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Summary

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— Amendment

Notice is hereby given, in accordance with sections 10 and 11 of the Regulations Act (R.S.Q., c. R-18.1) and section 124 of the Environment Quality Act (R.S.Q., c. Q-2), that the Regulation to amend the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances, appearing below, may be made by the Government on the expiry of 60 days from this publication.

The draft Regulation introduces amendments to the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances to harmonize and integrate the system with the system established by California and other possible partner entities. For that purpose, it specifies the conditions for registering for the system, as well as the information and documents that must be provided when registering, the procedure for emission allowance transactions, and the rules governing auctions of emission allowances held jointly with a partner entity.

The draft Regulation also sets the conditions for the issue of offset credits, and includes protocols for three types of project eligible for the issue of offset credits: CH_4 destruction as part of projects to cover manure storage facilities, the capture of gas from certain landfill sites, and the destruction of certain ozone depleting substances contained in insulating foam recovered from appliances.

Lastly, based on new provisions in the Environment Quality Act, the draft Regulation sets out monetary administrative sanctions and makes changes to the current penal sanctions.

Further information on the draft Regulation may be obtained by contacting Jean-Yves Benoit, senior economist, Bureau des changements climatiques, Ministère du Développement durable, de l'Environnement et des Parcs; telephone: 418 521-3868, extension 4116; email: jean-yves.benoit@mddep.gouv.qc.ca; fax: 418 646-4920.

Any person wishing to comment on the draft Regulation is requested to submit written comments within the 60-day period to Guylaine Bouchard, associate director, Bureau des changements climatiques, Ministère du Développement durable, de l'Environnement et des Parcs, édifice Marie-Guyart, 675, Boulevard René-Lévesque Est, 6e étage, boîte 31, Québec (Québec) G1R 5V7; email: guylaine.bouchard@mddep.gouv.qc.ca

PIERRE ARCAND,
Minister of Sustainable Development, Environment and Parks

Regulation to amend the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances

Environment Quality Act
(R.S.Q., c. Q-2, s. 31, 1st par., subpars. *b*, *c*, *d*, *e.1*, *h* and *h.1*, ss. 46.1, 46.5, 46.6, 46.8 to 46.16 and 115.34)

1. The Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (R.R.Q., c. Q-2, r. 46.1) is amended in section 1 by replacing "participants in" by "persons or municipalities that may register for".

2. Section 2 is amended

(1) by replacing ", excluding" in the part preceding subparagraph 1 of the first paragraph and subparagraphs 1 to 6 by "excluding the emissions referred to in the second paragraph of section 6.6 of that Regulation.";

(2) by replacing "a territory under the responsibility of a government other than that of Québec with which an agreement has been entered into under section 46.14 of the Environment Quality Act (R.S.Q., c. Q-2)" in subparagraph 1 of the second paragraph by "the territory of a partner entity";

(3) by replacing subparagraph 2 of the second paragraph by the following:

"(2) distributes fuel and is contemplated by section 85.33 of the Act respecting the Régie de l'énergie (R.S.Q., c. R-6.01), and if the greenhouse gas emissions attributable to the combustion or use of the fuel distributed, calculated in accordance with protocol QC.30 ofSchedule A.2 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere are equal to or exceed 25,000 metric tonnes CO_2 equivalent.".

3. Section 3 is amended

(1) by replacing "section 20" in paragraph 4 by "section 21";

(2) by inserting the following after paragraph 4:

"(4.1) "officer" means the president, chief executive officer, chief operating officer, chief financial officer or secretary of a legal person or partnership or any person having similar functions, and any person designated as such by a resolution of the board of directors;";

(3) by replacing "government other than the Government of Québec with which an agreement has been entered into in accordance with section 46.14 of that Act" in paragraph 5 by "partner entity";

(4) by replacing paragraph 6 by the following:

"(6) "reported emissions" means greenhouse gas emissions that are

(*a*) reported in accordance with the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere but that do not need to be verified pursuant to that Regulation; or

(*b*) calculated using data provided by the emitter when the emitter was not required, prior to 1 January 2011, to report emissions pursuant to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere;";

(5) by replacing paragraph 8 by the following:

"(8) "partner entity" means a government other than the Government of Québec, a department of such a government, an international organization, or an agency of such a government or organization, with which an agreement has been entered into in accordance with section 46.14 of the Environment Quality Act and that is referred to in Appendix B to this Regulation;";

(6) by inserting the following after paragraph 10:

"(10.1) "business day" means any day other than a Saturday, Sunday or statutory holiday, including statutory holidays in the territory of a partner entity;";

(7) by replacing "on or after" in paragraph 11 by "and commissioned on or after";

(8) by inserting the following after paragraph 12:

"(12.1) "promoter" means a person who implements an offset credit project;

(12.2) "total quantity of reference units" means the quantity of reference units produced or used during a year by an emitter

(*a*) for the years 2007 to 2011, calculated using the information provided by the emitter;

(*b*) for the years 2012 and following, mentioned in the verification report in accordance with section 6.9 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere;".

4. Section 4 is amended

(1) by inserting the following paragraph after the second paragraph:

"Documents and information relating to an offset credit project referred to in Chapter IV of Title III must be kept for the duration of the project and for a minimum period of 7 years starting on the date on which the project ended.";

(2) by replacing "delegation" wherever it occurs in the third paragraph by "authorization";

(3) by adding the following paragraph at the end:

"Documents and information provided pursuant to this Regulation are dealt with confidentially, subject to the Act respecting Access to documents held by public bodies and the Protection of personal information (R.S.Q., c. A-2.1).".

5. Section 5 is replaced by the following:

"**5.** Any information or document required to be provided under this Regulation must be sent to the Minister using the forms available on the website of the Ministère du Développement durable, de l'Environnement et des Parcs.

Despite the first paragraph, if a delegation has been made in accordance with section 46.13 of the Environment Quality Act (R.S.Q., c. Q-2), the information and documents required to be sent to the delegatee will be indicated in the notice published pursuant to the third paragraph of that section.".

6. Section 6 is amended by adding the following after paragraph 4:

"(5) an environmental integrity account, containing the offset credits that may be extinguished to replace the illegitimate offset credits not surrendered by a promoter.".

7. Section 7 is amended

(1) by adding the following after subparagraph 1 of the first paragraph:

"(1.1) its legal status and the date and place of its constitution;";

(2) by replacing subparagraph 4 of the first paragraph by the following:

"(4) for each of the 5 years preceding the application for registration and for each establishment covered,

(*a*) the total quantity of GHG emissions, either reported or verified, by category of GHG emissions referred to in Division B of Part II of Schedule C, in metric tonnes CO_2 equivalent;

(*b*) the total quantity of each reference unit;

(*c*) the total quantity of GHG emissions, by category of GHG emissions referred to in Division B of Part II of Schedule C, for each reference unit, in metric tons CO_2 equivalent;

(*d*) the total quantity of fuel used, by type of fuel and by reference unit;

(*e*) the calculation methods used.";

(3) by replacing "a list" in subparagraph 7 of the first paragraph by "the name and contact information";

(4) by adding the following after subparagraph 7 of the first paragraph:

"(8) a declaration signed by the chief officer or a resolution of the board of directors including an undertaking to comply with the conditions of this Regulation.".

8. Section 8 is replaced by the following:

"**8.** Only a natural person domiciled in Canada or another person or municipality having an establishment in Canada may register with the Minister as a participant in the system in order to acquire emission allowances. The applicant must provide the Minister with the following information and documents:

(1) the applicant's name and contact information;

(2) in the case of an applicant other than a natural person or a municipality, the information and documents referred to in subparagraphs 1, 1.1, 2, 3, 6 and 7 of the first paragraph of section 7, with the necessary modifications;

(3) in the case of a natural person, the information and documents establishing the person's identity, as referred to in section 11;

(4) if the application is made by a natural person who is not domiciled in Québec, the name and contact information of a natural person domiciled in Québec who is designated to represent the applicant;

(5) if the application is made by a natural person, a declaration signed by the person or, in other cases, a declaration signed by the chief officer or a resolution of the board of directors including an undertaking to comply with the conditions of this Regulation.

8.1. A person who is already registered with a partner entity is considered to be registered for the system and cannot register again with the Minister.".

9. Section 9 is amended

(1) by replacing the part preceding subparagraph 1, and subparagraph 1 of the first paragraph, by the following:

"**9.** Every person submitting an application for registration to the Minister must also disclose any business relationship with an emitter or participant, including those registered with a partner entity, by providing the following information in particular:

(1) the name and contact information of any other emitter or participant with which the applicant is related, and of any other parent legal person, subsidiary or group concerned by the relationship;

(2) by replacing "related entities" in subparagraph 2 of the first paragraph by "related emitters or participants";

(3) by adding the following after subparagraph 2 of the first paragraph:

"(2.1) where applicable, the general account number of the related emitter or participant, the name and contact information of its primary account representative and, if the emitter or participant is not a natural person, its legal status and the date and place of its constitution;"

(4) by adding the following after subparagraph 4 of the second paragraph:

"(5) "related entity" means any emitter or participant with which the business relationship as defined in subparagraph 1 involves a percentage of over 50%, a subsidiary, or an emitter or participant belonging to the same group. ".

10. Sections 10 to 14 are replaced by the following:

"**10.** When registering for the system, an emitter or participant that is not a natural person must also designate at least 2 and at most 5 natural persons, at least one of whom must be domiciled in Québec, to act as account representatives and perform any transaction within the electronic system on its behalf.

The emitter or participant must also identify, among the account representatives domiciled in Québec, a primary account representative who is the resource person to be contacted for any information concerning the emitter or participant.

For the purposes of the designation, the emitter or participant must provide the Minister with the following information and documents:

(1) the name and contact information of the emitter or participant and of its chief officer or chief financial officer;

(2) the name and contact information of the designated account representatives and the information and documents listed in section 11 that establish their identity;

(3) a declaration by the chief officer or chief financial officer or a resolution of the board of directors of the emitter or participant attesting that the account representatives have been duly designated to act on behalf of the emitter or participant for the purposes of this Regulation;

(4) a declaration, signed by each of the account representatives, attesting that they have been duly designated for that purpose by the authorized representatives of the emitter or participant, that they accept the duties they have been assigned and that they undertake to comply with the conditions of this Regulation.

The emitter or participant must have at least 2 account representatives at all times, including a primary account representative.

All representations, acts, errors or omissions made by the account representatives in the performance of their duties are deemed to be made by the emitter or participant.

The duties of the account representatives terminate at the end of the day following the day on which a new designation from the emitter or participant is received, or when all the accounts of the emitter or participant are closed.

If the participant is a natural person, any act that must be performed by an account representative pursuant to this Regulation must be performed by the participant.

11. To have access to the electronic system, a natural person wishing to register as a participant, designated as an account representative or authorized to act as an account viewing agent must provide the Minister with the following information and documents:

(1) the natural person’s address and domicile;

(2) the natural person’s date of birth;

(3) a copy of at least two identity documents including a photograph, issued by a government or one of its departments or agencies, bearing the natural person's name and date of birth, along with an attestation from a notary or advocate, completed less than 3 months prior to the application for registration, stating that the notary or advocate has established the identity of the natural person and certifying the authenticity of the copies of the identity documents;

(4) the name and contact information of the natural person's employer;

(5) confirmation from a financial institution located in Canada that the natural person has an account with the institution and that an identity check was carried out when the account was opened;

(6) any conviction for a criminal offence or an offence referred to in section 13 from the 5 years prior to the submission of the information and documents;

(7) a declaration signed by the natural person and attesting

(*a*) that the information and documents provided are valid and that the natural person consents to their communication when necessary for the purposes of this Regulation;

(*b*) that the natural person undertakes to comply with the conditions of this Regulation.

In addition, any participant who is a natural person participating in an auction or a sale by mutual agreement and any account representative involved in an auction or sale by mutual agreement must provide his or her social insurance number.

12. A primary account representative may authorize up to 5 natural persons to act as account viewing agent to observe, within the electronic system, the operations involving the accounts of the emitter or participant.

For the purposes of the authorization, the account representative must provide the following information and documents:

(1) the name and contact information of the emitter or participant represented by the account representative, and the account number of the emitter or participant;

(2) the account representative's name and contact information;

(3) the name and contact information of the authorized account viewing agents and the information and documents referred to in section 11 that establish their identity;

(4) a declaration by the chief officer or chief financial officer or a resolution of the board of directors of the emitter or participant attesting that the account viewing agents are duly authorized to observe the account operations.

The authorization of an account viewing agent ends at the end of the day on which a new authorization submitted by the primary account representative is received, or when all the accounts of the emitter or participant are closed.

13. No natural person applying for registration as a participant, and no person designated as an account representative or authorized as an account viewing agent, may have been found guilty, in the 5 years prior to the application for registration or the sending of the notice of designation or authorization, of fraud or any other criminal offence connected with the activities for which registration is requested or the notice is sent, or may have been found guilty on an offence under sections 28 to 31 of this Regulation or under a fiscal Act, the Derivatives Act (R.S.Q., c. I-14.01), the Securities Act (R.S.Q., c. V-1.1) or their regulations, unless a pardon has been obtained.

The registration, designation or authorization of a participant who is a natural person, of an account representative, or of an account viewing agent, who is found guilty of a criminal offence or an offence referred to in the first paragraph will be terminated or revoked.

The emission allowances recorded in the account of a participant whose registration is terminated pursuant to the second paragraph are recovered by the Minister who allocates them as follows:

(1) the emission units are paid into the auction account to be sold at a later date;

(2) the early reduction credits and the offset credits are paid into the retirement account to be extinguished.

This section applies to any conviction in a United States court for a criminal offence or offence referred to in the first paragraph that, had it been committed in Canada, could have led to criminal or penal proceedings.

14. When an application for registration meets the requirements of sections 7 to 13, the Minister opens, in the electronic system,

(1) for each emitter or participant, a general account in which the emission allowances that may be traded or retired are recorded;

(2) for each emitter, a compliance account in which the emission allowances used to cover the GHG emissions of its covered establishments at the end of a compliance period must be recorded.

14.1. Any change to the information and documents provided pursuant to sections 7 to 13 must be communicated to the Minister within 10 days.

Despite the first paragraph, when an emitter or participant wishes to take part in an auction, any change to a business relationship of the emitter or participant referred to in section 9 must be communicated to the Minister at least 30 days before the date of the auction, under pain of disqualification from registering for the auction.

14.2. A participant whose account no longer contains any emission allowances may request that the Minister close the participant's general account and cancel the participant's registration by providing the following information:

(1) the participant's name and contact information;

(2) the participant's account number;

(3) the participant's signature or, if the participant is not a natural person, the signature of the participant's chief officer or chief financial officer or a resolution of its board of directors, with the date of the request.".

11. Section 18 is amended by replacing the second and third paragraphs by the following:

"For that purpose, the emitter must transfer into the emitter's compliance account the emission units referred to in subparagraph 1 of the first paragraph and the emission allowances referred to in subparagraph 2 of the first paragraph to allow them to be deducted by the Minister.

If the emitter fails to surrender emission allowances in accordance with this section,

(1) if they are emission units referred to in subparagraph 1 of the first paragraph, the Minister deducts them from the emitter's accounts in the order set out in the second paragraph of section 21;

(2) if they are emission allowances referred to in subparagraph 2 of the first paragraph, the Minister recovers them in accordance with section 22 and applies the administrative sanction provided for in that section.".

12. Section 19 is amended

(1) by replacing "all the GHG emissions from an establishment or, if applicable, an enterprise referred to in section 2 when they" in the first paragraph by "each metric tonne CO_2 equivalent of the verified emissions from an establishment or, if applicable, an enterprise referred to in section 2 when its GHG emissions";

(2) by replacing "for 2012 or 2013" in subparagraph 2 of the second paragraph by "for 2013";

(3) by replacing subparagraph 3 of the second paragraph by the following:

"(3) beginning on 1 January of the year following the year in which the first report of emissions that are equal to or exceed the threshold is submitted, in the case where the verified emissions of an emitter referred to in subparagraph 1, or the reported emissions of an emitter referred to in subparagraph 2, are equal to or exceed the emissions threshold during a year following those mentioned in those subparagraphs;".

13. Section 20 is amended

(1) by striking out the first and second paragraphs;

(2) by replacing "referred to in subparagraph 5 of the second paragraph" in the third paragraph by "used to cover GHG emissions";

(3) by replacing "emitter's GHG emissions" in the fourth paragraph by "GHG emissions to be covered".

14. Section 21 is amended

(1) by replacing "On the expiry of the compliance deadline" in the first paragraph by "On 1 November following expiry of a compliance period";

(2) by striking out the second paragraph;

(3) by replacing the part preceding subparagraph 1 of the third paragraph by the following:

"The Minister deducts the required emission allowances in chronological order, from the least recent to the most recent according to their year of issue and vintage, in the following order:";

(4) by replacing "fourth" in subparagraph 1 of the third paragraph by "second".

15. Section 22 is amended

(1) by inserting ", from the most recent to the least recent," after "compliance period" in subparagraphs 2 and 3 of the third paragraph;

(2) by replacing "emitter that they must be surrendered" in the fourth paragraph by "emitter, who must surrender them";

(3) by replacing "the Minister removes an equivalent number of emission units" in the fifth paragraph by "if the emitter is eligible for the allocation without charge of emission units, the Minister removes a quantity equivalent to the emission allowances and emission units referred to in the fourth paragraph".

16. The heading of Chapter IV of Title II is amended by striking out "**AND PUBLIC REGISTER**".

17. Section 24 is amended by replacing "registered emitters or participants" in the first paragraph by "emitters or participants registered with the Minister or a partner entity".

18. Sections 25 to 27 are replaced by the following:

"**25.** Every emitter or participant who wishes to trade emission allowances with another emitter or participant must follow the procedure established in section 26 and send the Minister the following information:

(1) the general account number of the seller and the identity of the account representative proposing the transaction request and of the account representative confirming the transaction request;

(2) the general account number of the buyer and the identity of the account representative accepting the transaction request;

(3) the quantity, type and, where applicable, vintage and serial number of the emission allowances to be traded;

(4) the settlement price of each type and, where applicable, each vintage of emission allowances;

(5) the date of signing of the agreement concerning the trading of emission allowances.

Despite subparagraph 4 of the first paragraph, an emitter or participant is not required to disclose the settlement price of the emission allowances when the transaction is between related entities.

26. The transaction request for emission allowances must be proposed by one of the seller's account representatives.

The transaction request is then submitted to the second account representative, for confirmation within 2 days.

When the transaction request is confirmed, a notice is sent to all the seller's account representatives and the request is submitted to the buyer's account representatives, for acceptance within 3 days of the proposal of the transaction request.

Unless otherwise indicated by one of the account representatives or if the Minister has serious grounds to believe that an offence under this Regulation has been committed, once the transaction request has been accepted the emission allowances concerned by the request are transferred from the seller's to the buyer's general account.

At each step in the transaction request, the account representative concerned must attest to holding due authorization to complete the transaction for the emitter or participant, and that the information contained in the transaction request is true, accurate and complete.

The account representatives identified in a transaction request for emission allowances must provide the Minister, on request, with any additional information concerning the transaction.

27. Every emitter or participant who wishes to retire from the system certain emission allowances recorded in the emitter's or participant's general account must, in accordance with the procedure established by section 27.1, send to the Minister a retirement request including the following information:

(1) the emitter's or participant's general account number;

(2) if the emitter or participant is not a natural person, the name and identity of the account representative proposing the retirement request and of the account representative confirming the request;

(3) the quantity, type and, where applicable, vintage and serial number of the emission allowances to be retired;

(4) the date of the retirement request.

27.1. The retirement request for emission allowances must be proposed by an account representative.

The retirement request is then submitted to the second account representative, for confirmation within 2 days.

When the retirement request is confirmed, a notice is sent to all the emitter's or participant's account representatives.

Unless otherwise indicated by one of the account representatives or if the Minister has serious grounds to believe that an offence under this Regulation has been committed, once the retirement request has been confirmed the emission allowances concerned by the request are transferred from the emitter's or participant's general account to the Minister's retirement account, where they are extinguished.

An emitter's or participant's account representative identified in a retirement request for emission allowances, or a participant who is a natural person having sent such a request, must provide the Minister, on request, with any additional information concerning the retirement.

27.2. When a transaction or retirement cannot be completed because of an error or omission in connection with the information included in the request, because the request does not meet the requirements of one of sections 25 to 27.1, because an account does not contain enough emission allowances or because of any other reason, a notice is sent to the parties concerned within 5 business days following the failure to complete the transaction or retirement.".

19. Section 32 is amended

(1) by inserting "of the current or prior vintage, of emission units sold by mutual agreement and of early reduction credits" after "units" in the part preceding equation 32-1;

(2) in equation 32-1 in the first paragraph:

(*a*) by replacing the factor "Baseline" by the following:

"Baseline = 25,000,000";

(*b*) by replacing the factor "C_i" by the following:

"C_i = Sum of the annual cap of emission units for year *i* set by order in accordance with section 46.7 of the Environment Quality Act (R.S.Q., c. Q-2) and the cap set by a partner entity;";

(*c*) by striking out "and issued in year *i*" in the definition of the factor "0.025";

(*d*) by adding the following factor after factor "C_i":

"i = Current year.";

(3) by inserting the following after equation 32-1 in the first paragraph:

"The total number of emission units of a vintage subsequent to the current year that an emitter or participant may hold in its general account and, where applicable, its compliance account is subject to the holding limit calculated using equation 32-2:

Equation 32-2

$HL_j = 0.1 \times Baseline + 0.025 \times (C_i - Baseline)$

Where:

HL_j = Holding limit for an emission unit of vintage *j*;

0.1 = Maximum proportion of the number of emission units constituting the Baseline that an emitter or participant may hold;

Baseline = 25,000,000;

0.025 = Maximum proportion of the number of emission units in excess of the Baseline that an emitter or participant may hold;

C_i = Sum of the annual cap of emission units for year *i* set by order in accordance with section 46.7 of the Environment Quality Act and of the cap set by a partner entity;

j = Year subsequent to the current year;

i = Current year.";

(4) in the second paragraph:

(*a*) by replacing "the emission units recorded" by "the emission units and early reduction credits recorded";

(*b*) by striking out "verified";

(5) by replacing the fourth paragraph by the following paragraphs:

"Every transaction request for emission units that would cause the buyer's holding limit to be exceeded will be refused by the Minister.

In every other case in which the holding limited is exceeded, the emitter or participant must, within 5 days after the limit is exceeded, sell the excess emission allowances or pay them into its compliance account. Upon a failure to comply, the Minister takes back a quantity of emission units equivalent to the excess emission allowances and pays them into the Minister's auction account for sale at a later date.".

20. Section 33 is amended by replacing "within 60 days prior to" in the second paragraph by "before the deadline for registering for".

21. Section 35 is replaced by the following:

"**35.** The Minister publishes, on the Minister's website,

(1) a list of the emitters and participants registered for the system, annually;

(2) a summary of transactions of emission allowances, periodically;

(3) the number of emission allowances recorded in emitters' compliance accounts, periodically.".

22. Section 36 is replaced by the following:

"**36.** Emission allowances are issued in electronic form and identified in a way that allows them to be differentiated, in particular by type.

Emission units are also identified by vintage.".

23. Section 37 is amended

(1) by replacing subparagraph 3 of the first paragraph by the following:

"(3) every emission allowance issued by a partner entity, according to the rules for the equivalent types of emission allowances issued under this Regulation, as indicated in Appendix B.";

(2) by adding "by the Minister or by a partner entity" at the end of subparagraph 1 of the second paragraph.

24. Section 40 is amended by replacing "12 January" in the fourth paragraph by "14 January".

25. Section 41 is amended

(1) by replacing "1 September" in the third paragraph by "14 September";

(2) by adding the following paragraph at the end:

"Upon a failure by the emitter to place the emission units in its compliance account within the time provided for in the fourth paragraph, the Minister reduces the following allocation free of charge by an equivalent quantity of emission units.".

26. Section 42 is amended by replacing the third paragraph by the following:

"In the latter case, the reserve account is replenished using the emission units in excess of the total estimated quantity that may be allocated free of charge for a year that may be sold in accordance with Division III of this Chapter. The emission units paid into the reserve account in this way are identified as belonging to the category replenished.".

27. Section 45 is amended

(1) by replacing in the part preceding subparagraph 1 of the second paragraph,

(*a*) "60 days" by "45 days";

(*b*) "including" by "stating the rules set out in this Regulation and including, in particular,";

(2) by adding "and the composition of each lot" at the end of subparagraph 5 of the second paragraph;

(3) by replacing subparagraph 6 of the second paragraph by the following:

"(6) the minimum settlement price for the units, set in accordance with the third paragraph of section 49 and, in the case of a joint auction with a partner entity, the minimum price set by that entity and the procedure used to set a joint minimum price set out in subparagraph 2 of the fourth paragraph of section 49.".

28. Section 46 is amended

(1) by replacing subparagraphs 1 and 2 of the second paragraph by the following:

"(1) the emitter or participant's name, contact information and general account number;

(2) if the emitter or participant is not a natural person, its legal status, the name and contact information of its owners, and its financial structure;

(3) an update of the business relationships referred to in section 9 and the information and documents referred to in section 11.";

(2) by adding the following paragraphs at the end:

"Every emitter or participant registered as a bidder at an auction in accordance with the second paragraph remains registered for future auctions unless a cancellation of the registration is requested. The emitter or participant must, however, confirm or update the information and documents referred to in the second paragraph at least 30 days before the date of each auction.

Any change to the information and documents provided that is not communicated within the prescribed time or that occurs less than 30 days before the date of an auction leads to the automatic cancellation of the bidder's registration.".

29. Section 48 is amended

(1) by replacing the first paragraph by the following:

"**48.** Every bidder must, at least 12 days before the date of the auction, submit a financial guarantee to the Minister.";

(2) by inserting "be valid for a period of at least 21 days following the date of the auction and must" after "guarantee must" in the part preceding subparagraph 1 of the second paragraph;

(3) by inserting "transfer," before "bank draft" in subparagraph 1 of the second paragraph;

(4) by inserting the following after subparagraph 1 of the second paragraph:

"(1.1) an irrevocable letter of credit issued to the Minister of Finance by a bank or financial services cooperative;";

(5) by striking out subparagraphs 3 and 4 of the second paragraph;

(6) by adding the following paragraph at the end:

"If the Minister has delegated the administration of the financial services for the system in accordance with section 46.13 of the Environment Quality Act (R.S.Q., c. Q-2), the financial guarantee must be made out to the delegatee and deposited with the delegatee.".

30. Section 49 is amended

(1) by replacing the second paragraph by the following:

"Except for the last lot of emission units, which may consist of a lesser quantity, the emission units are auctioned in lots of 1,000 emission units of the same vintage when the units belong to the vintage for the current or a subsequent year, and in lots of 1,000 emission units of various vintages when the units belong to the vintages of years prior to the current year and are sold in accordance with section 54.";

(2) by adding the following paragraph after the third paragraph:

"If the auction is conducted jointly with a partner entity,

(1) the lots may contain emission units from each of the partner entities, in proportion to the quantities respectively available;

(2) the joint minimum price of the emission units is the higher, on the day of the auction, of the price set under the third paragraph and the price set by the partner entity, at the official conversion rate of the Bank of Canada at noon on the date of the auction or, when that rate is not available, the most recent rate published in its Daily Memorandum of Exchange Rates.".

31. Section 50 is replaced by the following:

"**50.** During an auction, the account representative of a bidder may submit more than one bid, subject to the terms and conditions specified in the notice published in accordance with the second paragraph of section 45, stating the quantity of lots requested and the price offered per emission unit in dollars and whole cents, provided the maximum amount of all the bidder's bids does not exceed the amount of the guarantee submitted in accordance with section 48.

For the purposes of the first paragraph, the maximum amount of all a bidder's bids is calculated as follows:

(1) by determining, for each bid submitted by the bidder, the value of a lot by multiplying the price offered for the lot by the total quantity of bids submitted at that price or at a higher price;

(2) the maximum amount of a bidder's bids corresponds to the maximum value of the lots calculated under subparagraph 1.

The quantity of emission units of the vintage of the current or a previous year that may be purchased by the same bidder at an auction is, however, limited to

(1) 15% in the case of an emitter referred to in the first paragraph of section 2 who is eligible for the allocation of emission units free of charge in accordance with section 39;

(2) 40% in the case of an emitter referred to in the first paragraph of section 2 who is not eligible for the allocation of emission units free of charge in accordance with section 39;

(3) 40% in the case of an emitter referred to in subparagraphs 1 and 2 of the second paragraph of section 2;

(4) 4% in the case of a participant.

The quantity of emission units of vintages subsequent to the current year that may be purchased by the same bidder at an auction is, however, limited to 25% for all bidders.

Bidders that are related entities have an overall purchasing limit that is the highest limit that would have been assigned to any of them singly. However, the purchasing limit for a group of related participants cannot exceed 4%, even if they are related to an emitter.

The related entities must indicate to the Minister, in the application for registration for the auction referred to in the second paragraph of section 46, the allocation of the overall purchasing limit among the related entities, by percentage.

A bid submitted by an emitter or a participant will be refused by the Minister if the price offered per emission unit is below the minimum price, or if the number of lots requested corresponds to a quantity of emission units that exceeds the quantity to be auctioned, causes the purchase limit determined in accordance with this section, or the holding limit determined in accordance with section 32, to be exceeded, or exceeds the financial guarantee submitted in accordance with section 48, in value terms.

If the auction is conducted jointly with a partner entity, the bids may be submitted in Canadian dollars or in the currency used in the territory of the partner entity.".

32. Section 52 is amended

(1) by replacing the first paragraph by the following

"**52.** At the close of the auction, the Minister awards emission units, beginning with the bidders that submitted the highest bids, until all available units have been awarded.

If 2 or more bidders are related entities and did not indicate how their purchasing limit was to be allocated when registering, the Minister awards the emission units beginning with the bidders that submitted the highest bids, based on the individual limits that would have been applied had the bidders not been related entities, until their overall purchasing limit determined in accordance with the fifth paragraph of section 50 has been reached.

The final sale price per emission unit is, for all the emission units put up for auction, the last price bid for which the Minister awards units.

When more than 1 bid has been submitted at that price, and the total quantity of the bids is greater than the quantity of emission units available, the Minister divides the emission units between the bidders at that price

(1) by establishing the share of each bidder by dividing the quantity of emission units requested by each bidder by the total quantity of units bid at that price;

(2) by determining the number of emission units to be awarded to each bidder by multiplying the bidder’s share by the quantity of emission units available, rounding down to the nearest whole number;

(3) when emission units remain to be awarded, by assigning a random number to each bidder and by awarding 1 emission unit per bidder, in ascending order of the numbers assigned, until all the emission units have been awarded.

When the auction is a joint auction, the final sale price is rounded off to the nearest cent of the reference currency used by the partner entities, using the application conversion rate.";

(2) in the second paragraph:

(*a*) by replacing "30" by "7";

(*b*) by adding "When more than 1 type of guarantee has been provided, the Minister uses the guarantees in the order set out in that section." at the end.

33. Sections 53 and 54 are replaced by the following:

"**53.** All or part of a guarantee provided in accordance with section 48 that has not been used for the purposes of an auction is returned to the bidder.

54. Emission units of the vintage of the current year or of previous years that remain unsold after an auction are put up for sale at a later date when, for 2 consecutive auctions, the final sale price of the emission units was above the minimum price.

Emission units of the vintage of a year subsequent to the year of the auction are put up for sale again when their vintage becomes the vintage of the current year.

However, the quantity of emission units put up for sale again in accordance with the first paragraph cannot exceed 25% of the quantity of emission units initially planned for the auction.".

34. Section 56 is replaced by the following:

"**56.** Only emitters registered in the system in accordance with this Regulation, having a covered establishment in Québec and not holding emission units in their general account that can be used to cover GHG emissions for the current compliance period are eligible for a sale of emission units by mutual agreement in accordance with this Division.".

35. Section 59 is amended:

(1) by striking out ", identification number" in subparagraph 1 of the first paragraph;

(2) by replacing subparagraph 2 of the first paragraph by the following:

"(2) a financial guarantee valid for a period of at least 21 days following the date of the sale, in one of the forms referred to in the second paragraph of section 48;";

(3) by inserting "if the price offered for each emission unit requested in a given category is below the minimum price for that category, or" after "Minister" in the second paragraph.

36. The following is inserted after section 60:

"**60.1.** The sale by mutual agreement takes place in a single round, using sealed offers.

The emission units are put on sale in lots of 1,000 units of the same category.

During a sale by mutual agreement, an emitter's account representative may submit more than 1 offer, in the form and using the procedure set out in the notice published in accordance with the second paragraph of section 57, indicating the number of lots requested in each category, provided the total of the offers does not exceed the amount of the guarantee submitted in accordance with subparagraph 2 of the first paragraph of section 59.".

37. Section 61 is amended by adding the following after subparagraph 2 of the third paragraph:

"(3) when emission units remain to be awarded, by assigning a random number to each purchaser and by awarding 1 emission unit per purchaser, in ascending order of the numbers assigned, until all the emission units have been awarded.".

38. Section 62 is amended:

(1) by replacing "30" in the first paragraph by "7";

(2) by adding the following at the end of the first paragraph: "When more than 1 form of guarantee has been provided, the Minister uses the guarantees in the order set out in the second paragraph of section 48.".

39. Section 63 is replaced by the following:

"**63.** All or part of a guarantee provided in accordance with subparagraph *b* of subparagraph 2 of the first paragraph of section 59 that has not been used for the purposes of a sale by mutual agreement is returned to the purchaser.".

40. Section 66 is amended by replacing equations 66-1 and 66-2 in subparagraph *b* of subparagraph 10 of the first paragraph by the following:

"**Equation 66-1**

$$I_{\mathrm{Re}duction\ j} = \frac{\sum_{i=n}^{2011} GHG_{i\,j}}{\sum_{i=n}^{2011} P_{i\,j}}$$

Equation 66-2

$$I_{\mathrm{Re}ference\ j} = \frac{\sum_{i=2005}^{2007} GHG_{i\,j}}{\sum_{i=2005}^{2007} P_{i\,j}}$$

Where:

$I_{Reduction\ j}$ = Average intensity of GHG emissions for reference unit *j* during the reduction period;

$I_{Reference\ j}$ = Average intensity of GHG emissions for reference unit *j* during the reference period;

j = Reference unit for the establishment referred to in Table B of Part I of Appendix C;

GHG_{ij} = GHG emissions of the establishment, relating to the production or use of reference unit *j* for year *i*, in metric tonnes CO_2 equivalent;

i = Year;

n = First year of the reduction period;

P_{ij} = Annual quantity of reference units *j* produced or used by the establishment for year *i*;".

41. Section 68 is amended:

(1) by replacing "31 December 2012" in the part preceding paragraph 1 by "31 March 2013";

(2) by striking out ", identification number" in paragraph 1.

42. Section 70 is amended by replacing "1 September 2013" in the second paragraph by "14 January 2014".

43. The following is inserted after section 70:

"**CHAPTER IV**
OFFSET CREDITS

70.1. The Minister keeps a register of offset credit projects on the website of the Ministère du Développement durable, de l'Environnement et des Parcs that contains the names and professional contact information of promoters, project plan, project reports, validation and verification reports and information on project status.

70.2. GHG emission reduction projects referred to in a protocol appearing in Appendix D, that began on or after 1 January 2007, are eligible for the issue of offset credits.

Subject to any specific period provided for in a protocol, an offset credit project may be conducted during a continuous period of not more than 10 years.

At the expiry of that period, the promoter may, in accordance with this Chapter, request the renewal of the offset credit project, for the same period as the initial period, when the project still meets the conditions of section 70.3. An offset credit project cannot be renewed more than twice.

For the purposes of this Chapter, an offset credit project is considered to begin on the date of the first reductions in GHG emissions resulting from the project.

70.3. An offset credit project must meet the following conditions:

(1) it must be carried out by a promoter registered for the system in accordance with section 70.4, and the reductions in GHG emissions must result directly from an action or decision by the promoter;

(2) it must be carried out in accordance with the applicable protocol appearing in Appendix D and meet the specified conditions;

(3) the reductions in GHG emissions resulting from the project must belong to the promoter, and the promoter must be able to demonstrate that fact;

(4) the reductions in GHG emissions must occur only within the boundaries of the project site and with regard to the GHG sources, sinks and reservoirs targeted by the project;

(5) the reductions in GHG emissions must be permanent and irreversible;

(6) the reductions in GHG emissions must be additional, that is that they meet the following conditions:

(*a*) they must result from a project that is voluntary, that is that it is not being carried out, at the time or registration of renewal, in response to a legislative or regulatory provision, a permit or other type of authorization, an order made under an Act or regulation, or a court decision;

(*b*) they must result from a project that goes beyond the current practices described in the applicable protocol for the project;

(7) the project has not received credit under another GHG emission reduction program;

(8) the project must take place in a territory and geographic zone covered by the applicable protocol;

(9) the GHG emission reductions must amount to at least 1 metric tonne CO_2 equivalent;

(10) the GHG emission reductions must be calculated in accordance with the methods prescribed in the applicable protocol listed in Appendix D, taking into account all adjacent GHG sources, sinks and reservoirs;

(11) the GHG reductions resulting from the project must not be wholly or partly compensated by increases in GHG emissions occurring outside the boundaries of the project;

(12) the reduced GHG emissions must be verifiable, that is that they can be objectively assessed by a verifier in accordance with this Chapter;

(13) the project must meet all other applicable requirements for the type of project and the place where it is carried out.

70.4. Only a natural person domiciled in Québec or a legal person or municipality having an establishment in Québec may act as the promoter of an offset credit project.

The person or municipality must apply to the Minister to be registered for the system as a participant, in accordance with this Regulation.

70.5. A promoter wishing to be issued offset credits for a project must, before the project begins, apply to the Minister for the project to be registered in the register of offset credit projects by submitting a project plan that includes the following information and documents:

(1) the promoter's name and contact information;

(2) the title and a detailed description of the project;

(3) the protocol applicable to the project, listed in Appendix D;

(4) an estimate of the annual and total GHG emissions that will be reduced in accordance with this Regulation and the applicable protocol, in metric tonnes CO_2 equivalent;

(5) a description of the places where the project will be carried out, including the geographic boundaries and the latitude and longitude of each project site;

(6) for each site, the GHG sources, sinks and reservoirs targeted by the project;

(7) when the environmental impacts have been assessed, a copy of the assessment and a summary of the findings;

(8) the duration of the project and the estimated project commencement date;

(9) a copy of any authorization required for the project;

(10) a demonstration that the project meets the conditions of section 70.3, including a copy of any relevant document;

(11) any information required by the protocol applicable to the project;

(12) a data surveillance and management plan meeting the requirements of the protocol applicable to the project;

(13) a description of the measures taken to ensure compliance with the requirements of this Regulation;

(14) where applicable, all credits issued for the project under a regulatory or voluntary program and any financial assistance received under a GHG emission reduction program;

(15) the signature of the promoter and the date of presentation of the project plan.

Despite the first paragraph, in the case of an offset credit project that commenced before a protocol applicable to that type of project was listed in Appendix D, the application for registration must be sent to the Minister not later than 1 year after the date of coming into force of the relevant protocol.

70.6. The application for registration referred to in section 70.5 or 70.7 must include a declaration from the promoter attesting

(1) that the promoter is the sole owner of the GHG emission reductions resulting from the project; if several parties are involved in the project, a copy of an agreement indicating that the parties have transferred their rights with respect to the reductions must be included;

(2) that the promoter has not applied for credits for the GHG emission reductions targeted by the project under another GHG emission reduction program, and will not make such an application once the project is registered.

70.7. A promoter may submit to the Minister an application for registration for an aggregation of projects of the same type carried out on several sites for various members of the aggregation when each project meets the conditions of sections 70.2 and 70.3 and of the protocol applicable to the project.

An application for registration for an aggregation of offset credit projects must include

(1) for each project, the information and documents referred to in section 70.5;

(2) the name and contact information of each member for which an offset credit project will be carried out;

(3) a declaration signed by each member party to the aggregation attesting that the promoter is duly designated to carry out the project and authorizing the issue of the offset credits to the promoter for the aggregation.

The project commencing first is considered to be the reference project for the application of the time limits for renewal set out in section 70.9 and for the project report referred to in section 70.13.

No project may be added to the aggregation after the application for registration has been submitted.

70.8. The plan for an offset credit project referred to in section 70.5 must be submitted with a validation report conducted in accordance with ISO 14064-3 by a validation organization accredited under ISO 14065 by a member of the International Accreditation Forum located in Canada or the United States and according to an ISO 17011 program, with respect to the sector of activity for the project.

In addition, the promoter must entrust the validation of the project plan to a validation organization and a validator designated by that organization that has not acted, in the 3 preceding years, as a consultant for the promoter or, as applicable, for one of the member parties to the aggregation for the purpose of developing the project or calculating the reductions in GHG emissions attributable to the project.

For the validation, the promoter and, as applicable, the member parties to the aggregation must give the validator access to all the information needed for the validation and to the places where the project is carried out.

In addition to the information prescribed by ISO 14064-3 and ISO 14064-5, the validation report must include the following information and documents:

(1) the name and contact information of the validation organization and of the validator designated by the organization to conduct the validation and, where applicable, of the members of the validator's team;

(2) the name and contact information of the member of the International Accreditation Forum that accredited the organization for the validation and the date of the accreditation;

(3) the dates of the period during which the validation was conducted;

(4) an assessment of the project plan and of any other relevant related information, and of the compliance of the project with the conditions set out in this Regulation;

(5) a description of any error or omission noted in the project plan or relating to the data, information or methods used and an assessment of the error or omission;

(6) where applicable, the corrections made to the project plan following the validation;

(7) a description of the work completed by the validator during the validation;

(8) any information required by the protocol applicable to the project;

(9) the conclusions of the validation concerning the accuracy and reliability of the project plan and its conformity with the conditions of this Regulation;

(10) a declaration by the validation organization and the validator that the validation was conducted in accordance with this Regulation.

In the case of an aggregation of offset credit projects, a single validation report may be submitted by the promoter, but the report must contain the information and documents referred to in the fourth paragraph for each project, and the validation of each project.

70.9. Every promoter wishing to renew an offset credit project must, not more than 18 months prior to the end date for the current project but not less than 9 months prior to that date, send to the Minister an application for renewal including the information and documents referred to in sections 70.3 to 70.8.

70.10. When a project meets the conditions of sections 70.2 to 70.9, the Minister registers the project in the register of offset credit projects under the heading, as the case may be, of "individual project submitted" or "aggregation of projects submitted", in the case of an initial application, and of "individual project for renewal" or "aggregation of projects for renewal" in the case of an application for renewal.

70.11. Subject to any specific period prescribed in a protocol appearing in Appendix D, the reductions in GHG emissions resulting from an offset credit project must begin not later than 1 year after the project is registered, on pain of removal from the register.

The promoter must implement the offset credit project in accordance with this Regulation, the applicable protocol listed in Appendix D and the validated project plan.

The promoter must also use any device, system or other equipment required under the protocol applicable to the project, and ensure that they are maintained in good working order, work reliably for the duration of the project, and are calibrated in the manner and at the frequency specified by the equipment manufacturer or, where applicable, by the protocol applicable to the project.

70.12. Every promoter must also, for each project, record the following information annually in a register:

(1) the information referred to in the second paragraph of section 70.13;

(2) any information concerning the geographic boundaries of the project and any carbon source, sink or reservoir concerned by the project;

(3) a calculation of emissions under the baseline scenario for the project, emissions during project implementation and emission reductions, along with the related documentation;

(4) the fuels used and any data measured, sampled or used to calculate emissions under the baseline scenario for the project, emissions during project implementation and emission reductions, for each emission source, and the type of process, fuel and equipment used;

(5) where applicable, the point of origin and chain of traceability of the documents required by the protocol applicable to the project;

(6) information concerning any chemical analysis conducted, any results, and any documentation relating to the testing of any equipment and sources used to calculate emissions under the baseline scenario, emissions during project implementation and emission reductions from the project;

(7) any data or documentation that must be recorded under the protocol applicable to the project.

70.13. Each full year from the start date of a project constitutes a project reporting period. For projects referred to in the second paragraph of section 70.5, the period begins on the date of registration.

Every project promoter must, not later than 4 months after the end of each project reporting period, submit a project report to the Minister covering the most recent project reporting period and including the following information and documents:

(1) the promoter's name and contact information and, where applicable, the names and contact information of the members party to the aggregation;

(2) the start and end dates for the project reporting period covered by the report;

(3) the quantity of GHG emission reductions during the period covered by the project report, calculated using the methods set out in the applicable protocol, in metric tonnes CO_2 equivalent, and all the information and documents used for the calculation;

(4) the calculation, surveillance and monitoring methods for the data used, and the data monitored;

(5) the quantity of GHG emission reductions eligible for the issue of offset credits according to the conditions of this Regulation and the protocol applicable to the project, in metric tonnes CO_2 equivalent;

(6) information or document required by the protocol applicable to the project;

(7) a demonstration that the project has been carried out in accordance with this Regulation;

(8) a declaration signed by the promoter attesting that

(*a*) the project is still being carried out in conformity with the rules applicable to the type of project and the place where it is carried out;

(*b*) the promoter still owns the GHG emission reductions for which the offset credits are requested;

(*c*) the GHG emission reductions have not been used to apply for credits under another program;

(9) a comparison with the previous project report and, where applicable, a description of any changes made;

(10) the date of the report.

If a project report is not submitted within the required time, the GHG emission reductions calculated and reported in the project report will not be eligible for the issue of offset credits.

In the case of an aggregation of offset credit projects, a single project report may be submitted by the promoter, but the report must contain the information and documents referred to in the second paragraph for each project.

70.14. The project report referred to in section 70.13 must be accompanied by a verification report conducted by a verification organization accredited under ISO 14065 by a member of the International Accreditation Forum in Canada or the United States and according to an ISO 17011 program, with respect to the sector of activity for the project.

In addition, the promoter must entrust the verification of the project report to a verification organization and a verifier designated by that organization that, in addition,

(1) has not acted, in the 3 preceding years, as a consultant for the promoter or, as applicable, for one of the member parties to the aggregation for the purpose of developing the project or calculating the reductions in GHG emissions attributable to the project;

(2) has not validated the project plan for the project for which the project report is to be verified;

(3) has not verified more than 6 consecutive project reports for the project on behalf of the promoter;

(4) when the promoter wishes to have the project report verified by a verification organization or a verifier other than one that verified the report for the preceding year, the organization or verifier must not have verified the report for the project during the 3 previous years.

For the verification, the promoter and, as applicable, the members party to the aggregation must give the verifier access to all the information needed and to the places where the project is carried out.

Despite the first paragraph, when during the period covered by a project report GHG emission reductions of less than 25,000 metric tonnes CO_2 equivalent have been achieved, the promoter may postpone the verification of the period to the following year. A verification report may not, however, cover more than 2 project reporting periods.

70.15. The verification of the project report must

(1) be conducted in accordance with ISO 14064-3 and according to procedures that allow a reasonable assurance level within the meaning of that standard;

(2) include at least one project site visit by the verifier designated by the verification organization and accompanied by the promoter and, where applicable, the member party to the aggregation concerned, during each verification for each place concerned by the project.

70.16. In addition to the information prescribed by ISO 14064-3 and ISO 14065, the verification report referred to in section 70.14 must include the following information and documents:

(1) the name and contact information of the verification organization and of the verifier designated by the organization to conduct the verification and, where applicable, of the members of the verifier's team;

(2) the name and contact information of the member of the International Accreditation Forum that accredited the verification organization, and the date of the accreditation;

(3) the dates of the periods during which the verification was conducted, and the date of any project site visits;

(4) an assessment of the accuracy, completeness and conformity of the project report;

(5) a description of any error, omission or inaccuracy noted in the project report or relating to the data, information or methods used, and their impact on the project;

(6) the percentage of error for the project report, calculated in accordance with section 70.17;

(7) where applicable, the corrections made to the project report following the verification;

(8) the total quantity of CO_2 equivalent GHG emission reductions over the period of the project report and the quantity of GHG emission reductions eligible for the issue of offset credits under the conditions of this Regulation and the protocol applicable to the project, in metric tonnes CO_2 equivalent;

(9) the conclusions of the verification concerning the accuracy and reliability of the project report and its conformity with the conditions of this Regulation;

(10) a declaration by the verification organization and the verifier that the verification was conducted in accordance with this Regulation.

In the case of an aggregation of offset credit projects, a single verification report may be submitted by the promoter, but the report must contain the information and documents referred to in the first paragraph for each project, and the verification of each project.

70.17. The percentage of error of the project report is calculated using the following equation:

Equation 70.17-1

$$PE = \left(\frac{DRV}{RR} x100 \right)$$

Where:

PE = Percentage of error;

DRV = Discrepancy between the reductions in GHG emissions reported by the promoter and the verified reductions, in metric tonnes CO_2 equivalent;

RR = Reductions in GHG emissions reported by the promoter, in metric tonnes CO_2 equivalent.

70.18. When the percentage of error calculated in accordance with section 70.17 is above 5%, the promoter must correct the project report and submit it again for verification before sending it to the Minister.

70.19. Subject to any specific proportion set out in a protocol appearing in Appendix D, following the receipt of a project report that has a positive verification result and meets the conditions of this Regulation, the Minister places in the general account of the promoter of the project submitted, or to be renewed, an offset credit for each metric tonne CO_2 equivalent of 94% of the GHG emission reductions for the period covered by the project report, rounded down to the nearest whole number.

The offset credits corresponding to the remainder of the GHG emission reductions for the period covered by the project report are placed in the Minister's environmental integrity account.

Following the first placement of offset credits for an initial or renewed project, the heading for the project in the register of offset projects is replaced, as the case may be, by the heading "individual active project" or "aggregation of active projects", in the case of an initial application, or "individual renewed active project" or "aggregation of renewed active projects" in the case of a renewed project.

If the verification report is negative or the project is not in conformity with the conditions of this Regulation, no offset credit is issued to the promoter by the Minister for the period covered by the project report.

70.20. The Minister may require the promoter to replace any offset credit issued to the promoter for a project in the following cases:

(1) where, because of omissions, inaccuracies or false information in the information and documents provided by the promoter, the GHG emission reductions for which the offset credits were issued were not eligible;

(2) where offset credits were applied for under another program for the same reductions as those covered by the application for credits under this Regulation.

The Minister notifies the promoter who must, within 30 days of receiving the notice, place in the Minister's general account a number of credits equivalent to the number of illegitimate offset credits that must be replaced.

The Minister, after being notified that the credits have been placed in the general account by the promoter, places the replacement offset credits in the retirement account to be extinguished.

Without prejudice to the Minister's other recourses against the promoter, on the expiry of the 30-day period allowed to replace offset credits, the Minister replaces the illegitimate offset credits by withdrawing an equivalent number of credits from the environmental integrity account and placing them in the retirement account to be extinguished.

When the promoter fails to replace the offset credits, the project is removed from the register of offset credit projects.

70.21. Any change to the information and documents provided in accordance with this Chapter must be communicated to the Minister within 10 days.".

44. The heading of Title IV is amended by inserting "**ADMINISTRATIVE PROVISIONS,**" before "**OFFENCES**".

45. Chapter I is replaced by the following:

"**CHAPTER I**
MONETARY ADMINISTRATIVE SANCTIONS

71. A monetary administrative sanction of $500 in the case of a natural person and $2,500 in all other cases may be imposed on any person who

(1) contravenes section 4, 9, 12 or 14.1, the second paragraph of section 19, the sixth paragraph of section 26, the fifth paragraph of section 27.1, the second paragraph of section 33 or 51, section 70.12 or 70.13, the first paragraph of section 70.14 or section 70.21;

(2) in contravention of this Regulation, refuses or neglects to send notification or provide any other information, study, research or expertise, information, report, summary, plan or other document, or who fails to comply with the time limits for providing such documents, in cases where no monetary administrative sanction is otherwise provided for.

72. A monetary administrative sanction of $1,000 in the case of a natural person and $5,000 in all other cases may be imposed on any person who contravenes subparagraph 1 of the first paragraph of section 18, section 32, the second or third paragraph of section 50, 70.8 or 70.11, or the second paragraph of section 70.14.

73. A monetary administrative sanction of $2,500 in the case of a natural person and $10,000 in all other cases may be imposed on any person who

(1) contravenes section 7 or 17, the first paragraph of section 19, 20. 21 or 24, section 28, 29, 30 or 31, the second paragraph of section 37, the first paragraph of section 51 or the second paragraph of section 70.20;

(2) fails to place emission allowances or emission units pursuant to the second paragraph of section 18, or the fourth paragraph of section 22 or 41, in cases where no other administrative sanction may be applied.

CHAPTER I.1
PENAL SANCTIONS

74. A person who contravenes section 4, 9 or 14.1, the second paragraph of section 18 or 19, the sixth paragraph of section 26, the fifth paragraph of section 27.1, the second paragraph of section 33 or 51, section 70.12 or 70.13, the first paragraph of section 70.14 or section 70.21 is guilty of an offence and is liable,

(1) in the case of a natural person, to a fine of $3,000 to $100,000;

(2) in other cases, to a fine of $10,000 to $600,000.

A person who, in contravention of this Regulation, refuses or neglects to send notification or provide any other information, study, research or expertise, information, report, summary, plan or other document, or who fails to comply with the time limits for providing such documents, in cases where no fine is otherwise provided for, is guilty of an offence and liable to the same fines.

75. A person who contravenes subparagraph 1 of the first paragraph of section 18, section 32, the second or third paragraph of section 50, 70.8 or 70.11 or the second paragraph of section 70.14 is guilty of an offence and is liable,

(1) in the case of a natural person, to a fine of $6,000 to $250,000;

(2) in other cases, to a fine of $25,000 to $1,500,000.

75.1. A person who contravenes section 7, 17 or 24, the second paragraph of section 37, the fourth paragraph of section 41, the first paragraph of section 51 or the second paragraph of section 70.20 is guilty of an offence and is liable,

(1) in the case of a natural person, to a fine of $10,000 to $500,000 or, despite article 231 of the Code of Penal Procedure (R.S.Q., c. C-25.1), to imprisonment for a maximum term of 18 months;

(2) in other cases, to a fine of $40,000 to $3,000,000.

75.2. A person who communicates false or misleading information to the Minister for the purposes of this Regulation is guilty of an offence and is liable,

(1) in the case of a natural person, to a fine of $5,000 to $500,000 or, notwithstanding article 231 of the Code of Penal Procedure (R.S.Q., c. C-25.1), to imprisonment for a maximum term of 18 months;

(2) in other cases, to a fine of $15,000 to $3,000,000.

75.3. A person who directly or indirectly engages or participates in any transaction, series of transactions or trading method relating to an emission allowance, or in any act, practice or course of conduct is guilty of an offence if the person knows, or ought reasonably to know, that the transaction, series of transactions, trading method, act, practice or course of conduct

(1) creates or contributes to create a misleading appearance of trading activity in, or an artificial price for, an emission allowance; or

(2) perpetrates a fraud on any person.

A person referred to in the first paragraph is liable,

(1) in the case of a natural person, to a fine of $10,000 to 500,000 or, despite article 231 of the Code of Penal Procedure (R.S.Q., c. C-25.1), to imprisonment for a maximum term of 18 months ;

(2) in other cases, to a fine of $40,000 to $3,000,000.

75.4. An emitter who fails to cover GHG emissions in accordance with subparagraph 2 of the first paragraph of section 18, the first paragraph of section 19, 20 or 21, or the fourth paragraph of section 22 is guilty of an offence for each metric tonne of GHG not covered and is liable, for each metric tonne, to a fine of $40,000 to $3,000,000.".

46. Appendix B is replaced by the following:

"**APPENDIX B**

(s. 37)

Partner entities

1. State of California

The emission allowances issued by the State of California pursuant to the document California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, Title 17, California Code of Regulations, Sections 95800 and seq. are deemed to be equivalent to the emission allowances issued pursuant to this Regulation, based on the correspondence indicated in the following table for each type of emission allowance:

<table>
<tr><th></th><th>Québec</th><th>California</th></tr>
<tr><td rowspan="3">Type of emission allowance (each having a value corresponding to 1 metric tonne CO_2 equivalent)</td><td>Emission unit</td><td rowspan="2">California Greenhouse Gas Emissions Allowance (CA GHG Allowance)</td></tr>
<tr><td>Early reduction credit</td></tr>
<tr><td>Offset credit</td><td>- ARB Offset Credit
- Early Action Offset Credit</td></tr>
</table>

.".

47. Appendix C is amended

(1) in Part I:

(*a*) by inserting "for industrial purposes" after "Steam and air-conditioning supply" in the column "Activity" of Table A;

(*b*) by replacing Table B by the following:

"Table B Reference units[1]

Sector of activity of the establishment	Type of activity	Reference unit
Aluminum	Baked cathode production	Metric tonne of baked cathodes
Aluminum	Aluminum production	Metric tonne of liquid aluminum (leaving potroom)
Aluminum	Baked anode production	Metric tonne of baked anodes
Aluminum	Aluminum hydroxide production	Metric tonne of aluminum hydroxide
Aluminum	Calcinated coke production	Metric tonne of calcinated coke
Other[2]	Beer production	Hectolitre of beer
Other[2]	Alcohol production	Kilolitre of alcohol
Other[2]	Graphite electrode manufacturing	Metric tonne of electrodes
Other[2]	Gypsum panel manufacturing	Cubic metre of gypsum panel
Other[2]	Dismembering	Metric tonne of materials processed
Other[2]	Sugar production	Metric tonne of sugar
Other[2]	Glass container manufacturing	Metric tonne of glass
Other[2]	Steam production (for sale to a third person)	Metric tonne of steam
Lime	Lime production	Metric tonne of calcic lime and metric tonne of calcic lime kiln dust sold Metric tonne of dolomitic lime and metric tonne of dolomitic lime kiln dust sold
Chemical	Ethanol production	Kilolitre of ethanol
Chemical	Tire production	Metric tonne of tires
Chemical	Fabrication of rigid foamed insulation	Board foot of rigid insulation

Chemical	Production of titanium dioxide ($Ti O_2$)	Metric tonne of titanium pigment equivalent (raw material)
Chemical	Production of linear alkylbenzene (LAB)	Metric tonne of LAB
Chemical	Production of catalyzer	Metric tonne of catalyzer (including additives)
Chemical	Production of hydrogen	Metric tonne of hydrogen
Chemical	Production of purified terephtalic acid (PTA)	Metric tonne of PTA
Chemical	Production of paraxylene	Metric tonne of xylene and toluene Metric tonne of steam sold to a third person
Chemical	Production of sodium silicate	Metric tonne of sodium silicate
Chemical	Production of sulphur (refinery gas)	Metric tonne of sulphur
Cement	Cement production	Metric tonne of clinker and metric tonne of mineral additives (gypsum and limestone) added to the clinker produced
Electricity	Electricity production	Megawatt-hour (MWH)
Electricity	Acquisition of electricity produced outside Québec for the consumption of the enterprise or for sale in Québec	Megawatt-hour (MWH)
Electricity	Steam production (except steam produced by cogeneration)	Metric tonne of steam
Metallurgy	Steel production (steelworks)	Metric tonne of steel (slab, pellets or ingots)
Metallurgy	Wrought steel production	Metric tonne of wrought steel
Metallurgy	Steel pellet or slab rolling	Metric tonne of rolled steel
Metallurgy	Copper anode production	Metric tonne of copper anodes
Metallurgy	Iron ore concentrate pellet reduction	Metric tonne of iron ore concentrate pellets
Metallurgy	Copper cathode production	Metric tonne of copper cathodes

Metallurgy	Ferrosilicon production	Metric tonne of ferrosilicon (50% and 75% concentration)
Metallurgy	Lead production	Metric tonne of lead
Metallurgy	Metal powder manufacturing	Metric tonne of metal powder
Metallurgy	Titanium dioxide ($Ti O_2$) slag manufacturing	Metric tonne of $Ti O_2$ slag
Metallurgy	Silicon metal production	Metric tonne of silicon metal
Metallurgy	Zinc production	Metric tonne of iron load Metric tonne of cathodic zinc
Mining and pelletization	Pellet production	Metric tonne of flux pellets Metric tonne of standard pellets Metric tonne of low silica flux pellets Metric tonne of direct reduction pellets Metric tonne of blast furnace pellets Metric ton of intermediate pellets
Mining and pelletization	Iron concentrate production	Metric tonne of iron concentrate
Mining and pelletization	Nickel concentrate production	Metric tonne of nickel ore
Pulp and paper	Pulp and paper production	Metric tonne of various air-dried saleable products

Pulp and paper	Production of wood-fibre based products	Metric tonne of various air-dried saleable products
Pulp and paper	Production of pulp and paper wood-fibre based products	Metric tonne of various air-dried saleable products
Refining	Oil refining	Kilolitre of total crude oil refinery load

[1] An establishment pursuing a type of activity that is not listed in this table must use the reference unit declared in its emissions report under the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (c. Q-2, r. 15).

[2] These reference units must be used when the type of activity is not exercised in another sector of activity specifically referred to in this Table.";

(2) in Part II:

(*a*) by replacing "GHG reported emissions" in paragraph 2 of Division A by "verified emissions";

(*b*) by inserting the following paragraphs after the first paragraph of Division D:

"For the application of the calculation methods set out in this Part, the GHG emissions data used are

(1) for the years 2007 to 2011, the data for reported emissions, minus the emissions referred to in the second paragraph of section 6.6 of the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (c. Q-2, r. 15);

(2) for the years 2012 and following, the verified emissions.";

(*c*) by replacing "third paragraph" in the second paragraph by "fifth paragraph";

(*d*) by adding the following after subparagraph 7 of the third paragraph:

"(8) in the case of a copper foundry, using equations 6-12 and 6-13. ";

(*e*) by replacing Subdivision 6.7 of Division D by the following:

"**6.7**. **Enterprise that acquires, for consumption of the enterprise or for sale in Québec, power generated in another Canadian province or territory or in a US state where a system covering electricity production in particular has been established by an entity that is not a partner entity**

Equation 6-11 **Calculation of the total GHG emission units allocated free of charge to an enterprise that acquires, for consumption of the enterprise or for sale in Québec, power generated in another Canadian province or territory or in a US state where a system covering electricity production in particular has been established by an entity that is not a partner entity**

$$A_i = \frac{P_i^{Non\text{-}WCI}}{P_i^{WCI}} \times E_i^{Non\text{-}WCI}$$

Where:

A_i = Number of emission units allocated free of charge for year *i*;

P_i^{WCI} = Average sale price of emission allowances at an auction held during year *i* by other Canadian provinces or territories or by US states where a system covering electricity production in particular has been established by a partner entity, in US dollars;

$P_i^{Non\text{-}WCI}$ = Average sale price of emission allowances at an auction held during year *i* by other Canadian provinces or territories or by US states where a system covering electricity production in particular has been established by an entity that is not a partner entity, in US dollars;

$E_i^{Non\text{-}WCI}$ = Annual GHG emissions for year *i* relating to the production of electricity acquired from a Canadian province or territory or from a US state where producers are subject to a system established by an entity that is not a partner entity, in metric tonnes CO_2 equivalent.

6.8. Copper foundry

The total quantity of GHG emission units allocated free of charge to a copper foundry is calculated using equation 6-12 for years 2013 and 2014 and using equation 6-13 for years 2015 to 2020:

Equation 6-12 **Calculation of the total quantity of GHG emission units allocated free of charge to a copper foundry for years 2013 and 2014**

$$A_i = (I2013_{cu} \times P_{Ri,cu}) + A_{recycl,i}$$

Where:

A_i = Total quantity of GHG emission units allocated free of charge for the production of copper anodes at the establishment for year *i*;

i = Each year included in the first compliance period, namely 2013 and 2014;

$I2013_{cu}$ = Intensity target of GHG emissions attributable to the production of copper anodes at the establishment for years 2013 and 2014, calculated using equation 2-2, in metric tonnes CO_2 equivalent per metric tonne of copper anodes;

$P_{Ri,cu}$ = Total quantity of copper anodes produced by the establishment during year *i*, in metric tonnes of copper anodes;

$A_{recycl,i}$ = GHG emissions attributable to the carbon content of recycled materials introduced into the process materials for year *i*, in metric tonnes CO_2 equivalent.

Equation 6-13 **Calculation of the total quantity of GHG emission units allocated free of charge to a copper foundry for years 2015 to 2020**

$$A_i = \left[\left(\frac{(6-x)\, I2013_{cu} + x\, I2020_{cu}}{6} \right) \times P_{Ri,cu} \right] + A_{recycl,i}$$

Where:

A_i = Total quantity of GHG emission units allocated free of charge for the production of copper anodes at the establishment for year *i*;

i = Each year included in the second and third compliance periods, namely 2015, 2016, 2017, 2018, 2019 and 2020;

6 = Six years in the linear regression, namely 2015, 2016, 2017, 2018, 2019 and 2020;

x = (*i* – 2015) + 1;

$I2013_{cu}$ = Intensity target of GHG emissions attributable to the production of copper anodes at the establishment for years 2013 and 2014, calculated using equation 2-2, in metric tonnes CO_2 equivalent per metric tonne of copper anodes;

$I2020_{cu}$ = Intensity target of GHG emissions attributable to the production of copper anodes, calculated using equation 2-8, in metric tonnes CO_2 equivalent per metric tonne of copper anodes;

$P_{Ri,cu}$ = Total quantity of copper anodes produced by the establishment during year *i*, in metric tonnes of copper anodes;

$A_{recycl,i}$ = GHG emissions attributable to the carbon content of recycled materials introduced in the process materials for year *i*, in metric tonnes CO_2 equivalent.

For the application of equations 6-12 and 6-13, recycled process materials at a copper foundry are deemed to be all materials used in the process other than fuel, ore, reductants, materials used for slag purification, carbonated reactants and carbon electrodes.".

48. The following is added after Appendix C:

"**APPENDIX D**

(ss. 70.1 to 70.21)

Offset credit protocols

For the purposes of these protocols,

(1) "standard conditions" means a temperature of 20°C and pressure of 101.325 kPa;

(2) "SSR" means GHG sources, sinks and reservoirs on the project site.

PROTOCOL 1
COVERED MANURE STORAGE FACILITIES - CH_4 DESTRUCTION

Part I

1. Projects covered

This offset credit protocol covers any project designed to reduce GHG emissions by destroying the CH_4 captured from the manure storage facility of an agricultural operation in Québec raising one of the species of livestock listed in the tables in Part II.

The project must involve the installation of a manure storage facility cover and a CH_4 destruction device.

The project must capture and destroy CH_4 that, before the project, was emitted to the atmosphere. The CH_4 may be destroyed on the site of the agricultural operation using a flare or any other device.

For the purposes of this protocol, "manure" means livestock waste with liquid manure management within the meaning of the Agricultural Operations Regulation (c. Q-2, r. 26).

2. Location

The project must be carried out within the borders of the province of Québec.

3. Flow chart for the reduction project process

The process flow chart in Figure 3.1 and the table in Figure 3.2 show all the SSRs that must be taken into account by the promoter when calculating the GHG emission reductions attributable to the project.

Figure 3.1. Flowchart for the reduction project process and baseline scenario and project boundaries

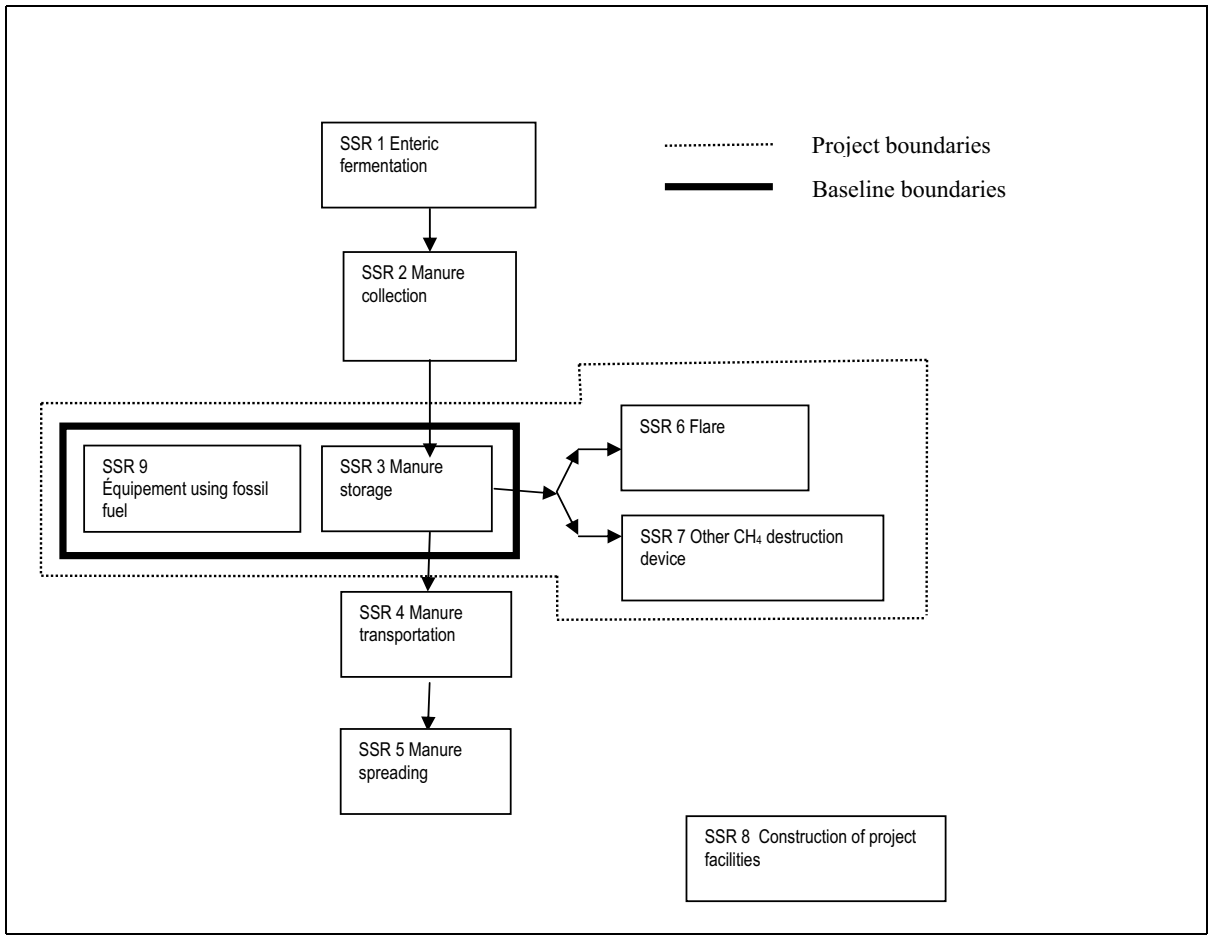


Figure 3.2. Project SSRs

SSR #	Description	GHG	Relevant to project baseline scenario (B) and/or Project (P)	Included or Excluded
1	Enteric fermentation	CH_4	B, P	Excluded
2	Manure collection	CH_4 CO_2 N_2O	B, P	Excluded Excluded Excluded
3	Manure storage	CH_4 CO_2	B, P	Included Excluded
4	Manure transportation	CH_4 CO_2 N_2O	B, P	Excluded Excluded Excluded
5	Manure spreading	CH_4 CO_2 N_2O	B, P	Excluded Excluded Excluded
6	Flare	CH_4 CO_2 N_2O	P	Included Excluded Included
7	Other CH_4 destruction device	CH_4 CO_2 N_2O	P	Included Excluded Included
8	Construction of project facilities	CH_4 CO_2 N_2O	P	Excluded Excluded Excluded
9	Equipment using fossil fuel	CH_4 CO_2 N_2O	B, P	Included Included Included

4. Calculation method for the GHG emission reductions attributable to the project

The promoter must calculate the quantity of GHG emission reductions attributable to the project using equation 1:

Equation 1

$$GHG_{reductions} = GHG_{project} - \Delta GHG_{fossil}$$

Where:

$GHG_{reductions}$ = Annual reductions in GHG emissions attributable to the project, in metric tonnes CO_2 equivalent;

$GHG_{project}$ = Annual gross reduction in GHG emissions from the project, calculated using equation 2, in metric tonnes CO_2 equivalent;

ΔGHG_{fossil} = Differential between GHG emissions in the baseline scenario and GHG emissions for the project attributable to the fossil fuels consumed in the operation of equipment within the project SSRs, calculated using equation 9, in metric tonnes CO_2 equivalent.

4.1. Calculation method for gross GHG emission reductions

The promoter must calculate the quantity of gross GHG emission reductions attributable to the project using equations 2 to 8:

Equation 2

$$GHG_{project} = GHG_{dest\ flare} - GHG_{combustion\ flare} + GHG_{dest\ other}$$

Where:

$GHG_{project}$ = Annual gross reduction in GHG emissions from the project, in metric tonnes CO_2 equivalent;

$GHG_{dest\ flare}$ = Annual CH_4 emissions destroyed at flare, calculated using equation 3, in metric tonnes CO_2 equivalent;

$GHG_{combustion\ flare}$ = Annual CH_4 and N_2O emissions attributable to combustion of captured gas at flare, calculated using equation 6, in metric tonnes CO_2 equivalent;

$GHG_{dest\ other}$ = Annual CH_4 emissions destroyed by a destruction device other than a flare, calculated using equation 7, in metric tonnes CO_2 equivalent;

Equation 3

$$GHG_{dest\ flare} = \text{Min}\ [GHG_{flare}; GHG_{EF}]$$

Where:

$GHG_{dest\ flare}$ = Annual CH_4 emissions destroyed at flare, in metric tonnes CO_2 equivalent;

Min = Lesser of the 2 elements calculated;

GHG_{flare} = Annual CH_4 emissions destroyed at flare, calculated using equation 4, in metric tonnes CO_2 equivalent;

GHG_{EF} = 90% of emissions from an uncovered manure storage facility, calculated using equation 5, in metric tonnes CO_2 equivalent;

Equation 4

$$GHG_{flare} = \sum_{j=1}^{n} \left[\left(Q_{gas\ \text{cov}} \times EFF_{flare} \right) \times C_{CH4} \right]_j \times 0.667 \times 21 \times 0.001$$

Where:

GHG_{flare} = Annual CH_4 emissions destroyed at flare, in metric tonnes CO_2 equivalent;

n = Number of days on which gas is produced during the year;

j = Day on which gas is produced at the manure storage facility;

$Q_{gas\ cov}$ = Quantity of gas available for burning on day *j* measured at the capture system before delivery to the flare, in cubic metres at standard conditions;

EFF_{flare} = Flare burning efficiency rate, namely:

- for an open flare, a rate of 0.96 when the flare is operated in accordance with the method General control device and work practice requirements in Part 60.18 of Title 40 of the Code of Federal Regulation published by the U.S. Environmental Protection Agency (USEPA), or a rate of 0.5 in other cases;

- for an enclosed flare, a rate of 0.98 when the gas retention time in the stack is at least 0.3 seconds, or a rate of 0.9 in other cases;

C_{CH4} = Average CH_4 content in the gas burned on day *j*, determined in accordance with Part III, in cubic metres of CH_4 per cubic metre of gas;

0.667 = Density of CH_4, in kilograms per cubic metre at standard conditions;

21 = Global Warming Potential factor of CH_4 compared to CO_2;

0.001 = Conversion factor, kilograms to metric tonnes;

Equation 5

$$GHG_{EF} = \sum_{i=1}^{n} (Nb_i \times EF_i) \times 21 \times 0.001 \times 0.9$$

Where:

GHG_{EF} = 90% of the emissions from a non-covered manure storage facility, in metric tonnes CO_2 equivalent;

n = Number of categories of livestock;

i = Category of livestock listed in the tables in Part II;

Nb_i = Population of category of livestock *i* in year of application for offset credits, in head of livestock;

EF_i = CH_4 emission factor for category of livestock *i*, specified in the tables in Part II, in kilograms of CH_4 per head per year;

21 = Global Warming Potential factor of CH_4 compared to CO_2;

0.001 = Conversion factor, kilograms to metric tonnes;

0.9 = 90%;

Equation 6

$$GHG_{combustion\ \ flare} = \sum_{j=1}^{n} \left[Q_{gaz\ \mathrm{cov}} \times EFF_{flare} \times C_{CH\,4} \right]_j \times \left[(0.49 \times 21) + (0.049 \times 310) \right] \times 0.000001$$

Where:

$GHG_{combustion\ flare}$ = CH_4 and N_2O emissions attributable to the flare combustion of captured gas, in metric tonnes CO_2 equivalent;

n = Number of days on which gas is produced during the year;

j = Day on which gas is produced at the manure storage facility vent;

$Q_{gas\ cov}$ = Quantity of gas available for burning on day *j* measured at the capture system before delivery to the flare, in cubic metres at standard conditions;

EFF_{flare} = Flare burning efficiency rate, namely:

- for an open flare, a rate of 0.96 when the flare is operated in accordance with the method General control device and work practice requirements in Part 60.18 of Title 40 of the Code of Federal Regulation published by the U.S. Environmental Protection Agency (USEPA) or a rate of 0.5 in other cases;

- for an enclosed flare, a rate of 0.98 when the gas retention time in the stack is at least 0.3 seconds, or a rate of 0.9 in other cases;

C_{CH4} = Average CH_4 content in the gas burned on day *j*, determined in accordance with Part III, in cubic metres of CH_4 per cubic metre of gas;

0.49 = CH_4 emission factor attributable to flare burning, in grams of CH_4 per cubic metre of gas burned;

21 = Global Warming Potential factor of CH_4 compared to CO_2;

0.049 = N_2O emission factor attributable to flare burning, in grams of N_2O per cubic metre of gas burned;

310 = Global Warming Potential factor of N_2O compared to CO_2;

0.000001 = Conversion factor, grams to metric tonnes;

Equation 7

$$GHG_{dest\ other} = Min\left[GHG_{other}; GHG_{EF}\right]$$

Where:

$GHG_{dest\ other}$ = Annual CH_4 emissions destroyed by a destruction device other than a flare, in metric tonnes CO_2 equivalent;

Min = Lesser of the 2 elements calculated;

GHG_{other} = Annual CH_4 emissions reduced by the destruction device other than a flare, calculated using equation 8, in metric tonnes CO_2 equivalent;

GHG_{EF}= 90% of the emissions from a non-covered manure storage facility, calculated using equation 5, in metric tonnes CO_2 equivalent;

Equation 8

$$GHG_{other} = Q_{gaz\ cov} \times \left\{\left[\left(C_{CH4} - C_{dest-CH4}\right) \times 0.667 \times 21\right] - \left[C_{dest-N2O} \times 1.84 \times 310\right]\right\} \times 0.001$$

Where:

GHG_{other} = Annual CH_4 emissions reduced by the destruction device other than a flare, in metric tonnes CO_2 equivalent;

$Q_{gas\ cov}$ = Quantity of gas available for destruction, measured at the capture system prior to destruction, in cubic metres at standard conditions;

C_{CH4} = Average CH_4 content in the gas before entering the destruction device, on day *j*, determined in accordance with Part III, in cubic metres of CH_4 per cubic metre of gas;

$C_{dest\text{-}CH4}$ = Average annual CH_4 content in the gas leaving the destruction device, determined in accordance with the method in Part V, in cubic metres of CH_4 per cubic metre of gas;

0.667 = Density of CH_4, in kilograms per cubic metre at standard conditions;

21 = Global Warming Potential factor of CH_4 compared to CO_2;

$C_{dest\text{-}N2O}$ = Average annual content N_2O in the gas leaving the destruction device, determined in accordance with the method in Part V, in cubic metres of N_2O per cubic metre of gas;

1.84 = Density of N_2O, in kilograms per cubic metre at standard conditions;

310 = Global Warming Potential factor of N_2O compared to CO_2;

0.001 = Conversion factor, kilograms to metric tonnes.

4.2. Calculation method for GHG emissions - fossil fuels

The promoter must calculate, using equation 9, the differential between the GHG emissions for the baseline scenario and the GHG emissions for the project attributable to fossil fuels.

If the GHG emissions for the project are above the GHG emissions for the baseline scenario, the latter are subtracted from the reductions in accordance with equation 1. In other cases, the parameter "ΔGHG_{fossil}" for equation 1 is 0.

Equation 9

$$\Delta GHG_{fossil} = \sum_{j=1}^{m} \left[\left(C_{project} - C_{SF} \right)_j \times \left(\left(F_{CO2} \times 0.001 \right) + \left(F_{CH4} \times 0.000001 \times 21 \right) + \left(F_{N2O} \times 0.000001 \times 310 \right) \right)_j \right]$$

Where:

ΔGHG_{fossil} = Differential between the GHG emissions for the baseline scenario and the GHG emissions for the project attributable to fossil fuels, in metric tonnes CO_2 equivalent;

m = Number of fossil fuels;

j = Fuel;

$C_{project}$ = Annual quantity of fossil fuel *j* consumed in the operation of equipment within the project SSRs, expressed

- as a mass in kilograms, in the case of solid fossil fuels;
- as a volume in cubic metres at standard conditions, in the case of gaseous fossil fuels;
- as a volume in litres, in the case of liquid fossil fuels;

C_{SF} = Annual quantity of fossil fuel *j* consumed in the operation of equipment within the SSRs included in the baseline scenario, expressed

- as a mass in kilograms, in the case of solid fossil fuels;
- as a volume in cubic metres at standard conditions, in the case of gaseous fossil fuels;
- as a volume in litres, in the case of liquid fossil fuels;

F_{CO2} = CO_2 emission factor for fuel *j* specified in tables 1-3 to 1-8 of QC.1.7 in Schedule A.2 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (c. Q-2, r. 15), expressed

- in kilograms of CO_2 per kilogram, in the case of solid fossil fuels;

- in kilograms of CO_2 per litre, in the case of liquid fossil fuels;

- in kilograms of CO_2 per cubic metre at standard conditions, in the case of gaseous fossil fuels;

0.001 = Conversion factor, kilograms to metric tonnes;

F_{CH4} = CH_4 emission factor for fuel *j* specified in tables 1-3 to 1-8 of QC.1.7 in Schedule A.2 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere, expressed

- in grams of CH_4 per kilogram, in the case of solid fossil fuels;

- in grams of CH_4 per litre, in the case of liquid fossil fuels;

- in grams of CH_4 per cubic metre at standard conditions, in the case of gaseous fossil fuels;

0.000001 = Conversion factor, grams to metric tonnes;

21 = Global Warming Potential factor of CH_4 compared to CO_2;

F_{N2O} = N_2O emission factor for fuel *j* specified in tables 1-3 to 1-8 of QC.1.7 in Schedule A.2 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere, expressed

- in grams of N_2O per kilogram, in the case of solid fossil fuels;

- in grams of N_2O per litre, in the case of liquid fossil fuels;

- in grams of N_2O per cubic metre at standard conditions, in the case of gaseous fossil fuels;

310 = Global Warming Potential factor of N_2O compared to CO_2.

5. Data management and project surveillance

5.1. Data collection

The project promoter is responsible for collecting the information required for project monitoring.

The promoter must show that the data collected at the agricultural operation are actual and properly represent production during the period covered by each project report. The promoter must also keep a livestock raising register for the agricultural operation.

5.2. Surveillance plan

The promoter must establish a surveillance plan to measure and monitor project variables in accordance with Figure 5.1:

Figure 5.1. Project surveillance plan

Variable	Unit	Method	Frequency	Comments
Nb	Head	Livestock raising register	Annually	Average annual population of each category of livestock
$T_{av,i}$	Kelvin	Weather station	Daily average	As measured, or according to Environment Canada
$Q_{gas\ cov}$	Cubic metre	Flow meter	Annually	Sum of daily readings
C_{CH4}	Cubic metres of CH_4 per cubic metre of gas	Sample + analysis	Quarterly, in accordance with Part III	Sampling of CH_4 content between the storage facility and the destruction device
$C_{dest-CH4}$	Cubic metre of CH_4 per cubic metre of gas	Sample + analysis	Quarterly, in accordance with Part V	Sampling of CH_4 leaving destruction device
$C_{dest-N2O}$	Cubic metre of N_2O per cubic metre of gas	Sample + analysis	Quarterly, in accordance with Part V	Sampling of N_2O content leaving destruction device
$C_{project}$	Kilogram (solid) Litre (liquid) Cubic metre (gas)	Purchase invoices	Annually	For each fuel used to operate equipment within the project SSRs
C_{SF}	Kilogram (solid) Litre (liquid) Cubic metre (gas)	Purchase invoices	Annually	For each fuel used to operate equipment within the project SSRs

The promoter is responsible for operating the project and monitoring project performance. The promoter must use the CH_4 destruction device and the measurement instruments in accordance with the manufacturer's specifications. The promoter must, in particular, use measurement instruments to measure directly

(1) the flow of gas before being delivered to the destruction device, continuously, recorded every 15 minutes and totalized at least daily, adjusted for temperature and pressure;

(2) the CH_4 content of the biogas, determined in accordance with the applicable method in Part III or V.

The promoter must monitor and document the use of the destruction device at least once per day to ensure the destruction of the CH_4. A flare must be equipped with a monitoring device, such as a thermocouple, at its output that certifies correct operation. GHG emission reductions will not be taken into account for the issue of offset credits for periods during which the destruction device is not operating.

When a destruction device or an operation monitoring device, such as a thermocouple on a flare, is not operating, all the CH_4 measured as being delivered to the destruction device must be considered as being emitted to the atmosphere during the period of non-operation. The destruction efficiency of the device must be considered to be zero.

When a destruction device other than a flare is used, a gas sample must be taken at the input to the device in accordance with the method in Part III to determine its CH_4 content, and a sample must be taken at the output of the device in accordance with the method in Part V to determine its CH_4 and N_2O content.

5.3. CH_4 and N_2O measurement instruments

The promoter must ensure that all gas flow meters and analyzers are

(1) cleaned and inspected on a quarterly basis, except from December to March;

(2) not more than 2 months before the project reporting period end date, checked for calibration accuracy by a qualified and independent person, using a portable instrument or manufacturer's specifications, and ensure that the percentage drift is recorded;

(3) calibrated by the manufacturer, or by a third person certified for that purpose by the manufacturer, according to the manufacturer's specifications or every 5 years, whichever is more frequent.

When a check on a piece of equipment reveals accuracy outside a ± 5% threshold,

(1) the piece of equipment must be calibrated by the manufacturer, or by a third person certified for that purpose by the manufacturer;

(2) all the data from the meters and analyzers must be scaled according to the following procedure:

(*a*) the data must be adjusted for the entire period from the last calibration that confirmed accuracy within the ± 5% threshold until such time as the flow meter and analyzer is correctly calibrated;

(*b*) the project promoter must estimate the GHG emission reductions using the lesser of the measured flow values without correction and the measured flow values adjusted based on the greatest calibration drift recorded.

The last calibration confirming accuracy within the ± 5% threshold must not have taken place more than 2 months before the end date for the project reporting period.

If a portable instrument is used, such as a handheld CH_4 analyzer, it must be calibrated at least annually by the manufacturer or by an ISO 17025 accredited laboratory.

5.4. Data management

The data must be of sufficient quality to meet the calculation requirements and be confirmed by the livestock raising registers of the agricultural operation during the verification.

The project promoter must establish written procedures for each task involving measurements, indicating the person responsible, the frequency and time of the measurements, and the place where the registers are kept.

In addition, the registers must be

(1) legible, dated and revised if needed;

(2) kept in good condition;

(3) kept in a place that is easily accessible for the duration of the project.

5.5. Missing data – replacement methods

In situations where data on biogas flow rates or CH_4 or N_2O content are missing, the promoter must apply the data replacement methods set out in Part VI. Missing data on biogas flow rates may be replaced only when a continuous analyzer is used to measure CH_4 and N_2O content. When CH_4 and N_2O content is measured by sampling, no missing data is permissible.

Part II

Emission factors

Table 1. CH_4 emission factors for hogs

Category	CH_4 emission factor Kilograms of CH_4 / head / year
1- Piglets	1.66
2- Hogs	6.48
3- Sows	7.71

Table 2. CH_4 emission factors for cattle

Category	CH_4 emission factor Kilograms of CH_4 / head / year
1- Dairy cows	48
2- Other cattle	1

Part III

Determination of the CH_4 content of gas available for burning measured at the capture system before delivery to the flare or other destruction device

When the project is not equipped with a continuous CH_4 analyzer, the promoter must sample the gas sent to the destruction device when the unit is in operation during the 4 following periods each year:

Sample 1: April – May
Sample 2: June - July
Sample 3: August - September
Sample 4: October - November

To be representative, each sampling must measure concentration, gas flow rate and air temperature during the equivalent of 8 hours, continuously or over several shorter periods. Enough data must be collected to establish a graph of CH_4 content as a function of temperature.

The graph will be used to determine CH_4 content on days when the gas is not sampled, when the average temperature is known.

The promoter must

(1) sample the gases, measure the gas flow rate and measure the ambient temperature;

(2) produce a graph showing CH_4 content as a function of temperature;

(3) determine the average ambient temperature for a given day;

(4) using the graph, determine CH_4 content as a function of temperature for each operating period of the destruction device;

(5) complete the monitoring grid in Part IV.

Part IV

Monitoring grid

Date	$Q_{gas\ cov}$ m^3 measured	Ambient temperature measured in Kelvin	C_{CH4} in m^3 of CH_4 per m^3 of gas	GHG $_{flare}$ CO_2 equivalent Using equation 4	GHG $_{combustion\ flare}$ CO_2 equivalent Using equation 6

Part V

Determination of the CH_4 and N_2O content of gas leaving the destruction device

The promoter must sample the available gas leaving the destruction device during the 4 following periods each year:

Sample 1: April – May
Sample 2: June - July
Sample 3: August - September
Sample 4: October – November

The promoter must determine the annual average CH_4 content using equation 10 and the annual average N_2O content using equation 11:

Equation 10

$$C_{dest-CH4} = \frac{\sum_{i=1}^{n} Cs_{CH4,i}}{n}$$

Where:

$C_{dest-CH4}$ = Average annual CH_4 content of gas leaving the destruction device, in cubic metres of CH_4 per cubic metre of gas at standard conditions;

n = Number of samples;

i = Sample;

$Cs_{CH4,i}$ = CH_4 content of sample *i*, measured in the gas leaving the destruction device, in cubic metres of CH_4 per cubic metre of gas at standard conditions;

Equation 11

$$C_{dest-N2O} = \frac{\sum_{i=1}^{n} Cs_{N2O,i}}{n}$$

Where:

$C_{dest-N2O}$ = Average annual N_2O content of gas leaving the destruction system, in cubic metres of N_2O per cubic metre of gas at standard conditions;

n = Number of samples;

i = Sample ;

$Cs_{N2O,i}$ = N_2O content of sample *i*, measured in the gas leaving the destruction system, in cubic metres of N_2O per cubic metre of gas at standard conditions.

Part VI

Missing data – replacement methods

The replacement methods below may be used only

(1) for CH_4 or N_2O content or gas flow rate parameters;

(2) for data gaps on gas flow rates that are discrete, non-chronic and due to unforeseen circumstances;

(3) when the proper functioning of the destruction device can be shown by reading the thermocouple at the flare or other device;

(4) when data on gas flow rate only, or CH_4 content only, are missing;

(5) to replace data on gas flow rates when a continuous analyzer is used to measure CH_4 and N_2O content and when it is shown that CH_4 and N_2O content was consistent with normal operations for the time when the data are missing;

(6) to replace data on CH_4 and N_2O content when it is shown that the gas flow rate was consistent with normal operations for the time when the data are missing.

No offset credit may be issued for periods when the replacement methods cannot be used.

Missing data period	**Replacement method**
Less than 6 hours	Use the average of the 4 hours immediately before and following the missing data period
6 to less than 24 hours	Use the 90% lower or upper confidence limit of the 24 hours prior to and after the missing data period, whichever results in greater conservativeness
1 to 7 days	Use the 95% lower or upper confidence limit of the 72 hours prior to and after the missing data period, whichever results in greater conservativeness
More than 7 days	No data may be replaced and no reduction may be credited

PROTOCOL 2
LANDFILL SITES - CH_4 DESTRUCTION

Part I

1. Projects covered

This offset credit protocol covers any project designed to reduce GHG emissions by destroying the CH_4 captured in a landfill site in Québec.

The project must involve the use of an eligible device to destroy CH_4 captured at a landfill site that meets the following conditions at the time of registration:

(1) if the site is in operation, it receives less than 50,000 tonnes of residual materials annually and has a capacity of less than 1.5 million cubic metres;

(2) in every case, the site has less than 450,000 tonnes of residual materials in place, or the CH_4 captured from the LFG has a heat capacity of less than 3,000,000 GJ/h.

Eligible destruction devices are enclosed flares, open flares, combustion engines, boilers and turbines.

The project must capture and destroy CH_4 that, before the project, was emitted to the atmosphere. The CH_4 may be destroyed on the landfill site or transported and destroyed off-site.

For the purposes of this protocol,

(1) "landfill gas" (LFG) means any gas resulting from the decomposition of residual materials disposed of at a landfill site;

(2) "landfill site" means a place where residual materials is permanently disposed of above or below ground.

1.1. Landfill site in operation at the time of registration

When the site has over 100,000 tonnes of residual materials in place or receives over 10,000 tonnes of residual materials annually, the promoter must include an assessment of the CH_4 emitted by the landfill site in the project plan.

In the case referred to in the first paragraph, when the quantity of CH_4 emitted is equal to or greater than 1,000 tonnes of CH_4 per year, the project is eligible for the issue of offset credits for a period of not more than 5 years following registration of the project.

1.2. Landfill site that is closed at the time of registration

In the case of a landfill site that is closed at the time of registration,

(1) if the site was new or was extended between 1998 and 2005 inclusively, it must have a maximum capacity of less than 3,000,000 cubic metres;

(2) if the site was new or was extended between 2006 and 2008 inclusively, it must receive less than 50,000 tonnes of residual materials annually and have a maximum capacity of less than 1,500,000 cubic metres;

(3) if the site became active in 2009 or a subsequent year, the conditions for landfill sites in operation apply.

2. Location

The project must be carried out within the borders of the province of Québec.

3. Calculation of CH_4 heat capacity and quantity of CH_4 emitted by the landfill site

When a site has over 450,000 tonnes of residual materials in place, the promoter must assess the heat capacity of the CH_4 captured, in gigajoules per hour, using the following method:

(1) by calculating the quantity of CH_4 emitted each hour;

(2) by determining the quantity of CH_4 captured each hour by multiplying the quantity of CH_4 emitted each hour by 0.75;

(3) by determining the heat capacity by multiplying the quantity of CH_4 captured each hour by the high heat value of the LFG of the portion of the CH_4 set out in table 1.1 of QC.1.7 in Schedule A.2 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (c. Q-2, r. 15).

The promoter must assess the quantity of CH_4 emitted by the landfill site pursuant to Division 3 using the following method:

(1) by determining the quantity of CH_4 generated using the Landgem software of the U.S. Environmental Protection Agency (USEPA), available at http://www.epa.gov/ttncatc1/products.html#software;

(2) by determining the quantity of residual materials disposed of annually using the data available since the opening of the landfill site;

(3) by using, for the parameters k and Lo of the software referred to in paragraph 1, the most recent parameters from the national inventory report on GHG emissions prepared by Environment Canada;

(4) by using a percentage of 50% as the percentage of CH_4 in LFG;

(5) by using a value of 0.667 kg per cubic metre at standard conditions as the density of CH_4.

4. Additionnality

For the purposes of subparagraph *b* of paragraph 6 of section 70.3 of this Regulation, the project is considered to go beyond current practice when it meets the conditions in Divisions 1 to 3.

5. Flow chart for the reduction project process

The reduction project process flowchart in Figure 5.1 and the table in Figure 5.2 show all the SSRs that must be taken into account by the promoter when calculating the GHG emission reductions attributable to the project.

All the SSRs within the dotted line must be counted for the purposes of this protocol.

Figure 5.1. Flow chart for the reduction project process

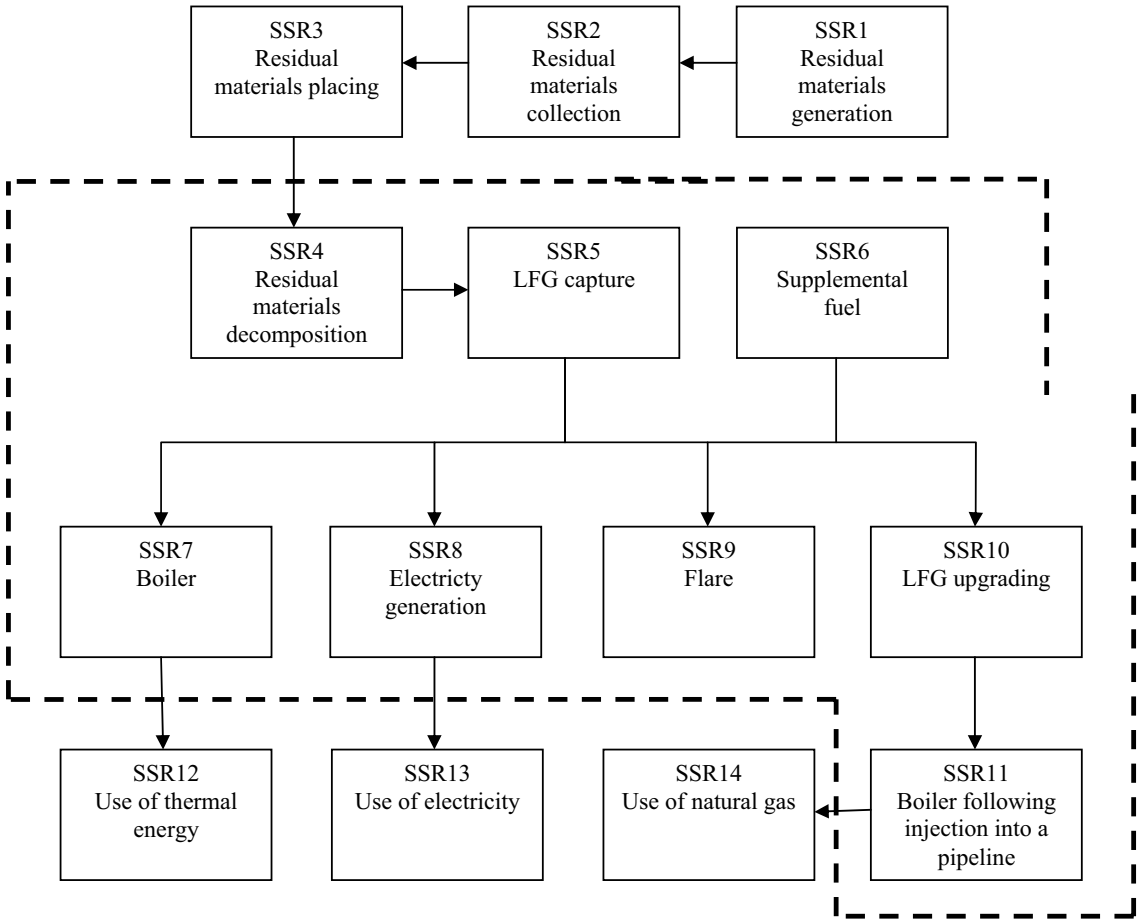


Figure 5.2. Reduction project SSRs

SSR #	Description	GHG	Relevant to project baseline scenario (B) and/or Project (P)	Included or Excluded
1	Residual materials generation	N/A	B, P	Excluded
2	Residual materials collection	CO_2	B, P	Excluded
		CH_4		Excluded
		N_2O		Excluded
3	Residual materials placing activities	CO_2	B, P	Excluded
		CH_4		Excluded
		N_2O		Excluded
4	Decomposition of residual materials in landfill	CO_2	B, P	Excluded
		CH_4		Included
5	LFG capture system	CO_2	P	Included
		CH_4		Excluded
		N_2O		Excluded
6	Supplemental fuel	CO_2	P	Included
		CH_4		Included
		N_2O		Excluded
7	LFG boiler destruction	CO_2	P	Excluded
		CH_4		Included
		N_2O		Excluded
8	Electricity generation from LFG (combustion engine, turbine, fuel cell)	CO_2	P	Excluded
		CH_4		Included
		N_2O		Excluded
9	LFG flare destruction	CO_2	P	Excluded
		CH_4		Included
		N_2O		Excluded
10	LFG upgrading	CO_2	P	Included
		CH_4		Excluded
		N_2O		Excluded

11	Boiler following injection into a pipeline	CO_2	P	Excluded
		CH_4		Included
		N_2O		Excluded
12	Displaced emissions from use of project-generated thermal energy to replace a fossil fuel	CO_2	P	Excluded
13	Displaced emissions from use of project-generated electricity to replace a fossil fuel	CO_2	P	Excluded
14	Displaced emissions from use of natural gas from upgraded LFG to replace a fossil fuel	CO_2	P	Excluded

6. Calculation method for the GHG emission reductions attributable to the project

The promoter must calculate GHG emission reductions attributable to the project using equation 1:

Equation 1

$$ER = BE - PE$$

Where:

ER = GHG emission reductions attributable to the project during the project reporting period, in metric tonnes CO_2 equivalent;

BE = Baseline scenario emissions during the project reporting period, calculated using equation 3, in metric tonnes CO_2 equivalent;

PE = Project emissions during the project reporting period, calculated using equation 7, in metric tonnes CO_2 equivalent.

When the flow meter does not correct for the temperature and pressure of the LFG at standard conditions, the promoter must measure LFG pressure and temperature separately and correct the flow values using equation 2. The promoter must use the corrected flow values in all the equations of this protocol.

Equation 2

$$LFG_{i,t} = LFG_{uncorrected} \times \frac{293.15}{T} \times \frac{P}{101.325}$$

Where:

$LFG_{i,t}$ = Corrected volume of LFG sent to destruction device *i* in time interval *t*, in cubic metres at standard conditions;

$LFG_{uncorrected}$ = Uncorrected volume of LFG captured for the given time interval, in actual cubic metres;

T = Measured temperature of LFG for the given time period, in Kelvin;

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

6.1. Calculation method for GHG emissions in the baseline scenario

The promoter must calculate GHG emissions in the baseline scenario using equations 3 to 6.

For that purpose, the promoter must

(1) for landfill sites with a geomembrane covering the entire landfill area, use a CH_4 oxidation rate of zero (0%). In this case, the promoter must show in the project plan that the landfill site has a geomembrane that meets the requirements of the Regulation respecting the landfilling and incineration of residual materials (c. Q-2, r. 19);

(2) for all other landfill sites, use a CH_4 oxidation factor of 10%.

Equation 3

$$BE = (CH_4Dest_{PR}) \times 21 \times (1 - OX) \times (1 - DF)$$

Where:

BE = Baseline scenario emissions during the project reporting period, in metric tonnes CO2 equivalent;

CH_4Dest_{PR} = Total CH_4 destroyed by all project destruction devices during the project reporting period, calculated using equation 4, in metric tonnes of CH_4;

21 = Global Warming Potential factor of CH_4 compared to CO_2;

OX = Factor for the oxidation of CH_4 by soil bacteria, namely a factor of 0 for landfill sites with a geomembrane covering the entire landfill area, or a factor of 0.10 in other cases;

DF = Discount factor to account for uncertainties associated with the monitoring equipment for CH_4 content in the LFG, namely a factor of 0 when the CH_4 content in the LFG is measured continuously, and 0.1 in other cases, with measurements made at least weekly;

Equation 4

$$CH_4Dest_{PR} = \sum_i \left(CH_4Dest_i\right) \times \left(0.667 \times 0.001\right)$$

Where:

CH_4Dest_{PR} = Total quantity of CH_4 destroyed by all LFG destruction devices during the project reporting period, in metric tonnes of CH_4;

CH_4Dest_i = Net quantity of CH_4 destroyed by destruction device *i* during the project reporting period, calculated using equation 5, in cubic metres of CH_4 at standard conditions;

0.667 = Density of CH_4, in kilograms of CH_4 per cubic metre of CH_4 at standard conditions;

0.001 = Conversion factor, kilograms to metric tonnes;

Equation 5

$$CH_4Dest_i = Q_i \times DE_i$$

Where:

CH_4Dest_i = Net quantity of CH_4 destroyed by destruction device *i* during the project reporting period, in cubic metres at standard conditions;

Q_i = Total quantity de CH_4 sent to destruction device *i* during the project reporting period, calculated using equation 6, in cubic metres at standard conditions;

DE_i = Default CH_4 destruction efficiency of destruction device *i*, determined in accordance with Part II;

Equation 6

$$Q_i = \sum_i \left[LFG_{i,t} \times PR_{CH_4,t} \right]$$

Where:

Q_i = Total quantity de CH_4 sent to destruction device *i* during the project reporting period, in cubic metres at standard conditions;

$LFG_{i,t}$ = Corrected volume of LFG sent to destruction device *i*, in time interval *t*, in cubic metres at standard conditions;

t = Time interval shown in the table in Figure 9.1 for which LFG CH_4 flow and content measurements are aggregated;

$PR_{CH4,t}$ = Average CH_4 fraction of the LFG in time interval *t*, in cubic metres of CH_4 per cubic metre of LFG.

6.2. Calculation method for GHG project emissions

The promoter must calculate the GHG project emissions using equations 7 to 10:

Equation 7

$$PE = FF_{CO2} + EL_{CO2} + NG_{emissions}$$

Where:

PE = Project emissions during the project reporting period, in metric tonnes CO_2 equivalent;

FF_{CO2} = Total CO_2 emissions attributable to the destruction of fossil fuels during the project reporting period, calculated using equation 8, in metric tonnes CO_2 equivalent;

EL_{CO2} = Total CO_2 emissions attributable to the consumption of electricity during the project reporting period, calculated using equation 9, in metric tonnes CO_2 equivalent;

$NG_{emissions}$ = Total quantity of CH_4 and CO_2 emissions attributable to supplemental natural gas during the project reporting period, calculated using equation 10, in metric tonnes CO_2 equivalent;

Equation 8

$$FF_{CO_2} = \frac{\sum_j \left(FF_{PR,j} \times EF_{CF,j} \right)}{1{,}000}$$

Where:

FF_{CO2} = Total CO_2 emissions attributable to the destruction of fossil fuels during the project reporting period, in metric tonnes CO_2 equivalent;

j = Type of fossil fuel;

$FF_{PR,j}$ = Annual quantity of fossil fuel *j* consumed in the operation of equipment within the SSRs in the baseline scenario, expressed

- as a mass in kilograms, in the case of solid fossil fuels;
- as a volume in cubic metres at standard conditions, in the case of gaseous fossil fuels;
- as a volume in litres, in the case of liquid fossil fuels;

$EF_{CF,j}$ = CO_2 emission factor for fuel *j* specified in Tables 1-3 to 1-8 of QC.1.7 in Schedule A.2 to the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (c. Q-2, r. 15), expressed

- in kilograms of CO_2 per kilogram, in the case of solid fossil fuels;
- in kilograms of CO_2 per litre, in the case of liquid fossil fuels;
- in kilograms of CO_2 per cubic metre at standard conditions, of gaseous fossil fuels;

1,000 = Conversion factor, metric tonnes to kilograms;

Equation 9

$$EL_{CO_2} = \frac{EL_{PR} \times EL_{EL}}{1{,}000}$$

Where:

EL_{CO2} = Total CO_2 emissions attributable to the consumption of electricity during the project reporting period, in metric tonnes CO_2 equivalent;

EL_{PR} = Total electricity consumed by the project LFG capture and destruction system during the project reporting period, in megawatt-hours;

EF_{EL} = CO_2 emission factor for the consumption of electricity from Québec, according to the most recent National Inventory Report: Greenhouse Gas Sources and Sinks in Canada, Part 3, published by Environment Canada, in kilograms of CO_2 par megawatt-hour;

1,000 = Conversion factor, metric tonnes to kilograms;

Equation 10

$$NG_{emissions} = \sum_{i}\left[NG_i \times NG_{CH_4} \times 0.667 \times 0.001 \times \left[\left(\left(1 - DE_i\right) \times 21 \right) + \left(DE_i \times \frac{12}{16} \times \frac{44}{12} \right) \right] \right]$$

Where:

$NG_{emissions}$ = Total CH_4 and CO_2 emissions attributable to supplemental natural gas during the project reporting period, in metric tonnes CO_2 equivalent;

i = Destruction device;

NG_i = Total quantity of supplemental natural gas sent to destruction device *i* during the project reporting period, in cubic metres at standard conditions;

NG_{CH4} = Average CH_4 fraction of the supplemental natural gas, according to the supplier's specifications, in cubic metres of CH_4 at standard conditions per cubic metre of natural gas at standard conditions;

0.667 = Density of CH_4, in kilograms of CH_4 per cubic metre of CH_4 at standard conditions;

0.001 = Conversion factor, kilograms to metric tonnes;

DE_i = Default CH_4 destruction efficiency of destruction device *i*, determined in accordance with Part II;

21 = Global Warming Potential factor of CH_4 compared to CO_2;

12/16 = Molecular mass ratio, CO_2 to carbon;

44/12 = Molecular mass ratio, CH_4 to carbon.

7. Project surveillance

7.1. Data collection

The promoter is responsible for collecting the information required for project monitoring.

The promoter must show that the data collected are actual and that rigorous supervision and record-keeping procedures are applied at the project site.

7.2. Surveillance plan

The promoter must establish a monitoring plan to measure and monitor project variables in accordance with 7.1:

Figure 7.1. Project surveillance plan

Variable	Unit	Measurement frequency	Method	Comments
Capacity and annual residual material tonnage	Metric tonne	Continuous and at each project reporting period	Calculated	In accordance with the sixth paragraph of Division 1
Operating status of destruction devices	Celsius or other	Hourly	Measured	To be provided for each destruction device
$LFG_{i,t}$	Cubic metre at standard conditions	Continuous	Measured and calculated	Corrected volume of LFG sent to destruction device *i*, in time interval *t*
$LFG_{non\text{-}corrected}$	Actual cubic metres	Continuous	Measured	Uncorrected volume of LFG captured for the given time interval
DF	0 or 0.1		Determined on the basis of the equipment used and the measurement frequency	Discount factor to account for uncertainties associated with the monitoring equipment for CH_4 content in the LFG
Q_i	Cubic metre of CH_4 at standard conditions	Daily/ weekly	Calculated	Total quantity of CH_4 sent to destruction device *i* during the project reporting period

Variable	Unit	Measurement frequency	Method	Comments
t	Week, day or shorter period	Continuous, daily or weekly	Depending on measurement frequency	Time interval for which LFG CH_4 flow and content measurements are aggregated. Not more than 1 day if continuously monitored, and 1 week if CH_4 content is monitored weekly
$PR_{CH4,t}$	Cubic metre of CH_4 at standard conditions per cubic metre of LFG at standard conditions	Continuous/ weekly	Measured continuously or by portable analyzer	Average CH_4 fraction of the LFG in time interval *t*
$FF_{PR,j}$	Volume of fossil fuels	By project reporting period	Calculated using fossil fuel purchasing register	Total fossil fuels consumed by the capture and destruction system during the project reporting period, by type of fuel *j*
EL_{PR}	Megawatt-hour	By project reporting period	Measured by on-site meter or based on electricity purchasing register	Total electricity consumed by the LFG capture and destruction system during the project reporting period
NG_i	Cubic metre at standard conditions	Continuous	Measured	Measured before delivery to the destruction device
NG_{CH4}	Cubic metre of CH_4 at standard conditions per cubic metre of natural gas at standard conditions	By project reporting period	Based on purchasing register	Average CH_4 fraction of the supplemental natural gas, according to the supplier's specifications
T	°C	Continuous	Measured	LFG temperature
P	kPa	Continuous	Measured	LFG pressure

The surveillance plan must

(1) specify the methods used to collect and record the data required for all the relevant variables in the table in Figure 7.1;

(2) specify

(*a*) the frequency of data acquisition;

(*b*) the frequency of instrument cleaning, inspection and calibration activities, and of the verification of instrument calibration accuracy;

(*c*) the role of the person responsible for each monitoring activity, as well as the quality assurance and quality control measures taken to ensure that data acquisition and instrument calibration are carried out consistently and with precision;

(3) contain a detailed diagram of the LFG capture and destruction system, including the placement of all measurement instrument and equipment that affect included SSRs.

The promoter is responsible for operating the project and monitoring project performance. The promoter must use the CH_4 destruction device and the measurement instruments in accordance with the manufacturer's specifications. The promoter must, in particular, use measurement instruments to measure directly

(1) the flow of LFG before being delivered to the destruction device, continuously, recorded every 15 minutes and totalized at least daily, adjusted for temperature and pressure;

(2) the CH_4 content of the LFG sent to each destruction device, continuously, recorded every 15 minutes and totalized as an average at least daily. The CH_4 content may also be determined by weekly measurements using a calibrated portable analyzer and applying a 10% discount to the total quantity of CH_4 captured and eliminated, calculated using equation 4.

When temperature and pressure must be measured to correct flow values at standard conditions, the parameters must be measured continuously.

The operating status of the LFG destruction device must be monitored and recorded at least hourly.

GHG emission reductions will not be taken into account for the issue of offset credits for periods during which the destruction device or the monitoring device for the operation of the destruction device is not operating.

The operating status of flares is established by thermocouple readings above 260°C.

For all other destruction devices, the promoter must show in the project plan that a monitoring device has been installed to verify the operation of each destruction device. The promoter must also show in each project report that the monitoring device has operated correctly.

7.3. Measurement instruments

The promoter must ensure that all gas flow meters and CH_4 analyzers are

(1) cleaned and inspected as specified in the project's monitoring plan and at the minimum cleaning and inspection frequency specified by the manufacturer, with all cleaning and inspection activities documented by landfill site personnel;

(2) not more than 2 months before or after the project reporting period end date, either

(*a*) checked for calibration accuracy by a qualified and independent person, using a portable instrument, such as a pito tube, or manufacturer's specifications, and ensure that the percentage drift is recorded;

(*b*) calibrated by the manufacturer, or by a third person certified for that purpose by the manufacturer;

(3) calibrated by the manufacturer, or by a third person certified for that purpose by the manufacturer, according to the manufacturer's specifications or every 5 years, whichever is more frequent.

A calibration certificate or a verification report on calibration accuracy must be produced and included in the project report. The verification provided for in section 70.15 of this Regulation must include confirmation that the person is qualified to verify calibration accuracy.

Flow meter calibrations must be documented to show that the meter was calibrated to a range of flow rates corresponding to the flow rates expected at the landfill site.

CH_4 analyzer calibrations must be documented to show that the calibration was carried out to a range of temperature and pressure conditions corresponding to the range of conditions measured at the landfill site.

The verification of flow meter and analyzer calibration accuracy must show that the instrument provides a reading of volumetric flow or CH_4 content that is within a +/-5% accuracy threshold.

When a verification of the calibration accuracy of a device shows a shift outside the +/- 5% accuracy threshold,

(1) the device must be calibrated by the manufacturer, or by a third person certified for that purpose by the manufacturer;

(2) for the entire period from the last calibration that confirmed accuracy within the ± 5% threshold until such time as the piece of equipment is correctly calibrated, all the data from the piece of equipment must be corrected according to the following procedure:

(*a*) when the calibration indicates an under-reporting of flow rates or CH_4 content, the promoter must use the measured values without correction;

(*b*) when the calibration indicates an over-reporting of flow rates or CH_4 content, the promoter must be adjusted based on the greatest calibration drift recorded at the time of calibration.

The last calibration confirming accuracy within the ± 5% threshold must not have taken place more than 2 months before the end date for the project reporting period.

If the promoter uses a portable CH_4 analyzer, it must be maintained and calibrated according to the manufacturer's specifications, and calibrated at least annually by the manufacturer, by a laboratory certified by the manufacturer, or by an ISO 17025 accredited laboratory. The portable analyzer also must be calibrated to a known sample gas prior to each use.

No offset credit may be issued for a project reporting period when the calibration or verification of the calibration accuracy of the required instruments has not been correctly carried out and documented.

7.4. Data management

Information on data procedures and data monitoring must be managed in a way that guarantees the integrity, exhaustiveness, accuracy and validity of the data.

The promoter must keep the following documents and information:

(1) the information required under the monitoring plan;

(2) information on each flow meter, CH_4 analyzer and destruction device used, including type, model number, serial number and manufacturer's maintenance and calibration procedures;

(3) for a portable analyzer, the date, time and place where measurements are taken and, for each measurement, the CH_4 content in the LFG;

(4) the calibration date, time and results for CH_4 analyzers and flow meters, and the corrective measures applied if a piece of equipment fails to meet the requirements of this Regulation;

(5) the maintenance records for capture, destruction and monitoring systems;

(6) operating records showing the quantity of residual material disposed of.

7.5. Missing data – replacement methods

In situations where data on flow rates or CH_4 content are missing, the promoter must apply the data replacement methods set out in Part III.

Part II

Destruction efficiencies for destruction devices

The promoter must use the destruction efficiency shown in Table 1 for the project destruction device.

Table 1. Default destruction efficiencies for destruction devices

Destruction device	Efficiency
Open flare	0.96
Enclosed flare	0.995
Internal combustion engine	0.936
Boiler	0.98
Microturbine or large gas turbine	0.995
Boiler following upgrade and injection into a pipeline	0.96

Part III

Missing data – replacement methods

The replacement methods below may be used only

(1) for CH_4 content or LFG flow rate parameters;

(2) for missing data on gas flow rates that are discrete, non-chronic and due to unforeseen circumstances;

(3) when the proper functioning of the destruction device can be shown by thermocouple readings at the flare or other device;

(4) when data on LFG flow rate only, or CH_4 content only, are missing;

(5) to replace data on LFG flow rates when a continuous analyzer is used to measure CH_4 content and when it is shown that CH_4 content was consistent with normal operations for the time when the data are missing;

(6) to replace data on CH_4 content when it is shown that the LFG flow rate was consistent with normal operations for the time when the data are missing.

No offset credit may be issued for periods when the replacement methods cannot be used.

Missing data period	Replacement method
Less than 6 hours	Use the average of the 4 hours immediately before and following the missing data period
6 to less than 24 hours	Use the 90% lower confidence limit of the 24 hours prior to and after the missing data period, whichever results in greater conservativeness
1 to 7 days	Use the 95% lower confidence limit of the 72 hours prior to and after the missing data period, whichever results in greater conservativeness
More than 7 days	No data may be replaced and no reduction may be credited

PROTOCOL 3
DESTRUCTION OF OZONE DEPLETING SUBSTANCES CONTAINED IN INSULATING FOAM RECOVERED FROM APPLIANCES

Part I

For the purposes of this protocol,

(1) "container" means an air-tight, waterproof unit used for storing or transporting ODS without leakage or escape of ODS into the environment;

(2) "CFC": chlorofluorocarbons;

(3) "HCFC": hydrochlorofluorocarbons;

(4) "ODS": ozone depleting substances of the following types:

(*a*) CFC-11;

(*b*) CFC-12;

(*c*) HCFC-22;

(*d*) HCFC-141b.

1. Projects covered

This offset credit protocol covers any project designed to destroy the ODS contained in insulating foam recovered from appliances in Canada or the United States.

The project targets all the activities engaged in by a promoter to destroy the ODS contained in insulating foam recovered from freezing storage and refrigeration appliances in an authorized destruction facility. The ODS must be

(1) extracted from the foam to a concentrated form under negative pressure;

(2) collected, stored, and transported in hermetically sealed containers;

(3) destroyed in concentrated form.

The ODS must be destroyed within 12 months from the project start date. A new project registration application must be made for any ODS destruction activity occurring after that period.

The total quantity of ODS destroyed must be documented by a certificate of destruction issued by the destruction facility. The certificate of destruction must not cover ODS destroyed under another project.

2. Project plan

In addition to the information required under section 70.5 of this Regulation, the project plan must include the following information:

(1) the name and contact information of the destruction facility and, where applicable, the enterprise that carries out the destruction;

(2) the name and contact information of any technical consultants;

(3) a list of all the points of origin of each type of ODS destroyed under the project, namely the places where the appliances with ODS-containing foam are recovered, by Canadian province or territory and by US state;

(4) the result of the efficiency calculation for the recovery under the project, if it has been calculated, or the time when it will be calculated;

(5) the quantity of foam and ODS recovered, by type of ODS, in metric tonnes.

3. Location

The ODS contained in the foam must be destroyed in a facility located in Canada or the United States. Foam recovered outside Canada or the United States is not eligible.

Each stage in a project carried out in the United States must be in compliance with the protocol Compliance Offset Protocol Ozone Depleting Substances Projects: Destruction of U.S Ozone Depleting Substances Banks published on October 20, 2011 by the California Air Resources Board and the California Environmental Protection Agency.

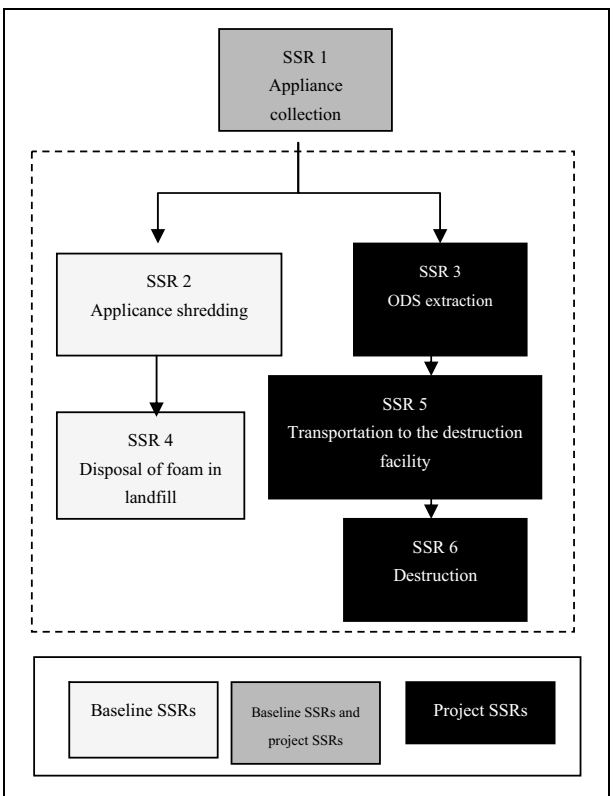
4. Additionnality

For the purposes of subparagraph *b* of paragraph 6 of section 70.3 of this Regulation, the project is considered to go beyond current practice if the ODS destroyed do not originate in appliances from facilities under the authority of the federal government of the United States.

5. SSRs within the reduction project boundary

Figures 5.1 and 5.2 and the table in Figure 5.3 show the SSRs that must be taken into account by the promoter when calculating the GHG emission reductions attributable to the project.

Figure 5.1. Project SSRs



All the GHG SSRs within the dotted line must be included by the promoter in calculating the GHG emission reductions attributable to the project

Figure 5.2. Reduction projects SSRs

SSR		Description	GHG	Included (I) or excluded (E)	Relevant to project baseline scenario (B) and/or Project (P)
1	Appliance collection	Fossil fuel emissions attributable to the collection and transportation of end-of-life appliances	CO_2	E	B, P
			CH_4	E	N/A
			N_2O	E	N/A
2	Appliance shredding	Emissions of ODS attributable to the shredding of appliances for materials recovery	ODS	I	B
3	ODS Extraction	Emissions of ODS attributable to the separation of foam from appliances	ODS	I	P
4	Disposal of foam in landfill	Emissions of ODS attributable to the disposal of foam at a landfill site	ODS	I	B
		Emissions of ODS degradation products attributable to foam disposed of at a landfill site	HFC, HCFC	E	B
		Fossil fuel emissions attributable to the transportation of shredded foam and disposal at a landfill site	CO_2	E	B
			CH_4	E	N/A
			N_2O	E	N/A
5	Transportation to the destruction facility	Emissions of fossil fuels fossil attributable to the transportation of ODS from the aggregation point to the destruction facility	CO_2	I	P

6	Destruction of foam	Emissions of ODS attributable to incomplete destruction at destruction facility	ODS	I	P
		Emissions from the oxidation of carbon contained in the destroyed ODS	CO_2	I	P
		Fossil fuel emissions attributable to the destruction of ODS in a destruction facility	CO_2	I	P
			CH_4	E	N/A
			N_2O	E	N/A
		Indirect emissions attributable to the use of electricity	CO_2	I	P
			CH_4	E	N/A
			N_2O	E	N/A

6. Calculation method for the GHG emission reductions attributable to the project

The promoter must calculate the quantity of GHG emission reductions attributable to the project using equation 1:

Equation 1

$$ER = BE - PE_t$$

Where:

ER = GHG emission reductions attributable to the project during the project reporting period, in metric tonnes CO_2 equivalent;

BE = Emissions under the baseline scenario during the project reporting period, calculated using equation 2, in metric tonnes CO_2 equivalent;

PE_t = Project emissions during the project reporting period, calculated using equation 4, in metric tonnes CO_2 equivalent.

6.1. Calculation method for GHG emissions under the baseline scenario

The promoter must calculate GHG emissions under the baseline scenario from ODS-containing foam using equations 2 and 3:

Equation 2

$$BE = \sum_{i} \left[AG_{i} \times TE_{i} \times PRP_{i} \right]$$

Where:

BE = Baseline emissions attributable to ODS-containing foam, in metric tonnes CO_2 equivalent;

i = Type of ODS;

BA_i = Quantity of ODS of type *i* contained in foam prior to extraction, calculated using equation 3, in metric tonnes of ODS;

ER_i = GHG emission rate of ODS of type *i* contained in the foam, as indicated in the table in Figure 6.1;

GWP_i = Global warming potential of ODS of type *i* as indicated in the table in Figure 6.2, in metric tonnes CO_2 equivalent;

Equation 3

$$BA_i = BA_{recov,\,i} + BA_{recov,\,i} \frac{[1 - RE]}{RE}$$

Where:

BA_i = Total quantity of ODS of type *i* contained in foam prior to extraction, in metric tonnes of ODS;

$BA_{recov,\,i}$ = Total quantity of ODS of type *i* recovered during extraction and sent for destruction, determined in accordance with section 8.1, in metric tonnes of ODS;

RE = Recovery efficiency of the ODS extraction process, calculated in accordance with the method in Part II;

i = Type of ODS.

Figure 6.1. Emission rate for each ODS contained in foam recovered from appliances

Type of ODS	Emission rate for each ODS contained in foam recovered from appliances (ER_i)
CFC-11	0.44
CFC-12	0.55
HCFC-22	0.75
HCFC-141b	0.50

Figure 6.2. Global warming potential of ODS

Type of ODS	Global warming potential
CFC-11	4,750
CFC-12	10,900
HCFC-22	1,810
HCFC-141b	725

6.2. Calculation method for total GHG project emissions

The promoter must calculate total GHG project emissions using equations 4 to 6:

Equation 4

$$PE_t = BA_{pr} + (Tr + DEST)$$

Where:

PE_t = Total GHG project emissions during the project reporting period, in metric tonnes CO_2 equivalent;

BA_{pr} = Total quantity of ODS contained in foam emitted during extraction, calculated using equation 5, in metric tonnes of ODS;

(Tr + DEST) = GHG emissions attributable to ODS transportation and destruction, calculated using equation 6, in metric tonnes CO_2 equivalent;

Equation 5

$$BA_{pr} = \sum_{i} \left[BA_{i} \times (1 - RE) \times GWP_{i} \right]$$

Where:

BA_{pr} = Total emissions attributable to the extraction of ODS from foam recovered from appliances, in metric tonnes CO_2 equivalent;

i = Type of ODS;

BA_i = Total quantity of ODS contained in foam recovered from appliances prior to extraction, calculated using equation 3, in metric tonnes of ODS;

RE = Recovery efficiency associated with the ODS extraction process, determined for the project using the method in Part II;

GWP_i = Global warming potential of ODS of type *i* as indicated in the table in Figure 6.1;

Equation 6

$$(Tr + DEST) = BA_{recov} \times 7.5$$

Where:

(Tr + DEST) = Emissions attributable to ODS transportation and destruction, in metric tonnes CO_2 equivalent;

BA_{recov} = Total quantity of ODS sent for destruction during the project, in metric tonnes of ODS;

7.5 = Default emission factor for ODS transportation and destruction.

7. Data management and project surveillance

7.1. Data management

The promoter must record the following information in the register referred to in section 70.12, and include it in the project report referred to in the second paragraph of section 70.13:

(1) information on the chain of traceability, from point of origin to point of destruction;

(2) information on the point of origin, namely the place where the appliances with ODS-containing foam are recovered, specifying:

(*a*) the address of each place where appliances are recovered;

(*b*) the name and contact information of each party involved in each stage of the project, and the quantity of materials, whether appliances, foam or ODS, transferred, sold or handled by each party;

(3) the serial number or identification number of the containers used for ODS storage and transportation;

(4) any document identifying persons in possession of materials at each stage in the project, and showing the transfer of possession of the materials;

(5) information on ODS extraction, specifying

(*a*) the number of appliances containing foam from which ODS has been extracted;

(*b*) the name and contact information of the facility where the ODS are extracted;

(*c*) the name and contact information of the facility where the appliances are recycled, if any;

(*d*) processes, training, and quality assurance, quality control and extraction process management processes;

(6) a certificate of destruction for all the ODS destroyed under the project, issued by the facility that destroyed the ODS, by destruction activity, specifying

(*a*) the name of the project promoter;

(*b*) the name and contact information of the destruction facilities;

(*c*) the name of the person responsible for the destruction operations;

(*d*) the identification number on the certificate of destruction;

(*e*) the serial, tracking or identification number of all containers for which ODS destruction occurred;

(*f*) the weight and type of ODS destroyed for each container;

(*g*) the destruction start date;

(*h*) the destruction end date.

All the data referred to in subparagraph 2 of the first paragraph concerning the point of origin must be obtained at the time of recovery from the point of origin.

7.2. Surveillance plan

The promoter must establish a surveillance plan to measure and monitor project variables in accordance with the table in Figure 7.2.

Figure 7.2. Parameters for the surveillance of an ODS destruction project

Variable	Data unit	Measurement frequency	Method	Comments
BA	Metric tonnes of ODS	Once for each project	Measured	Total quantity of ODS in foam prior to extraction
$BA_{i,}$	Metric tonnes of ODS	Once for each project	Measured	Total quantity of ODS of type *i* in foam prior to extraction
RE	0 ≤ 1	Once for each project	Calculated	Recovery efficiency of the process to recover ODS from foam
$Foam_{rec}$	Metric tonnes of foam	Once for each project	Measured	Total weight of ODS-containing foam sent for destruction
BA_{pr}	Metric tonnes CO_2 equivalent	Once for each project	Calculated	Total ODS emissions emitted during ODS extraction
BA_{recov}	Metric tonnes of ODS	Once for each project	Measured	Total quantity of ODS recovered during extraction and sent for destruction
$BA_{recov, i}$	Metric tonnes of ODS	Once for each project	Measured	Total quantity of ODS of type *i* recovered during extraction and sent for destruction under the project

8. ODS extraction and analysis

The promoter must use the same procedure during project implementation as the procedure used to calculate extraction efficiency using the method in Part II.

8.1. Analysis of ODS extracted in concentrated form from foam recovered from appliances

The promoter must use the method in this Division to calculate, by mass and for each container, the total quantity of ODS of type *i* sent for destruction under the project, namely the $BA_{recov,i}$.

The promoter must determine the quantity of ODS prior to destruction, by weighing each container when full of ODS prior to destruction and when fully empty after its contents have been destroyed.

The mass of ODS is equal to the difference between the weight of the container when full and when empty.

The promoter must weigh the containers of ODS as follows:

(1) at the destruction facility, using a single scale to generate both full and empty weigh tickets;

(2) using a scale calibrated at least quarterly to an accuracy of ±5%;

(3) weighing the full container no more than 2 days prior to the destruction of the ODS;

(4) weighing the empty container no more than 2 days after the destruction of the ODS.

The quantity and type of ODS must be determined by taking a sample from each container and having it analyzed at a laboratory accredited to ISO/CEI 17025 by an accreditation body party to the Mutual Recognition Agreement (MRA) of the International Laboratory Accreditation Cooperation (ILAC) in accordance with AHRI 700-2006 of the Air-Conditioning, Heating and Refrigeration Institute.

The laboratory conducting the analysis of the ODS must not be affiliated with the promoter and the destruction facility.

A certificate showing the results of the sampling must be issued by the laboratory that conducted the analysis and the certificate must be included in the project report.

The sampling must be conducted in accordance with the following conditions:

(1) the samples must be taken while the ODS is in the possession of the facility that will destroy it;

(2) the samples must be taken by a technician unaffiliated with the project promoter and destruction facility;

(3) the samples must be taken with a clean, fully evacuated sample bottle with a minimum capacity of 0.454 kg;

(4) each sample must be taken in a liquid state;

(5) a minimum sample size of 0.454 kg must be drawn for each sample;

(6) each sample must be individually labeled and tracked according to the container from which it was taken;

(7) the following information must be recorded for each sampling:

(*a*) the time and date of the sample;

(*b*) the name of the promoter for whom the sampling is conducted;

(*c*) the name and contact information of the technician who took the sample, and of the technician's employer;

(*d*) the volume of the container from which the sample was drawn;

(*e*) the ambient air temperature at the time of the sampling;

(8) the chain of traceability of each sample, from the point of sampling to the accredited laboratory.

All the samples for the project must be analyzed to confirm the type and concentration of each ODS in the sample. The analysis must determine the following elements:

(1) the type of each ODS;

(2) the purity of the ODE mixture by weight using gas chromatography;

(3) the moisture level of each sample; if above 75% of the saturation point for the ODS, the promoter must dry the ODS mixture, take the sample again and analyze it in accordance with the method in Division 8.2;

(4) for each sample containing less than 90% of a single type of ODS, the saturation point for the sample, using the saturation point for the ODS in the mixture having a minimum concentration of 10% and the lowest saturation point;

(5) in the case of a mixture of ODS, the quantity, type and percentage by weight of each ODS.

8.2. Analysis of mixed ODS

For each sample that does not contain over 90% of the same type of ODS, the promoter must meet with the conditions concerning mixed ODS in this Division, in addition to the conditions in Division 8.1.

The sampling and circulation and sampling activities for the ODS mixture must be conducted by a person who is not involved in the other stages of the project and who is properly trained to carry out the tasks.

The promoter must include the procedures used to analyze the ODS mixture in the project report.

Prior to sampling, the ODS mixture must be circulated in a container that meets all of the following criteria conditions:

(1) the container has no solid interior obstructions other than mesh baffles or other interior structures that do not impede circulation;

(2) the container was fully evacuated prior to filling;

(3) the container has sampling ports to sample liquid and gas phase ODS;

(4) the sampling ports must be located in the middle third of the container, not at one end or the other;

(5) the container and associated equipment can circulate the mixture through a closed loop system from the bottom to top.

If the original mixed ODS container does not meet these requirements, the mixed ODS must be transferred into a temporary container that meets all of the above criteria.

The weight of the ODS mixture placed into the temporary container must be calculated and recorded. During transfer of ODS into and out of the temporary container, the ODS must be recovered to the vacuum levels required by the applicable standards for the place where the project is located.
Once the mixed ODS is in a container that meets the above criteria, circulation of mixed ODS must be conducted as follows:

(1) liquid mixtures must be circulated from the liquid port to the vapour port;

(2) a volume of the mixture equal to 2 times the volume in the container must be circulated before sampling;

(3) circulation must occur at a rate of at least 114 litres per minute unless the liquid mixture has been circulating continuously for at least 8 hours;

(4) the start and end times must be recorded.

During the last 30 minutes of circulation, a minimum of 2 samples must be taken from the bottom liquid port, in accordance with the method in Division 8.1.

The analysis must determine the weighted concentrations of the ODS for both samples.

The promoter must use the results from the sample with the weighted ODS concentration with the least global warming potential.

9. Destruction facilities

In the case of a facility located in the United States and not recognized under the Resource Conservation and Recovery Act, the promoter must show that the facility meets the standards of the Technology & Economic Assessment Panel (TEAP).

The operating parameters for the facility during ODS destruction must be monitored and recorded in accordance with the *Code of Good Housekeeping* approved by the Montréal Protocol.

The verifier must use the data to show that, during the ODS destruction process, the facility was operating in conditions that meet the requirements mentioned in the certificate of authorization or any similar document.

The promoter must continuously monitor the following parameters during the entire ODS destruction process:

(1) the ODS feed rate;

(2) the operating temperature and pressure of the destruction facility during ODS destruction;

(3) effluent discharges measured in terms of water and pH levels;

(4) carbon monoxide emissions.

10. Verification

The verification process must include at least 1 site visit during the project

(1) of the place where extraction occurs, during extraction;

(2) of each destruction facility for the project, during destruction.

Part II

Calculation of ODS extraction efficiency in foam recovered from appliances

The promoter must calculate ODS extraction efficiency in foam recovered from appliances by taking ODS samples from at least 10 appliances.

ODS extraction

ODS extracted from foam from sampled appliances must be collected and quantified as follows:

(1) begin processing with all equipment shut down and emptied of all materials;

(2) extract and collect concentrated ODS from foam from all the sampled appliances. The mass of ODS recovered must be determined by comparison of the mass of the fully evacuated receiving containers to their mass when filled. This value must be used as the factor BA_{recov} in the equations below.

Separation of foam residual

The promoter must establish the quantity of foam recovered from the sample appliances, corresponding to the factor $Foam_{rec}$, using the default value of 5.85 kg per appliance and multiplying by the number of appliances processed.

Calculation of extraction efficiency

The promoter must calculate the extraction efficiency using equations 7 and 8:

Equation 7

$$EE = \frac{BAG_{recov}}{BA}$$

EE = Extraction efficiency;

BA_{recov} = Mass of ODS recovered in concentrated form, in metric tonnes of ODS;

BA = Initial mass of ODS contained in foam in the appliances prior to extraction, calculated using equation 8, in metric tonnes of ODS;

Equation 8

$$BA = \frac{Foam_{rec}}{(1-0.149)} \times 0.149$$

Where:

BA = Initial mass of ODS contained in foam in the appliances prior to extraction, in metric tonnes of ODS;

$Foam_{rec}$ = Mass of foam recovered, in metric tonnes of foam;

0.149 = Initial concentration of ODS contained in the foam, in metric tonnes of ODS per metric tonne of foam.".

49. Every person or municipality that, before (*insert the date of coming into force of this Regulation*), registered with the Minister as an emitter or participant or was designated as an account representative, alternate account representative or electronic submission agent must, not later than (*insert the date occurring 60 days after the date of coming into force of this Regulation*), send the Minister an update of the information and documents submitted with the registration or designation, in order to comply with the requirements in sections 7 to 12 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowance (R.R.Q., c. Q-2, r. 46.1), as amended by sections 7 to 10 of this Regulation.

Once the information and documents have been updated in accordance with the first paragraph, every person who, on (*insert the date of coming into force of this Regulation*), was designated an alternate account representative is deemed to be an account representative, and every person who, prior to that date, was designated as an electronic submission agent is deemed to be an account viewing agent.

A person who fails to send the Minister the information and documents required under the first paragraph within the time indicated will be refused access to the electronic system.

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

2111

Draft Regulation

Environment Quality Act
(R.S.Q., c. Q-2)

Mandatory reporting of certain emissions of contaminants into the atmosphere — Amendment

Notice is hereby given, in accordance with sections 10 and 11 of the Regulations Act (R.S.Q., c. R-18.1) and section 46.2 of the Environment Quality Act (R.S.Q., c. Q-2), that the Regulation to amend the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere, appearing below, may be made by the Minister on the expiry of 60 days from this publication.

The draft Regulation requires fuel distributors to report the greenhouse gas emissions attributable to the combustion or use of the fuels they distribute, and sets out the calculation methods to be used when preparing their report.

It also specifies that the requirement of submitting a verification report concerning an emissions report applies only to emitters subject to the cap-and-trade system for greenhouse gas emissions.

The draft Regulation also makes changes to the methods used to estimate missing data in various sectors of activity.

Further information may be obtained by contacting Julie Paradis, Direction des politiques de la qualité de l'atmosphère, Ministère du Développement durable, de l'Environnement et des Parcs; telephone: 418 524-3813, extension 4520; email: julie.paradis@mddep.gouv.qc.ca; fax: 418 646-0001.

Any person wishing to comment on the draft Regulation is requested to submit written comments within the 60-day period to Michel Goulet, Director, Direction des politiques de la qualité de l'atmosphère, Ministère du Développement durable, de l'Environnement et des Parcs, édifice Marie-Guyart, 675, boulevard René-Lévesque Est, 5e étage, boîte 30, Québec (Québec) G1R 5V7; email: michel.goulet@mddep.gouv.qc.ca

PIERRE ARCAND,
Minister of Sustainable Development, Environment and Parks

Regulation to amend the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere

Environment Quality Act
(R.S.Q., c. Q-2, ss. 2.2 and 46.2)

1. The Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (R.R.Q, c. Q-2, r. 15) is amended in section 6.1

(1) by replacing the second and third paragraphs by the following:

"Every person or municipality operating an enterprise that purchases electricity produced outside Québec for its own consumption or for sale in Québec must also report the emissions attributable to the production of that electricity, under the first paragraph. For such an emitter, and for an emitter that exports, transports or distributes electricity, an enterprise that transports or distributes natural gas, or an enterprise that carries on gas or oil exploration or production, the reporting threshold provided for in the first paragraph applies to the enterprise as a whole.

Every person or municipality operating an enterprise that, during a calendar year, distributes fuel and is referred to in section 85.33 of the Act respecting the Régie de l'énergie (R.S.Q., c. R-6.01) is required, if the greenhouse gas emissions attributable to the combustion or use of the fuel distributed, calculated in accordance with protocol QC.30 in Schedule A.2, are equal to or exceed 25,000 metric tons CO_2 equivalent, to report the emissions to the Minister in accordance with this Division until the emissions have been below the reporting threshold for 4 consecutive years.

For the purposes of this Division, an enterprise operated by an emitter referred to in the second and third paragraphs is considered to be an establishment.

When an establishment referred to in the first paragraph has more than one facility, the data for each facility must be identified separately.";

(2) by replacing "first or third" in the fifth paragraph by "first, second or third".

2. Section 6.2 is amended by inserting the following after subparagraph 2 of the first paragraph:

"(2.1) in the case of a person or municipality operating an establishment that distributes fuel, the quantity of greenhouse gas emissions attributable to the combustion or use of the fuel distributed;".

3. Section 6.3 is amended

(1) by replacing "calculation methods" in the first paragraph by "protocols";

(2) by replacing "calculation method" in subparagraph 2 of the second paragraph by "protocol";

(3) by replacing the third paragraph by the following:

"The emitter must use the same calculation method and perform 100% of the data sampling and measurement in accordance with that method for each report year.".

4. The following is inserted after section 6.3:

"**6.3.1.** When an emitter, as part of its sampling activities, is unable to obtain analytical data, it must replace the missing data.

For that purpose, the emitter must apply the applicable method for the estimation of missing data specified in the calculation method prescribed by the applicable protocol in Schedule A.2 or, if the emitter uses a method of calculation or assessment referred to in the second paragraph of section 6, the emitter must demonstrate that everything has been done to capture 100% of the data and then apply the following method:

(1) when the missing data concern carbon content, temperature, pressure or any other data that is sampled or analyzed, the emitter must analyze again, using the prescribed method, the original sample, a backup sample or a replacement sample for the same measurement and sampling period. If it is not possible to obtain valid data, the emitter must use replacement data established

(*a*) by determining the sampling or measurement rate using the following equation:

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter using the calculation or assessment method used by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required to be obtained by the emitter using that method;

(*b*) for data that require sampling or analysis, the emitter must

(i) if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data is available from before that period, the emitter must use the first available data from after the period for which the data is missing;

(ii) if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

(iii) if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(2) when the missing data concern a quantity of raw materials, such as fuel consumption, a quantity of material, a production quantity or a quantity of reference units, the replacement data must be estimated on the basis of all the data relating to the processes used;

(3) when the missing data are data from a continuous emission monitoring and recording system, the emitter must determine the replacement data using the procedure indicated in protocol SPE 1/PG/7 Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.".

5. Section 6.6 is amended by replacing "An emitter" in the first paragraph by "An emitter referred to in section 2 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (c. Q-2, r. 46.1)".

6. Section 6.9 is amended by inserting the following after paragraph 7:

"(7.1) the total quantity of reference units relating to the emitter's activities for the report year;".

7. Section 7.1 is amended by adding the following paragraph at the end:

"In addition, unless otherwise provided for in one of the protocols in Schedule A.2, the equipment used to measure the parameters required to calculate greenhouse gas emissions or the quantity of reference units must be calibrated according to the manufacturer's instructions in order to maintain accuracy of plus or minus 5%.".

8. Schedule A.2 is amended

(1) by inserting, before QC.1, the following:

"**PROTOCOLS**";

(2) by replacing subparagraphs 1 and 2 of QC.1.5.6 by the following:

"(1) when, in sampling fuels, an emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period;

(2) when it is not possible to obtain valid data, the emitter must use replacement data established using the calculation method in QC.1.6.";

(3) by replacing QC.1.6 by the following:

"**QC.1.6. Methods for estimating missing data**

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods specified in QC.1.3.1 to QC.1.3.3, QC.1.3.5, QC.1.3.6, QC.1.4.1, QC.1.4.2 and QC.1.4.3 must,

(*a*) when the missing data concern high heat value, carbon content, molecular mass, CO_2 concentration, water content or any other data sampled to calculate greenhouse gas emissions,

(i) determine the sampling or measurement rate using the following equation:

Equation 1-19

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.1.5;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if $0.75 \leq R < 0.9$: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if $R < 0.75$: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern stack gas flow rate, fuel consumption or the quantity of sorbent used, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses one of the calculation methods specified in QC.1.3.4 and QC.1.4.4 must determine the replacement data for the high heat value of the fuel, carbon content, CO_2 concentration, stack gas flow rate, volume flow or energy input of the fuel using the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(4) by replacing QC.2.5 by the following:

"**QC.2.5. Methods for estimating missing data**

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods specified in QC.2.3.2 must,

(*a*) when the missing data concern high heat value, carbon content, molecular mass or any other data sampled to calculate greenhouse gas emissions,

(i) determine the sampling or measurement rate using the following equation:

Equation 2-2

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.2.4;

(ii) for data requiring sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern gas consumption, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(5) by replacing QC.3.7 by the following:

"**QC.3.7. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content, sulphur content, ash content, hydrogen content, water content, BSM emissions, pitch content, carbon present in skimmed dust from electrolysis cells, volatiles content, data for slope calculations, frequency and duration of anode effects, overvoltage, SF_6 concentration or data to calculate current efficiency,

(i) determine the sampling or measurement rate using the following equation:

Equation 3-11

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.3.6;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern net anode consumption, anode paste consumption, packing material consumption, green anode or cathode consumption, quantity of tar recovered, green coke consumption, liquid aluminum production, aluminum hydrate production, baked anode or cathode production, calcinated and under-calcinated coke production, coke dust quantity or SF_6 quantity, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(6) by replacing QC.4.5 by the following:

"**QC.4.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content, calcium oxide content or magnesium oxide content,

(i) determine the sampling or measurement rate using the following equation:

Equation 4-5

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.4.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern clinker production, the emitter must use the first data estimated after the period for which the data is missing or use the maximum daily production capacity and multiply it by the number of days in the month;

(*c*) when the missing data concern raw material consumption, the emitter must use the first data estimated after the period for which the data is missing or use the maximum rate of raw materials entering the kiln and multiply by the number of days in the month ;

(d) when the missing data concern the quantity of dust, the quantity of gypsum or the quantity of limestone, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(7) by inserting the following paragraph before the first paragraph of QC.5.5:

"The emitter must demonstrate that everything has been done to capture 100% of the data.";

(8) by replacing QC.6.5 by the following:

"**QC.6.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content or molecular mass,

(i) determine the sampling or measurement rate using the following equation:

Equation 6-4

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.6.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern raw material consumption or hydrogen production, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(9) by replacing QC.7.6 by the following:

"**QC.7.6. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content or sampled data,

(i) determine the sampling or measurement rate using the following equation:

Equation 7-10

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\ Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\ Required}$ = Quantity of samples or measurements required under QC.7.5;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern the consumption of carbon-containing raw material, consumption of ferrous scrap, annual consumption of molten iron, consumption of coking coal, consumption of flux material, consumption of direct reduced iron pellets, consumption of carbon electrodes, consumption of ore, quantity of slag produced, consumption of greenball pellets, production of fired pellets, production of coke oven gas, production of metallurgical coke, quantity of air pollution control residue collected, quantity of other coke oven by-products, production of steel, quantity of gas from basic oxygen furnaces transferred, the production of sinter, the production of iron or the quantity of non-metallic by-products, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(10) by replacing QC.8.5 by the following:

"**QC.8.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern calcium oxide content or magnesium oxide content,

(i) determine the sampling or measurement rate using the following equation:

Equation 8-3

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.8.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern lime production or the production of calcined by-products and waste, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(11) by inserting the following before QC.9.4.1 in the French text:

"**QC.9.4. Exigences d'échantillonnage, d'analyse et de mesure**";

(12) by replacing QC.9.5 by the following:

"**QC.9.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content, molecular mass, molar fraction, molecular fraction, high heat value, CO_2 concentration, CO concentration, O_2 concentration, temperature, pressure, nitrogen content or biochemical oxygen demand,

(i) determine the sampling or measurement rate using the following equation:

Equation 9-28

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.9.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if $0.75 \leq R < 0.9$: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if $R < 0.75$: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern coke burn, volumetric gas flow, gas volume, number of hours of operation, quantity of bituminous product blown, quantity of crude oil and intermediate products, quantity of wastewater treated, quantity of coke, quantity of coke dust or number of vessels openings in a coking unit, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(13) by replacing QC.10.5 by the following:

"**QC.10.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbonate content in raw materials or in carbonate-based material output, use the default value of 1.0;

(*b*) when the missing data concern carbon content or high heat value,

(i) determine the sampling or measurement rate using the following equation:

Equation 10-1

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.10.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*c*) when the missing data concern the quantity of spent pulping liquor, the mass flow of spent pulping liquor, the annual production of each pulp and paper product manufactured or the quantity of carbonate material, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(14) by replacing QC.11.5 by the following:

"**QC.11.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern the hourly concentration of CO_2, the volumetric gas flow rate or the process vent average mass flow rate of gas in the water stripper/evaporator during a performance test, conduct a new performance test;

(*b*) when the missing data concern carbon content,

(i) determine the sampling or measurement rate using the following equation:

Equation 11-6

$$R = Q_{S\,Act} \Big/ Q_{S\ \mathrm{Re}\,quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\ Required}$ = Quantity of samples or measurements required under QC.11.4;

(ii) for data that require sampling or analysis:

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*c*) when the missing data concern the ore quantity, process vent mass flow rate of gas in the water stripper/evaporator or quantity of sodium carbonate, estimate the replacement data on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(15) by replacing QC.12.5 by the following:

"**QC.12.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content, molecular mass, molar fraction, molecular fraction, high heat value, CO_2 concentration, CO concentration, O_2 concentration, temperature, pressure, nitrogen content or biochemical oxygen demand,

(i) determine the sampling or measurement rate using the following equation:

Equation 12-3

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\ Required}$ = Quantity of samples or measurements required under QC.12.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern coke burn, volumetric gas flow, gas volume, number of hours of operation, quantity of raw materials, quantity of product, quantity of steam or quantity of wastewater treated, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(16) by replacing QC.13.5 by the following:

"**QC.13.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when data determined on the basis of the performance test provided for in QC.13.4 is missing, conduct a new performance test;

(*b*) when the missing data concern carbon content, temperature, pressure or gas concentration, other than data prescribed in the performance test,

(i) determine the sampling or measurement rate using the following equation:

Equation 13-5

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

Q_{SAct} = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\ Required}$ = Quantity of samples or measurements required under QC.13.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if $0.75 \leq R < 0.9$: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if $R < 0.75$: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*c*) when the missing data concern adipic acid production or gas flow rate, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(17) by replacing QC.14.5 by the following:

"**QC.14.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content or other sampled data,

(i) determine the sampling or measurement rate using the following equation:

Equation 14-2

$$R = Q_{S\,Act} \Big/ Q_{S\ \mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.14.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern raw material consumption or lead production, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(18) by replacing QC.15.5 by the following:

"**QC.15.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content or other sampled data,

(i) determine the sampling or measurement rate using the following equation:

Equation 15-2

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}\,quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.15.4;

(ii) for data that require sampling or analysis,

- if $R \geq 0.9$: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if $0.75 \leq R < 0.9$: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if $R < 0.75$: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern raw material consumption, zinc production or by-product production, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(19) by replacing QC.16.7 by the following:

"**QC.16.7. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern sampled data,

(i) determine the sampling or measurement rate using the following equation:

Equation 16-4

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.16.6;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern the quantity of energy transferred or a quantity of HFC, the replacement data must be estimated on the basis of all the data relating to the processes used.";

(20) by replacing QC.18.5 by the following:

"**QC.18.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content or carbonate content,

(i) determine the sampling or measurement rate using the following equation:

Equation 18-7

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\ Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\ Required}$ = Quantity of samples or measurements required under QC.18.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern raw material consumption, carbonate consumption, reducing agent consumption, carbon electrode consumption, recycled material consumption or copper production, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(21) by replacing QC.19.6 by the following:

"**QC.19.6. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content or carbonate content,

(i) determine the sampling or measurement rate using the following equation:

Equation 19-3

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.19.5;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern raw material consumption, carbonate consumption, reducing agent consumption, flux material consumption, carbon electrode consumption, ferroalloy production or by-product production, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(22) by replacing the part of QC.20.5 preceding subparagraph 1 of the first paragraph by the following:

"When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:";

(23) by adding the following after paragraph 2 of QC.20.5:

"(3) when the missing data concern magnesium production, the replacement data must be estimated on the basis of all the data relating to the processes used.";

(24) by replacing QC.21.5 by the following:

"**QC.21.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when data determined on the basis of the performance test provided for in QC.21.4 is missing, conduct a new performance test;

(*b*) when the missing data concern carbon content, temperature, gas pressure or gas concentration, other than data prescribed in the performance test,

(i) determine the sampling or measurement rate using the following equation:

Equation 21-5

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.21.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*c*) when the missing data concern nitric acid production or a gas flow rate, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(25) by replacing QC.22.5 by the following:

"**QC.22.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content,

(i) determine the sampling or measurement rate using the following equation:

Equation 22-2

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.22.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern phosphate rock consumption or phosphoric acid production, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(26) by replacing QC.23.5 by the following:

"**QC.23.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content or molecular mass,

(i) determine the sampling or measurement rate using the following equation:

Equation 23-6

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\ Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\ Required}$ = Quantity of samples or measurements required under QC.23.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern raw material quantity, ammoniac production or waste gas consumption, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(27) by replacing QC.24.5 by the following:

"**QC.24.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) when the missing data concern sampled data,

(*a*) determine the sampling or measurement rate using the following equation:

Equation 24-9

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Re}quired}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.24.4;

(*b*) for data that require sampling or analysis,

(i) if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

(ii) if $0.75 \leq R < 0.9$: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

(iii) if $R < 0.75$: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(2) when the missing data concern gas quantity, the replacement data must be estimated on the basis of all the data relating to the processes used;

(3) when the missing data concern equipment capacity, the replacement data must be estimated on the basis of an equivalent nominal SF_6 and PFC gas capacity, and on repair, replacement and maintenance data for similar pieces of equipment.";

(28) by replacing QC.25.5 by the following:

"**QC.25.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to obtain 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbonate content in raw materials or in carbonate-based material output, use the default value of 1.0;

(*b*) when the missing data concern carbon content,

(i) determine the sampling or measurement rate using the following equation:

Equation 25-3

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.25.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*c*) when the missing data concern raw material consumption or carbonate consumption, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(29) by replacing QC.26.5 by the following:

"**QC.26.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbonate content in raw materials or in carbonate-based material output, use the default value of 1.0;

(*b*) when the missing data concern carbon content,

(i) determine the sampling or measurement rate using the following equation:

Equation 26-2

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.26.4;

(ii) for data requiring sampling and/or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*c*) when the missing data concern raw material consumption, glass production or carbonate consumption, the replacement data must be estimated on the basis of all the data relating to the processes used;

(2) an emitter who uses a continuous emission monitoring system must use the procedure in the SPE 1/PG/7 protocol entitled Protocols and performance specifications for continuous monitoring of gaseous emissions from thermal power generation published in November 2005 by Environment Canada.";

(30) by replacing the heading of QC.27.6 by the following:

"**QC.27.6. Methods for estimating missing data**

The emitter must demonstrate that everything has been done to capture 100% of the data.

When the missing data concern fuel consumption, the replacement data must be estimated on the basis of all the data relating to the processes used.

QC.27.7. Tables";

(31) by replacing QC.28.5 by the following:

"**QC.28.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern volumetric fraction or fluid density,

(i) determine the sampling or measurement rate using the following equation:

Equation 28-10

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.28.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern gas quantity or substrate quantity, the replacement data must be estimated on the basis of all the data relating to the processes used;

(*c*) when one or more values used to calculate the emissions attributable to heat transfer fluids using equation 28-5 is missing, the emitter must estimate greenhouse gas emissions using the arithmetic average of the emission rates for the previous year and for 2 months following the missing data period. When those emission rates cannot be obtained, the emitter must estimate the greenhouse gas emissions using data from the suppliers of the heat transfer fluids.";

(32) by replacing QC.29.5 by the following:

"**QC.29.5. Methods for estimating missing data**

When, as part of an emitter's sampling activities, the emitter is unable to obtain analytical data, the emitter must, using the methods prescribed in this Protocol, re-analyze the original sample, a backup sample or a replacement sample for the same measurement and sampling period.

When sampling or measurement data required by this Protocol for the calculation of emissions is missing, the emitter must demonstrate that everything has been done to capture 100% of the data. The emitter must then use replacement data, established as follows:

(1) an emitter who uses one of the calculation methods provided for in this Protocol must,

(*a*) when the missing data concern carbon content, high heat value, molecular mass, molar fraction, temperature, pressure or sampled data,

(i) determine the sampling or measurement rate using the following equation:

Equation 29-17

$$R = Q_{S\,Act} \Big/ Q_{S\,\mathrm{Required}}$$

Where:

R = Actual sampling or measurement rate, expressed as a percentage;

$Q_{S\,Act}$ = Quantity of actual samples or measurements obtained by the emitter;

$Q_{S\,Required}$ = Quantity of samples or measurements required under QC.29.4;

(ii) for data that require sampling or analysis,

- if R ≥ 0.9: replace the missing data by the arithmetic mean of the sampling or measurement data from immediately before and after the period for which the data is missing. If no data are available from before that period, the emitter must use the first available data from after the period for which the data is missing;

- if 0.75 ≤ R < 0.9: replace the missing data by the highest data value sampled or analyzed during the report year for which the calculation is made;

- if R < 0.75: replace the missing data by the highest data value sampled or analyzed during the 3 preceding years;

(*b*) when the missing data concern operating time, gas quantity, liquid quantity or gas flow rate, the replacement data must be estimated on the basis of all the data relating to the processes used.";

(33) by adding the following after QC.29.6:

"**QC.30. FUEL DISTRIBUTION**

QC.30.1. Covered sources

For the purposes of this protocol, "fuel" means gasolines, diesels, propane, natural gas and fuel oils, with the exception of

(1) aviation fuel or or fuel oil for schips;

(2) hydrocarbons used as a raw material by industries that use chemical and petrochemical processes to transform hydrocarbon molecules;

(3) the renewable portion derived from biomass and biofuel of such fuels.

In addition, "fuel distribution" means the following activities:

(1) all forms of trade or sale of fuels refined, manufactured, mixed, prepared or distilled in Québec, for consumption in Québec;

(2) bringing fuel into Québec, or causing fuel to be brought into Québec, for consumption, distribution or sale in Québec, in one or more containers totalling over 200 litres, other than fuel contained in a fuel tank installed as standard equipment to supply a vehicle motor.

QC.30.2. Greenhouse gas reporting requirements

The greenhouse gas emissions report referred to in section 6.2 must include the following information:

(1) the annual emissions attributable to the use of fuel distributed for consumption in Québec, in metric tons CO_2 equivalent, excluding fuels used by an emitter referred to in the first paragraph of section 2 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances (c. Q-2, r. 46.1) that is required to cover greenhouse gas emissions pursuant to section 19 of that Regulation;

(2) the total annual quantity of each fuel distributed for consumption in Québec, both including and excluding fuels used by an emitter referred to in the first paragraph of section 2 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances that is required to cover greenhouse gas emissions pursuant to section 19 of that Regulation, expressed

(*a*) as a volume in thousand cubic metres at standard conditions, in the case of gaseous fuels;

(*b*) as a volume in kilolitres, in the case of liquid fuels;

(3) the name and contact information for each emitter referred to in the first paragraph of section 2 of the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances that is required to cover greenhouse gas emissions pursuant to section 19 of that Regulation to whom fuel has been distributed during the year, along with the total annual quantity distributed to each emitter, expressed

(*a*) as a volume in thousand cubic metres at standard conditions, in the case of gaseous fuels;

(*b*) as a volume in kilolitres, in the case of liquid fuels.

QC.30.3. Calculation methods for CO_2 emissions

The annual CO_2 equivalent emissions attributable to the use of fuel distributed for consumption in Québec must be calculated using equation 30-1:

Equation 30-1

$$CO_2 = \sum_{i=1}^{n} [Q_i \times FE_i \ ]$$

Where:

CO_2 = Annual emissions attributable to the use of fuel distributed for consumption in Québec, in metric tons CO2 equivalent;

n = Number of fuels distributed for consumption in Québec;

i = Fuel;

Q_i = Quantity of fuel *i*, expressed

- as a volume in thousand cubic metres at standard conditions, in the case of gaseous fuels;
- as a volume in kilolitres, in the case of liquid fuels;

EF_i = Emission factor for fuel *i*, as indicated in Table 30-1 in QC.30.6, expressed

- in metric tons of CO_2 per thousand cubic metre at standard conditions, in the case of gaseous fuels;
- in metric tons of CO_2 per kilolitre, in the case of liquid fuels.

QC.30.4. Sampling, analysis and measurement requirements

An emitter who operates an enterprise that distributes fuel must, before the first emissions report and thereafter as prescribed by the manufacturer or annually, whichever occurs soonest, calibrate all the equipment used to measure quantities of liquid or gaseous fuel as required for the purposes of the calculation method in QC.30.3.

QC.30.5. Method for estimating missing data

The emitter must be able to demonstrate that everything has been done to capture 100% of the data.

When the missing data concern the quantity of fuel distributed, the replacement data must be estimated on the basis of all the data relating to the processes used of or the data used for inventory purposes.

QC.30.6. Tables

Table 30-1. Fuel emission factors, in CO_2 equivalent

(QC.30.3)

Liquid fuels	**Emission factor (metric tons CO_2 equivalent per kilolitre)**
Gasoline	2.361
Diesel	2.790
Light oil (1 or 2)	2.735
Heavy oil (4, 5 or 6)	3.146
Gaseous fuels	**Emission factor (metric tons CO_2 equivalent per thousand cubic metres)**
Propane	1.544
Natural gas	1.889

.".

9. Emitters referred to in the third paragraph of section 6.1, as amended by section 1 of this Regulation, are only required to report their greenhouse gas emissions in accordance with the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (R.R.Q., c. Q-2, r. 15) beginning on 1 January 2013.

10. This Regulation comes into force on the fifteenth day following the date of its publication in the *Gazette officielle du Québec*, except sections 4 and 7 and paragraphs 2 to 32 of section 8, which come into force on 1 January 2013.

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Abbreviations: **A**: Abrogated, **N**: New, **M**: Modified