaration by the owner that the owner has authorized the carrying out of the project by the promoter and undertakes, with respect to the GHG emission reductions covered by the project report, not to make a request for the issuance of offset credits under the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1) or for credits under another voluntary or regulatory GHG offset program;
- (27) a declaration by the promoter or the promoter's representative that no offset credits for the GHG emission reductions covered by the project report have been issued pursuant to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances and that no credits have been or will be issued under another voluntary or regulatory GHG offset program;
- (28) a declaration by the promoter or the promoter's representative that the project is carried out in accordance with this Regulation and that the information and documents provided are complete and accurate.

47. Where biogas is reclaimed, the project report produced for the first reporting period must also include

(1) the information needed to identify any person involved in reclaiming the methane, in particular the person that purchases the gas, along with a description of the role played in the reclamation by the person;

(2) a detailed plan showing all the project components associated with biogas reclamation, including the location of all the measurement instruments and equipment connected with the GHG sources, sinks and reservoirs defining the project boundaries up to the injection point into the natural gas distribution network, where applicable;

(3) a copy of the contract of sale for the biogas;

(4) evidence of the sale of the biogas, including the actual quantities sold during the reporting period; and

(5) a declaration by any person involved in reclaiming the biogas, in particular the person that purchases the gas, that the person undertakes, with respect to the GHG emission reductions covered by the project report, not to make a request for the issuance of offset credits under the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1) or a request for credits under another voluntary or regulatory GHG offset program.

48. Every subsequent project report must include the following information and documents:

(1) the information and documents listed in paragraphs 1 to 3, 7, 8 and 16 to 28 of section 46;

(2) a detailed description of any change made to the project since the end of the preceding reporting period or to the information contained in the project report produced for that period and, where applicable, a demonstration that the project still meets the requirements of Division I of Chapter II and of the project monitoring plan if that plan has been amended.

49. Where methane is reclaimed, every subsequent project report must also include the information and documents listed in paragraphs 4 and 5 of section 47.

CHAPTER VII **VERIFICATION**

DIVISION I **GENERAL CONDITIONS**

50. The promoter must entrust every verification of a project report to a verification body accredited under ISO Standard 14065 by a member of the International Accreditation Forum in Canada or the United States and according to ISO Standard 17011, with respect to the sector of activity for the project.

Despite the first paragraph, the verification of a project report may be entrusted to a verification body that is not yet accredited if that body is accredited in accordance with the first paragraph in the year following the verification of the project report.

51. The promoter may entrust the verification of a project report to a verification body in accordance with section 50 if the body, the verifier designated by that body to conduct the verification and the other members of the verification team

(1) have not acted for the promoter, in the 3 preceding years, as a consultant for the purpose of developing the project or calculating the GHG emission reductions attributable to the project; and

(2) have not verified project reports covering more than six consecutive reporting periods for the project being verified.

In addition, when the promoter wishes to have the project report verified by a verification body other than the verification body that verified the report for the preceding reporting period, the verification body entrusted with the verification, the verifier designated by that body to conduct the verification and the other members of the verification team, must not have verified a project report covering the three preceding reporting periods for that project.

52. In addition to the requirements of the standards ISO 14064-3 and ISO 14065 concerning conflicts of interest, the promoter must ensure that none of the following situations exists between the promoter, its officers, the verification body and the members of the verification team referred to in section 51:

(1) a member of the verification team or a close relative of that member has personal ties with the promoter or one of its officers;

(2) during the 3 years preceding the year of the verification, one of the members of the verification team was employed by the promoter;

(3) during the 3 years preceding the year of the verification, one of the members of the verification team provided the promoter with one of the following services:

(a) the design, development, commissioning or maintenance of a data inventory or data management system for GHG emissions from the establishment or facility of the promoter or, where applicable, for data on electricity or fuel transactions;

(b) the development of GHG emission factors, or the design and development of other data used for quantification purposes for any GHG emission reductions;

(c) a consultation concerning GHG emission reductions or GHG removals from the atmosphere, in particular the design of an energy efficiency or renewable energy project and the assessment of assets relating to GHG sources, sinks and reservoirs;

(d) the preparation of manuals, guides or procedures connected with the reporting of the promoter's GHG emissions under the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (chapter Q-2, r. 15);

- (e) consultation in connection with a GHG allowances market, including
 - i. brokerage, with or without registration, while acting as a promoter or subscriber on behalf of the promoter;
 - ii. advice concerning the suitability of a GHG emissions transaction; and
 - iii. the holding, purchase, sale, negotiation or withdrawal of emission allowances referred to in the second paragraph of section 46.6 of the Environment Quality Act (chapter Q-2);
- (f) a consultation in the field of health and safety and environmental management, including a consultation leading to ISO 14001 certification;
- (g) actuarial consulting, bookkeeping or other consulting services relating to accounting documents or financial statements;
- (h) a service connected with the management systems of data related to a project of the promoter that is eligible for the issuance of offset credits;
- (i) an internal audit of GHG emissions;
- (j) a service provided in connection with litigation or an inquiry into GHG emissions;
- (k) a consultation for a GHG emission reduction project carried out in accordance with this Regulation or the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (chapter Q-2, r. 46.1);
- (4) the independent reviewer has previously provided the promoter with a verification service or other services referred to in subparagraph 3 for the reporting periods covered by the verification.

The existence of one of the situations described in the first paragraph or contravening section 51 is considered to be a conflict of interest that invalidates the verification.

For the purposes of this section, a close relative of a member of the verification team is that person's spouse, child, spouse's child, mother or father, mother's or father's spouse, child's spouse or spouse's child's spouse.

DIVISION II

CONDUCT OF THE VERIFICATION

53. The verification of a project report must be conducted in accordance with ISO 14064-3 and also in accordance with the terms and conditions of this Division, and in compliance with the Professional Code (chapter C-26).

54. For the purposes of a verification the promoter and, where applicable, the owner of the site must provide the verifier with any information or document needed for the conduct of the verification and give access to the site where the project is carried out.

The verification of a project report must include a project site visit by the verifier, except if such a visit was carried out for the purposes of a verification conducted during the two preceding reporting periods within the same eligibility period.

The site visit must enable the verifier, in particular, to observe the proper conduct and operation of the project and any change made to the project since the preceding verification. During the site visit, the verifier must be accompanied by the promoter.

In cases where the biogas is reclaimed by a person other than the promoter, the promoter must ensure that the verifier has access to all the equipment, facilities and documentation needed to conduct the verification of the project report in accordance with this Division.

55. The verifier must conduct the verification in a way that supports a conclusion, with a reasonable level of assurance, that the project report complies with this Regulation and that the GHG emission reductions attributable to the project are quantified and recorded in the project report with no significant errors, omissions or inaccuracies.

For the purposes of this Regulation, “significant errors, omissions or inaccuracies” means any errors, omissions or inaccuracies in the GHG emission reductions quantified and recorded in the project report for a reporting period that, individually or as an aggregate, result in an over-estimate or under-estimate of GHG emission reductions greater than 5%.

56. A verifier who, during a verification, observes an error, omission or inaccuracy in the quantification of the GHG emission reductions attributable to the project, or a failure to comply with a condition of this Regulation, must inform the promoter.

57. A verifier who, following the verification of a project report, concludes, with a reasonable level of assurance, that the report complies with this Regulation and contains no significant errors, omissions or inaccuracies, must give the promoter a positive verification opinion.

A verifier who, following the verification of a project report, observes a failure to comply with a condition for the quantification of GHG emission reductions attributable to the project that cannot be corrected by the promoter must assess its impact on the GHG emission reductions recorded in the project report and determine if it leads to significant errors, omissions or inaccuracies. If a failure to comply with a condition for the quantification of GHG emission reductions cannot be corrected by the promoter but the failure does not lead to significant errors, omissions or inaccuracies, and if the verifier concludes, with a reasonable level of assurance, that the other conditions of the Regulation have been complied with and that there are no significant errors, omissions or inaccuracies, the verifier must give the promoter a qualified positive verification opinion.

DIVISION III

VERIFICATION REPORT

58. The verification of a project report must be recorded in a verification report. A verification report may record the verification of several project reports.

59. The verification report must include the following information and documents:

- (1) the information needed to identify the verification body and the verifier designated to conduct the verification, the other members of the verification team and the independent reviewer;
- (2) the information needed to identify the accreditation body that accredited the verification body for the verification, the sector of activity covered by the accreditation of the verification body, and the period of validity of the accreditation;
- (3) the identification of the project, the project report or reports covered by the verification, and the annual GHG emission reductions attributable to the project quantified for each reporting period concerned;
- (4) the verification plan and a description of the activities completed by the verifier to verify the project report or reports, along with all exchanges of information and documents between the verifier and the promoter for the purposes of the verification;
- (5) the period during which the verification was conducted, and the date of any project site visit;
- (6) a list of any errors, omissions or inaccuracies observed in the quantification of the GHG emission reductions attributable to the project, and of any conditions of this Regulation that have not been met, including the following information concerning the error, omission or inaccuracy, or the condition:
 - (a) its description;
 - (b) the date on which the promoter was informed of it;
 - (c) where applicable, a description of any action taken by the promoter to correct it, and the date of that action;
 - (d) in the case of a failure to comply with a condition governing the quantification of the GHG emission reductions attributable to the project that cannot be corrected by the promoter, an assessment of the impact of the failure on the quantification of GHG emission reductions and a notice from the verifier concerning any significant errors, omissions or inaccuracies that may result from that failure;
- (7) where applicable, the version and date of each project report revised during the verification;
- (8) where the verifier observes errors, omissions or inaccuracies in the quantification of GHG emission reductions attributable to the project, the annual GHG emission reductions for each reporting period which, according to the verifier, are actually attributable to the project, in metric tonnes CO₂ equivalent;
- (9) the verification opinion given to the promoter pursuant to section 57, along with the justification for the opinion;
- (10) a declaration by the verification body and verifier that the verification was conducted in accordance with this Regulation and ISO 14064-3;

- (11) a declaration concerning conflicts of interest, including
- (a) the information needed to identify the verification body, the members of the verification team and the independent reviewer, as well as the sector of activity covered by the accreditation of the verification body;
 - (b) a copy of the organization chart for the verification body; and
 - (c) a declaration signed by the representative of the verification body that the conditions of sections 51 and 52 of this Regulation have been met and that the risk of conflict of interest is acceptable.

CHAPTER VIII

ADMINISTRATIVE AND OFFENCES

DIVISION I

MONETARY ADMINISTRATIVE PENALTIES

60. A monetary administrative penalty of \$500 in the case of a natural person or \$2,500 in other cases may be imposed on any person who

- (1) in contravention of this Regulation, refuses or fails to file any notice, information, report or other document, or fails to produce it within the required time;
- (2) contravenes the first and second paragraphs of section 10, section 50 or the first paragraph of section 54;
- (3) contravenes any other requirement of this Regulation, if no other monetary administrative penalty is otherwise specified for that contravention by this Chapter or by the Environment Quality Act.

61. A monetary administrative penalty of \$1,000 in the case of a natural person or \$5,000 in other cases may be imposed on any person who contravenes the first paragraph of section 31, section 37 or section 51.

DIVISION II

PENAL SANCTIONS

62. Every person who

- (1) refuses or fails to file any notice, information, report or other document, or fails to produce it within the required time,
- (2) contravenes the first and second paragraphs of section 10, section 50 or the first paragraph of section 54,

(3) contravenes any other requirement of this Regulation, if no other monetary administrative penalty is otherwise specified for that contravention by this Chapter or by the Environment Quality Act,

commits an offence and is liable, in the case of a natural person, to a fine of \$3,000 to \$100,000 and, in other cases, to a fine of \$3,000 to \$600,000.

63. Every person who contravenes the first paragraph of section 31, section 37 or section 51 commits an offence and is liable, in the case of a natural person, to a fine of \$6,000 to \$250,000 and, in other cases, to a fine of \$25,000 to \$1,500,000.

64. Every person who, for the purposes of this Regulation, communicates to the Minister information that is false or misleading commits an offence and is liable, in the case of a natural person, to a fine of \$5,000 to \$500,000 or, despite article 231 of the Code of Penal Procedure (chapter C-25.1), to a maximum term of imprisonment of 18 months, and, in other cases, to a fine of \$15,000 to \$3,000,000.

CHAPTER IX

FINAL

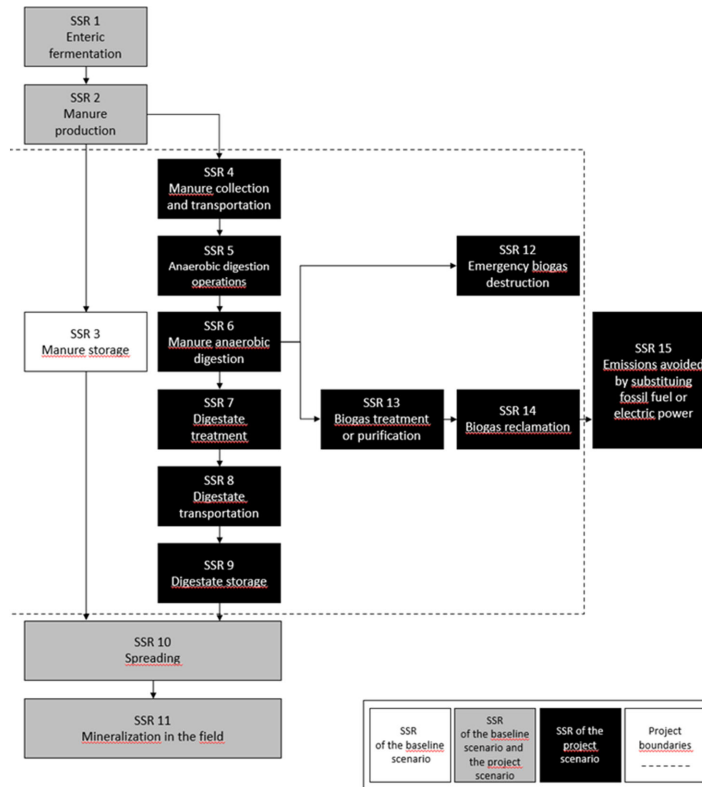
65. This Regulation comes into force on the fifteenth day following the date of its publication in the *Gazette officielle du Québec*.

Appendix A – Types of methane reclamation and destruction devices and efficiency (ss. 2, 3, 23, 29, 38 and 39)

Type of device	Efficiency factor for device (EFD)
Destruction devices	
Open flare	0.96
Enclosed flare	0.995
Reclamation devices	
Internal combustion engine	0.936
Boiler	0.98
Microturbine or large gas turbine	0.995
Injection into a natural gas distribution network	0.98
Compression or liquefaction unit for use as liquefied or compressed gas	0.95

Appendix B – Project boundaries
(s. 16)

Figure 1: Illustration of project boundaries



Explanatory note: The baseline scenario shows the GHG sources, sinks and reservoirs (SSRs) that are present in the absence of any project eligible for the issuance of offset credits. The project scenario shows the SSRs that are present when a project is implemented. Not all of these SSRs necessarily form part of the project eligible for the issuance of offset credits; only the SSRs within the project boundaries must be considered.

Table 1 - Description of GHG sources, sinks and reservoirs (SSRs).

# SSR	Description	GHG targeted	Applicability: baseline scenario (B) and/or project scenario (P)	Included or excluded
1	GHG emissions resulting from enteric fermentation	CO ₂	B, P	Excluded
		CH ₄		Excluded
		N ₂ O		Excluded
2	Emissions resulting from the use of energy to operate equipment to move manure from buildings to the storage system	CO ₂	B, P	Excluded
		CH ₄		Excluded
		N ₂ O		Excluded
3	GHG emissions resulting from the storage of manure in anaerobic conditions in a manure pit	CO ₂	B	Excluded
		CH ₄		Included
		N ₂ O		Excluded
4	GHG emissions resulting from the transportation of manure to the anaerobic digestion site	CO ₂	P	Included
		CH ₄		Included
		N ₂ O		Included
5	Emissions resulting from the use of fuel for anaerobic digestion operations (sorting of waste, grinding, mixing, heating, etc.), including the use of biogas to heat the digester	CO ₂	P	Included (fossil) / Excluded (biogenic)
		CH ₄		Included
		N ₂ O		Included
6	Emissions resulting from regular leaks (vessel, piping), whether accidental (overpressure, breakage) or voluntary (maintenance during manure digestion and biogas storage)	CO ₂	P	Excluded
		CH ₄		Included
		N ₂ O		Excluded
7	Emissions resulting from the use of fossil fuel to treat digestate, including separation of the solid and liquid phases and drying, where applicable	CO ₂	P	Included
		CH ₄		Included
		N ₂ O		Included
8	GHG emissions resulting from the use of fossil fuel to transport anaerobic digestion digestate to agricultural facilities	CO ₂	P	Included
		CH ₄		Included
		N ₂ O		Included
9	GHG emissions resulting from digestate storage	CO ₂	P	Excluded
		CH ₄		Included
		N ₂ O		Excluded

10	GHG emissions resulting from the use of fossil fuel to transport and spread digestate or manure	CO ₂	B, P	Excluded
		CH ₄		Excluded
		N ₂ O		Excluded
11	GHG emissions resulting from the mineralization of digestate or manure in fields	N ₂ O	B, P	Excluded
12	GHG emissions resulting from the emergency destruction of biogas using a destruction device listed in Table 5.4	CO ₂	P	Excluded
		CH ₄		Included
		N ₂ O		Excluded
13	GHG emissions resulting from the use the supplemental energy sources for the treatment and purification of biogas before reclamation, where applicable.	CO ₂	P	Included
		CH ₄		Included
		N ₂ O		Included
14	Emissions resulting from the reclamation of methane using a reclamation device listed in Table 5.4.	CO ₂	P	Excluded
		CH ₄		Included
		N ₂ O		Excluded
15	GHG emissions avoided by the project by using biogas as a substitute for fossil fuel or electric power	CO ₂	P	Excluded
		CH ₄		Excluded
		N ₂ O		Excluded

Appendix C – Methane emission factors by livestock category
(ss. 21, 23 and 46)

Table 1: Maximum methane and solids emission factors by livestock category

Type of livestock operation	Livestock category	Excretion factor (EF) (kg/head or place/day)	Volatile solids (VS) (kg VS / kg excrement)	Maximum potential CH ₄ production factor (B0) (m ³ CH ₄ / kg VS)
Cattle	Calf / heifer (0-12 months)	19	0.06	0.19
	Dairy heifer (12 - 24 months)	37	0.06	0.19
	Dairy cow	56.6	0.1	0.24
	Feeder cattle	23	0.1	0.19
Swine	Sow	8.38	0.04	0.48
	Piglet	1.26	0.07	0.48
	Feeder pig	4.53	0.07	0.48

Appendix D – Digestate storage and treatment factors
(ss. 21 and 23)

Table 1: CH₄ conversion factors in various digestate storage systems

Digestate storage system S	CH ₄ conversion factor (MCF _s)
Manure pit without crust (raw digestate or liquid phase)	0.20
Manure pit with crust (raw digestate)	0.13
Solid fraction (solid phase)	0.02
Solid fraction with addition of structuring materials (woodchips, straw, etc.) (solid phase)	0.02
Aerobic treatment (raw digestate or liquid phase)	0.00

Table 2: Volatile solid fraction extracted during separation of solid and liquid phases

Separation method for solid and liquid phases	Volatile solids fraction extracted from solid phase
Natural decantation	0.45
Fixed screen	0.17
Vibrating screen	0.15
Screw press	0.25
Centrifugal decanter	0.50
Rotating drum	0.25
Belt press or belt screen	0.50

Appendix E – Project monitoring parameters
(ss. 25, 28, 29 and 42)

Parameter	Description of parameter	Unit of measurement	Method	Measurement frequency	Equation
QL	Quantity of eligible manure treated by anaerobic digestion	Metric tonne	Measured truck gauge, vessel gauge or charging scale, whichever is most precise	At each load, compiled by reporting period	
LF	Livestock distribution - Proportion of each livestock category in Table 1 in Appendix C in the herd	Headcount (cattle) or number of places (swine) divided by total headcount or total number of places	Calculated using herd breeding records	At each offset credit issuance period	
BG	Volume of biogas	Cubic metres at standard conditions	Measured by the flow meter closest to the reclamation or destruction device	At least hourly	
CMD	Concentration of CH ₄ in the biogas, after biogas purification where applicable	Cubic metres of CH ₄ at standard conditions divided by cubic metres of biogas at standard conditions	CH ₄ analyzer following purification	At least hourly or quarterly in the case of a portable CH ₄ analyzer	
FF _f	Total quantity of fossil fuels consumed by the anaerobic digestion facility, by type of fuel <i>f</i>	kg, L or m ³	Calculated using fossil fuel purchase logs	At each offset credit issuance period	
T	Biogas temperature	Degrees Celsius	Measured	At same frequency as BG	
P	Biogas pressure	KPa	Measured	At same frequency as BG	

Parameter	Description of parameter	Unit of measurement	Method	Measurement frequency	Equation
N/A	Digester operating state	Pressure in vessel	Measured	At least hourly	
N/A	Reclamation or destruction device operating state	Degrees Celsius or other, in accordance with this Division	Measured for each reclamation or destruction device, in accordance with section 37	At least hourly	

Appendix F – Sampling method and measurement of volatile solids

(s. 24)

Volatile solids are measured before anaerobic digestion by sampling all the mixed inputs in the hydrolysis vessel.

Volatile solids are measured after anaerobic digestion by sampling the digestate before it is treated in any way.

The time lapse between sampling before and after anaerobic digestion must match the average retention time specified by the manufacturer of the vessel.

The frequency of the sampling campaigns is established in a way that ensures that 50% of anaerobic digestion cycles are sampled during the reporting period, rounded up.

Samples must be taken and stored in accordance with the most recent version of the section on the analysis of inorganic chemical parameters set out in the Protocole d'échantillonnage de matières résiduelles fertilisantes et dispositions particulières liées à l'accréditation (DR-12-MRF-02) published by the Centre d'expertise en analyse environnementale du Québec at the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs.

The analysis of the volatile solids rate must be conducted by a laboratory accredited by the Centre d'expertise en analyse environnementale du Québec at the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs in accordance with the most recent version of the Méthode d'analyse MA.100-S.T.1.1 it publishes.

For each anaerobic digestion cycle sampled, the CH₄ conversion factor is calculated using the following equation:

$$MCF_i = \frac{(VS_{before} - VS_{after})}{VS_{before}}$$

Where:

MCF_i = CH₄ conversion factor measured during sampling episode *i*;

i = Anaerobic digestion cycle sampled

VS_{before} = Average quantity of volatile solids measured in organic materials before anaerobic digestion, in grams per kilogram of wet organic matter;

VS_{after} = Average quantity of volatile solids measured in digestate after anaerobic digestion, in grams per kilogram of wet digestate.

The lower limit of the 95% confidence interval for the average CH₄ conversion factor measured during the reporting period is used to replace the default value for the MCF_{digester} default value in Equations 9 and 11.

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