



Government  
of Canada

Gouvernement  
du Canada

## **Greenhouse Gas Emissions Reporting**

# **Technical Guidance on Reporting Greenhouse Gas Emissions**



**2006 Reporting Year  
(2005 Emissions Data)**

**Canada**

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The Greenhouse Gas Emissions Reporting Initiative is a partnership between the Government of Canada and provincial and territorial governments. It is being designed and tested to ensure that it meets the needs of all jurisdictions, avoids duplication and minimizes the burden on both Canadian industry and governments alike.

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## CHANGES FOR REPORTING OF 2005 GREENHOUSE GAS EMISSIONS

In the *Canada Gazette* notice published in March 2005, Environment Canada announced minor changes for the second year of mandatory reporting of greenhouse gas (GHG) emissions under Phase 1. These changes add clarity to the reporting requirements and address specific comments from stakeholders.

Changes include:

- Finer breakdown of source categories for carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) emissions
- Fugitive Emissions replaced by two categories:
  1. Venting and Flaring Emissions
  2. Other Fugitive Emissions
- Other Emissions replaced by two categories:
  1. Waste and Wastewater Emissions
  2. On-site Transportation Emissions
- Reporting of sulphur hexafluoride (SF<sub>6</sub>), hydrofluorocarbon (HFC) and perfluorocarbon (PFC) emissions limited to industrial processes and industrial product use only
- Clarification that CO<sub>2</sub> emissions from the decomposition of the biomass portion of waste and wastewater need not be reported or included in the total emissions

Please visit the GHG Reporting Site ([www.ghgreporting.gc.ca](http://www.ghgreporting.gc.ca)) for further details on the mandatory GHG reporting requirement and access to the electronic data reporting (EDR) system.

## GLOSSARY OF TERMS

The following words and terms used in this guidance document shall have the indicated meaning:

**Biomass** is defined as plant materials, animal waste or any product made of either of these. This includes (but is not necessarily limited to) wood and wood products; charcoal and agricultural residues and wastes (including organic material above and below ground, both living and dead, such as trees, crops, grasses, tree litter, roots, etc.); municipal and industrial wastes (where the organic material is biological in origin); landfill gas; bio-alcohols; black liquor; sludge gas; and animal- or plant-derived oils.

**Biomass fuel** is a term used to describe biomass that is burned for energy purposes (e.g. to generate heat or electricity).

**Carbon dioxide equivalent (CO<sub>2</sub> eq.)** is a unit of measure used to allow the addition of or the comparison between gases that have different global warming potentials (GWPs). Since many greenhouse gases (GHGs) exist and their GWPs vary, the emissions are added in a common unit, CO<sub>2</sub> eq. To express GHG emissions in units of CO<sub>2</sub> eq., the quantity of a given GHG (expressed in units of mass) is multiplied by its GWP.

**Contiguous facility** means all buildings (including office buildings), equipment, structures and stationary items that are located on a single site or on contiguous or adjacent sites, that are owned or operated by the same person and that function as a single integrated site, and includes wastewater collection systems that discharge treated or untreated wastewater into surface waters.

**Direct emissions** refer to emissions from those sources that are located at the reporting facility.

**Electronic data reporting (EDR) system** refers to the secure on-line reporting system to be used by reporters to submit the required information under Phase 1 of the mandatory GHG reporting system.

**Equipment** includes transportation machinery integral to the production process(es) carried out at the facility.

**Facility** means a contiguous facility, a pipeline transportation system or an offshore installation.

**Global warming potential (GWP)** is a relative measure of the warming effect that the emission of a GHG might have on the Earth's atmosphere. It is calculated as the ratio of the time-integrated radiative forcing<sup>1</sup> (i.e. the amount of heat-trapping potential) that would result from the emission of 1 kg of a given GHG to that from the emission of 1 kg of CO<sub>2</sub>. For example, the GWP for nitrous oxide (N<sub>2</sub>O) is 310, which means that 1 kg of N<sub>2</sub>O emissions is equivalent to 310 kg of CO<sub>2</sub> emissions.

**Large final emitters (LFE)** refers to a proposed federal government system, currently under development, to reduce annual GHG emissions by key industrial sectors, such as oil and gas, electricity production, and mining and manufacturing. The system would require mandatory GHG emissions reductions using an intensity-based approach.

<sup>1</sup> Radiative forcing is measured in units of power (watts) per unit of area (square metres).

**Offshore installation** means an offshore drilling unit, production platform or ship, or sub-sea installation attached or anchored to the continental shelf of Canada in connection with the exploitation of oil or gas.

**Pipeline transportation system** means all pipelines transporting processed natural gas and their associated installations (including storage facilities but excluding straddle plants or other processing installations) that are under single ownership within a province or territory; for example, a natural gas transmission company that has several pipeline operations or networks within and across several provinces is to use the provincial boundaries to identify its “pipeline transportation systems.”



## PREFACE

### Background

Canada has announced that it intends to work towards fulfilling its obligations and domestic climate change policy objectives by ensuring that it has the capacity to quantify, track and report progress on the reduction of greenhouse gas (GHG) emissions in a way that meets a required level of accuracy, thoroughness, transparency and public credibility.

In the *Canada Gazette* notice published in March 2004, the Government of Canada announced the first phase of mandatory reporting of GHG emissions. This phase focuses on a limited number of emitters and basic reporting requirements and lays the foundation for the development of a harmonized and efficient domestic mandatory reporting system for GHG emissions. During Phase 1, the reporting threshold for facility emissions is set at 100 kilotonnes of carbon dioxide equivalent or more annually. The *Canada Gazette* notice issued in March 2005 addresses reporting of 2005 emissions and contains only minor modifications to the reporting requirements from the 2004 notice. Reports of GHG emissions for 2005 are due by June 1, 2006.

Through consultation, there was broad consensus that federal, provincial and territorial governments should be working in partnership to develop a single-window domestic reporting system that is efficient and harmonized and that would meet the following four key objectives:

1. provide Canadians with timely information on GHG emissions;
2. enhance the level of detail of the National Greenhouse Gas Inventory;
3. document and record information to support the proposed federal system for large final emitters; and
4. meet provincial and territorial reporting requirements for GHG emissions and related information.

With mandatory reporting systems already in existence in the provinces of Ontario and Alberta, the federal, provincial and territorial governments recognize the need for a harmonized GHG reporting system. Governments in consultation with stakeholders are working to define a process for a single GHG reporting system that will meet the reporting needs of all jurisdictions and minimize the reporting burden for both Canadian industry and government.

### Purpose

The purpose of this document is to provide guidance to reporters to help determine if they are required to submit a report and to present technical information related to the GHG emissions to be reported and the required reporting format. This technical information includes the GHGs and emission sources subject to reporting, along with information on methods for calculating emissions. An overview of the reporting process is also described herein. The electronic data reporting system will provide more detailed reporting instructions on how to complete and submit the report form and other relevant information.



## 1

## REPORTING PROCESS OVERVIEW

To respond to the requirements under Phase 1 of the mandatory greenhouse gas (GHG) reporting system, a facility is required to complete a number of steps, which are briefly described below (see also Figure 1):

1. Calculate the facility's total direct emissions in carbon dioxide equivalent (CO<sub>2</sub> eq.), for calendar year 2005, for the GHGs subject to reporting under Phase 1.
2. Determine whether the facility's 2005 emissions meet or exceed the reporting threshold of 100 kilotonnes (kt) of CO<sub>2</sub> eq.:
  - a) If the facility's emissions meet or exceed the reporting threshold, the facility is required to submit a report for its 2005 emissions (continue to Step 3).
  - b) If the facility's emissions fall below the reporting threshold, the facility is not required to register or submit a report for its 2005 emissions.
3. If a report was submitted in 2005 for the facility's 2004 emissions, a facility identification (ID) number was assigned to the facility. The reporter is to use this same facility ID when completing the report for the facility's 2005 emissions. In utilizing the electronic data reporting (EDR) system, the reporter is to use this facility ID along with the password previously selected by the reporter to access the GHG report (proceed to step 5).
4. If a GHG report was not submitted in 2005, the reporter must complete the registration process to receive a facility ID to log in to
  - reporter identification (e.g. name, position, contact information, preferred language of correspondence);
  - reporting company name (e.g. legal and trade names); and
  - facility information (e.g. name, physical location).
5. Log in to the EDR system using the facility ID, enter the password (or create a password if logging on for the first time) and complete the report form<sup>2</sup> for the facility.
  - a) Returning reporters will be asked to review, update and correct the pre-populated information. New reporters will be asked to provide the following information:
    - reporting company's federal business number (BN)<sup>3</sup> and relevant facility identifiers;
    - main sector of activities (the reporter will need to select from a list provided; these include those activities that represent the primary sources of emissions likely to be subject to GHG reduction targets under the proposed federal system for large final emitters, or LFEs) and North American Industry Classification System (NAICS)<sup>4</sup> code;

<sup>2</sup> The EDR system will provide specific instructions on how to fill out the form and other relevant information. For technical assistance with the EDR system, please contact the Statistics Canada help line at 1-800-949-9491.

<sup>3</sup> The BN is a nine-digit registration number issued by the Canada Revenue Agency (CRA) to Canadian businesses that register for any of the following: corporate income tax; importer/exporter account number; payroll (source) deductions (trust accounts); or goods and services tax. This number can be found on all forms issued to a business by the CRA. The first nine digits that appear on these forms is the BN. This registration number will stay the same no matter how many or what types of accounts a business has.

<sup>4</sup> The NAICS code is a six-digit code that was developed by Statistics Canada, the U.S. Office of Management and Budget and Mexico's Instituto Nacional de Estadística Geografía e Informática, to enable the respective national agencies to collect comparable statistical data. The NAICS code in Canada consists of 20 sectors, 99 subsectors, 321 industry groups, 734 industries and 921 national industries.



- parent company information (e.g. name, address, percent ownership, BN, D-U-N-S number,<sup>5</sup> etc.);
  - public contact and certifying official information (e.g. name, position, address, etc.); and
  - National Pollutant Release Inventory (NPRI) identification number (if applicable).
- b) Each facility is required to report total direct GHG emissions as per the reporting format described in section 4 of this document.
- GHG emissions information (e.g. emissions data, calculation methodologies used, etc.).
6. Complete the request for confidentiality step if the reporter intends to submit a request that the reported information be kept confidential (appropriate justification will be required).
7. Complete the required Statement of Certification by printing the statement on company letterhead and having the certifying official sign the statement.

8. Submit the report form on-line and mail in the signed Statement of Certification and, if applicable, the request for confidentiality. **All information must be submitted and/or postmarked by June 1, 2006.**

For general questions about the federal GHG reporting program, please contact:

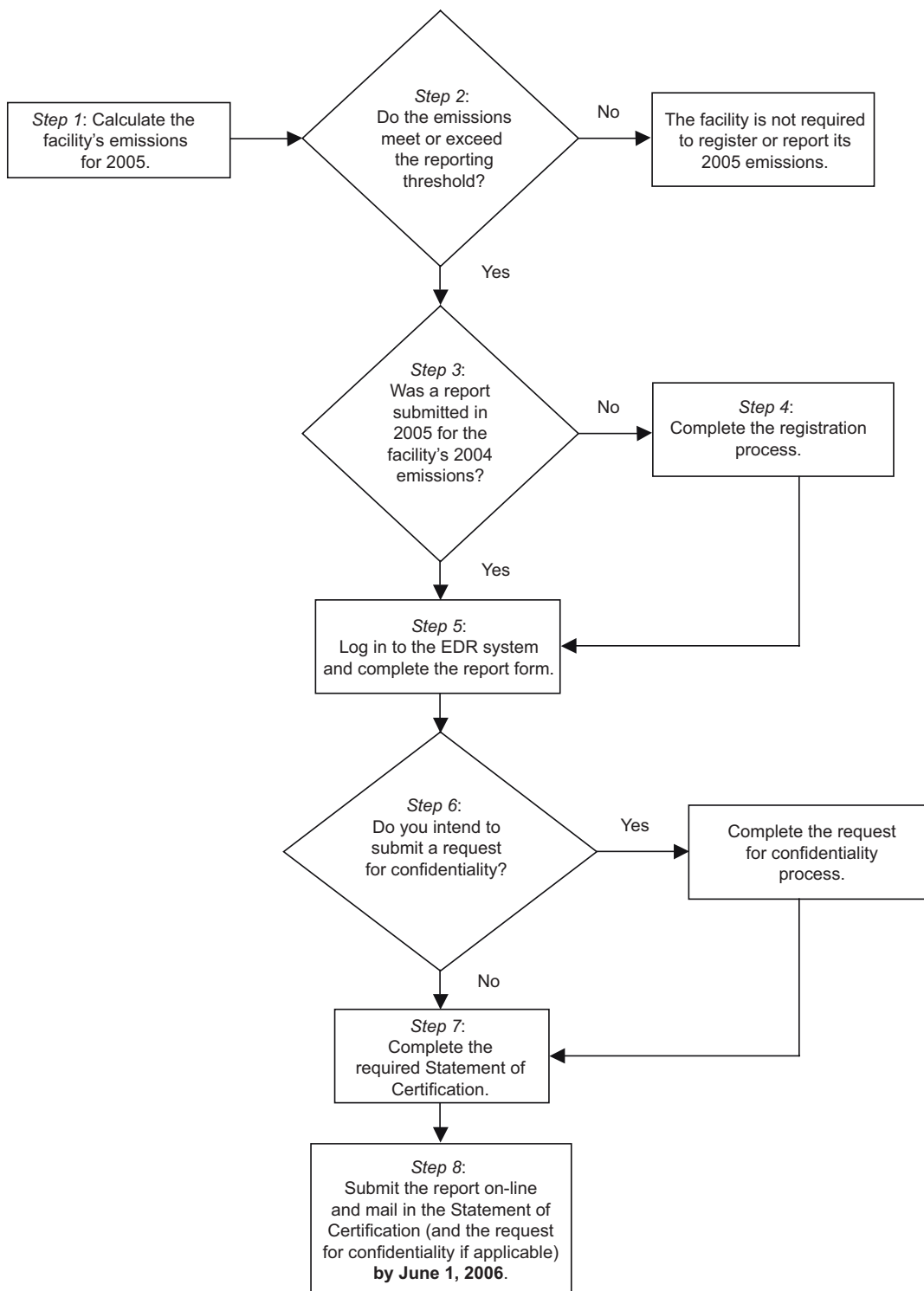
Greenhouse Gas Division, Environment Canada  
 Telephone: (819) 994-0684  
 Electronic mail: ghg@ec.gc.ca

For technical assistance with electronic data reporting, please contact:

Statistics Canada  
 Telephone: 1-800-949-9491

<sup>5</sup> The D-U-N-S number is a unique nine-digit number that D&B (formerly Dun and Bradstreet) uses to identify companies in its financial database. The internationally recognized numbering system is developed and maintained by the private firm of D&B. This information will help to identify the corporate structures relating reporting companies to their parent companies.

**Figure 1: Overview of Reporting Process**



## 2

## BASIC CONCEPTS FOR REPORTING EMISSIONS

## 2.1 Relationship with UNFCCC and IPCC

The federal government, specifically Environment Canada, is responsible for developing and reporting a reliable, accurate and timely National Greenhouse Gas Inventory as part of its obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. The UNFCCC is the first binding international legal instrument that deals directly with climate change.<sup>6</sup> To fulfil this obligation, Canada must report its national GHG emissions according to the comprehensive guidance provided by the UNFCCC, which includes reference to three key technical documents:

- *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*<sup>7</sup> (IPCC/OECD/IEA, 1997);
- *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*<sup>8</sup> (IPCC, 2000); and
- *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (IPCC, 2003).

These documents were developed by the Intergovernmental Panel on Climate Change (IPCC).<sup>9</sup>

Under Phase 1 of the mandatory GHG reporting, no specific estimation methods are prescribed. Reporters can choose the quantification methodologies most appropriate for their own particular industry or application. However, where reasonable, reporting facilities should use methods

for estimating emissions that are consistent with the guidelines adopted by the UNFCCC for the preparation of national GHG inventories, as discussed above.

The IPCC Guidelines and Good Practice Guidance<sup>10</sup> describe various approaches to estimating GHG emissions at the national level, which can be applied at the facility level. These documents are available at the following link:  
[www.ipcc-nggip.iges.or.jp/public/public.htm](http://www.ipcc-nggip.iges.or.jp/public/public.htm).

It is important to note that the Kyoto Protocol (the agreement drafted by the Parties to the UNFCCC in 1997, which became legally binding in 2005) commits Canada to a 6% reduction from 1990 GHG emissions by the period 2008–2012 (the “first commitment period”) and stipulates that progress in achieving this reduction commitment will be measured by way of annual reviews of the National Greenhouse Gas Inventory Report.

## 2.2 Key Elements in Calculating Emissions

Key characteristics of the IPCC Guidelines and Good Practice Guidance that are considered useful for reporters when calculating their facility’s GHG emissions include the following:

1. *The availability of a number of differing “tiers” of calculation methods*  
For various categories of emission sources, there are several ways of calculating the emissions, described as tiers (e.g. Tier 1, Tier 2, Tier 3), and each tier has an associated increasing level of detail and accuracy.

6 The UNFCCC was adopted at the June 1992 “Earth Summit” in Rio de Janeiro and has been in force since March 1994. The Convention’s ultimate objective is the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (United Nations, 1992).

7 Referred to as the IPCC Guidelines throughout the remainder of this document.

8 Referred to as the Good Practice Guidance throughout the remainder of this document.

9 The IPCC, established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, makes periodic assessments of the climate change issue and reports to governments as appropriate. It also provides scientific and technical advice to the Subsidiary Body for Scientific and Technological Advice to the UNFCCC.

10 The IPCC Guidelines consist of three volumes, and the Reference Manual (Volume 3) contains information on GHG estimation methods. Both Good Practice Guidance documents provide a reference that complements the IPCC Guidelines.

2. *The use of specific emission factors<sup>11</sup> or data*  
To evaluate GHG emissions, “default emission factors” are provided for many different fuels and activities. These default emission factors are considered to be less accurate than country-specific and, in turn, process-specific factors. Reporters should use emission factors and data specific to a country<sup>12</sup> or, better yet, an industry or technology, where available.
3. *A focus on the prioritization of effort*  
The IPCC suggests that the most effort on quantifying emissions should be spent on those sources that are the most critical — i.e. those that make up the largest quantity, are responsible for the greatest increase or decrease or have associated with them the highest level of uncertainty.

Although comprehensive and rigorous, the IPCC Guidelines maintain a flexible approach to GHG calculation procedures. The prioritization of emission sources of greatest importance is also emphasized. In prioritizing the work, these guidelines recognize that the more specific the emission factor or methodology (in terms of geography, facility or process), the better the emission estimate should be.

## 2.3 Prioritizing Efforts

In the spirit of the IPCC Guidelines, reporters to Phase 1 should prioritize their efforts when calculating their GHG emissions. This concept can be applied by identifying the emission sources of greatest significance at the facility and using a higher level of effort when calculating emissions from these sources. Since these emission sources have a greater impact on the totals, the use of more detailed methods would be appropriate. For example, for significant sources, efforts could be expended on using facility- or process-specific emission factors or estimation methods, if available, as opposed to general or default emission factors or estimation methods. Applying

a lower level of effort (i.e. less detailed methods) to calculate emissions for less significant sources would minimize the impact on the overall total and its level of accuracy.

Since no absolute quantification standards are prescribed at this point, reporters can be flexible in their choice of emission calculation procedures. It is recognized that the approaches chosen will depend to a certain extent on the information available for the facility. Although all required gases must be reported on (see section 3), reporters are reminded that they are required to report only information to which they would reasonably be expected to have access. For example, perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs) are usually emitted in very small amounts relative to other GHGs. The efforts to capture such emissions are expected to vary, depending on whether the facility emits significant amounts of such gases (e.g. in the production of aluminium) or the facility has reasonable access to the emissions data.

## 2.4 Biomass Emission Considerations

### 2.4.1 Combustion of Biomass

In accordance with UNFCCC and IPCC reporting guidelines, special consideration is necessary when reporting CO<sub>2</sub> emissions from biomass to ensure that there is no double counting. These guidelines, which the Government of Canada is bound to use, require the reporting (although not the counting) of CO<sub>2</sub> emissions resulting from the combustion of biomass materials. These emissions are not included in the national total, as it is assumed that the biomass is produced in a sustainable manner. That is, combusted biomass is replaced by growing biomass, which in turn reabsorbs the same amount of atmospheric carbon as was given off by the combusted material.<sup>13</sup>

11 An emission factor is a factor by which certain data, such as the fuel quantity combusted, can be multiplied to estimate the GHG emissions.

12 Environment Canada uses various emission factors that are specific to Canada for estimating emissions from several emission sources (for more details, see the latest National Greenhouse Gas Inventory Report at [www.ec.gc.ca/pdb/ghg/inventory\\_e.cfm](http://www.ec.gc.ca/pdb/ghg/inventory_e.cfm)).

13 For information purposes in the National Greenhouse Gas Inventory, if biomass materials are harvested at an unsustainable rate, net CO<sub>2</sub> emissions are accounted for as a loss of biomass stocks in the Land Use, Land-Use Change and Forestry sector.

In the same manner, reporters are required to report CO<sub>2</sub> emissions from biomass combustion. However, due to the assumption of sustainable harvesting, it is listed separately as a “memo item” and is not included in the emission totals. This explicit reporting of CO<sub>2</sub> emissions from biomass-based combustion has the benefits of:

- reminding reporters that these emissions need to be reported internationally;
- ensuring that CO<sub>2</sub> emissions from biomass are not counted in the totals; and
- demonstrating the quantity of atmospheric CO<sub>2</sub> loading that has been avoided.

On the other hand, as is required under the IPCC Guidelines, facilities must report *and* count methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) emissions from biomass combustion. There is no reverse, biogenic mechanism by which replacement biomass removes these emissions from the atmosphere. Therefore, they must be included in the GHG totals in the same way as for CH<sub>4</sub> and N<sub>2</sub>O emissions from any other material combusted.

It follows that CO<sub>2</sub> emissions from the *biomass portion* of waste that may be incinerated on site are to be reported in the “memo item” but are *not* counted in the emission totals. See section 4.2.7 for more details.

#### 2.4.2 Non-combustion of Biomass

Under the mandatory reporting of GHG emissions, emissions from biomass waste and wastewater decomposition are required to be reported. Reported and counted emissions are to include CH<sub>4</sub> and N<sub>2</sub>O. Aerobic decomposition of waste can emit substantial quantities of CO<sub>2</sub>, but these emissions need not be reported.

Reporting facilities will find additional details in section 4.2.7 on how to handle emissions from biomass under Phase 1 of the mandatory GHG reporting system.

## 2.5 Auditing and Verification

For Phase 1 of the mandatory GHG reporting system, there are no specific requirements for a facility to have its emissions verified by a third party. The information reported by a facility should be verifiable, which means that any information that would allow a facility's emissions to be verified by either the government or a third party certified by the government to do such verifications is to be retained. Facilities can choose to have their emissions verified by a third party if they wish.

Reporters are required to keep copies of the requested information, together with any calculations, measurements and other data on which the information is based, at the facility to which it relates or at that facility's parent company, located in Canada. All information must be kept for a period of three years from the date the reporting requirement came into force (March 12, 2005).

Reporters are also required to submit a Statement of Certification, signed by an authorized official, stating that the information contained in the attached emission report is accurate and complete, to the best of their knowledge.

## 3 REPORTING CRITERIA

### 3.1 Reporting Threshold

A facility needs to determine whether it is required to report under Phase 1 of the mandatory reporting of GHG emissions. The reporting threshold for Phase 1 is 100 kilotonnes of CO<sub>2</sub> equivalent (100 kt CO<sub>2</sub> eq.). A facility is required to submit a report if its 2005 emissions of the GHGs subject to reporting (see section 3.2) meet or exceed the reporting threshold.

To complete this assessment, it is necessary for the facility to calculate its total emissions in calendar year 2005 for the GHGs and emission sources subject to reporting. Total emissions are calculated as the sum total mass of each of the gases or gas species multiplied by their respective global warming potentials (GWPs) – equation 1 is to be used.

Emissions of individual species of HFCs and PFCs must be quantified separately and then multiplied by their GWPs. Only the emissions of HFCs, PFCs and sulphur hexafluoride (SF<sub>6</sub>) that fall within the

definitions of industrial processes and industrial product use are to be included in the calculations (see section 4.3).

CO<sub>2</sub> emissions from biomass materials, as discussed in section 2.4, are *not* to be included in this determination of total emissions for the purposes of assessing whether a facility meets or exceeds the reporting threshold. However, CO<sub>2</sub> emissions from biomass combustion must be quantified and reported separately as part of the reportable GHG information (see section 4). CH<sub>4</sub> and N<sub>2</sub>O emissions from biomass-related sources are to be included in the reporting threshold calculation.

### 3.2 Greenhouse Gases Subject to Reporting

The GHGs that are subject to mandatory reporting under Phase 1 are listed in Table 1. The GWPs<sup>14</sup> and CAS numbers<sup>15</sup> for these GHGs are also listed in the table.

#### Equation 1:

$$\text{Total Emissions} = \sum_1^i (E_{CO_2} \times GWP_{CO_2})_i + \sum_1^i (E_{CH_4} \times GWP_{CH_4})_i + \sum_1^i (E_{N_2O} \times GWP_{N_2O})_i + \sum_1^i (E_{PFC} \times GWP_{PFC})_i + \sum_1^i (E_{HFC} \times GWP_{HFC})_i + \sum_1^i (E_{SF_6} \times GWP_{SF_6})_i$$

where:

*E* = total emissions of a particular gas or gas species from the facility (kt);

*GWP* = global warming potential of the same gas or gas species (see section 3.2);

*i* = each emission source.

<sup>14</sup> GWPs in Table 1 are from IPCC/OECD/IEA (1997).

<sup>15</sup> The CAS number (or CAS registry number) refers to the Chemical Abstracts Service number, a unique numerical identifier that is given to every chemical that has been described in the literature. The Chemical Abstracts Service, a division of the American Chemical Society, assigns these identifiers.

**Table 1: Greenhouse Gases and Gas Species Subject to Mandatory Reporting**

Greenhouse Gas	Formula	CAS No.	100-year GWP
Carbon dioxide	CO <sub>2</sub>	124-38-9	1
Methane	CH <sub>4</sub>	74-82-8	21
Nitrous oxide	N <sub>2</sub> O	10024-97-2	310
Sulphur hexafluoride	SF <sub>6</sub>	2551-62-4	23 900
<i>Hydrofluorocarbons (HFCs):</i>			
HFC-23 (trifluoromethane)	CHF <sub>3</sub>	75-46-7	11 700
HFC-32 (difluoromethane)	CH <sub>2</sub> F <sub>2</sub>	75-10-5	650
HFC-41 (fluoromethane)	CH <sub>3</sub> F	593-53-3	150
HFC-43-10mee (1,1,1,2,3,3,4,4,5,5,5-decafluoropentane)	C <sub>5</sub> H <sub>2</sub> F <sub>10</sub>	138495-42-8	1 300
HFC-125 (pentafluoroethane)	C <sub>2</sub> HF <sub>5</sub>	354-33-6	2 800
HFC-134 (1,1,2,2-tetrafluoroethane)	C <sub>2</sub> H <sub>2</sub> F <sub>4</sub> (Structure: CHF <sub>2</sub> CHF <sub>2</sub> )	359-35-3	1 000
HFC-134a (1,1,1,2-tetrafluoroethane)	C <sub>2</sub> H <sub>2</sub> F <sub>4</sub> (Structure: CH <sub>2</sub> FCF <sub>3</sub> )	811-97-2	1 300
HFC-143 (1,1,2-trifluoroethane)	C <sub>2</sub> H <sub>3</sub> F <sub>3</sub> (Structure: CHF <sub>2</sub> CH <sub>2</sub> F)	430-66-0	300
HFC-143a (1,1,1-trifluoroethane)	C <sub>2</sub> H <sub>3</sub> F <sub>3</sub> (Structure: CF <sub>3</sub> CH <sub>3</sub> )	420-46-2	3 800
HFC-152a (1,1-difluoroethane)	C <sub>2</sub> H <sub>4</sub> F <sub>2</sub> (Structure: CH <sub>3</sub> CHF <sub>2</sub> )	75-37-6	140
HFC-227ea (1,1,1,2,3,3,3-heptafluoropropane)	C <sub>3</sub> HF <sub>7</sub>	431-89-0	2 900
HFC-236fa (1,1,1,3,3,3-hexafluoropropane)	C <sub>3</sub> H <sub>2</sub> F <sub>6</sub>	690-39-1	6 300
HFC-245ca (1,1,2,2,3-pentafluoropropane)	C <sub>3</sub> H <sub>3</sub> F <sub>5</sub>	679-86-7	560
<i>Perfluorocarbons (PFCs):</i>			
Perfluoromethane (tetrafluoromethane)	CF <sub>4</sub>	75-73-0	6 500
Perfluoroethane (hexafluoroethane)	C <sub>2</sub> F <sub>6</sub>	76-16-4	9 200
Perfluoropropane (octafluoropropane)	C <sub>3</sub> F <sub>8</sub>	76-19-7	7 000
Perfluorobutane (decafluorobutane)	C <sub>4</sub> F <sub>10</sub>	355-25-9	7 000
Perfluorocyclobutane (octafluorocyclobutane)	c-C <sub>4</sub> F <sub>8</sub>	115-25-3	8 700
Perfluoropentane (dodecafluoropentane)	C <sub>5</sub> F <sub>12</sub>	678-26-2	7 500
Perfluorohexane (tetradecafluorohexane)	C <sub>6</sub> F <sub>14</sub>	355-42-0	7 400



# 4 EMISSIONS REPORTING FORMAT

## 4.1 Reporting Emissions Data

To enter GHG emissions data, the reporter will input numerical values (in units of tonnes) for the emission sources occurring at the facility (up to eight digits in front of the decimal point and up to four digits after the decimal point can be entered). The quantity of emissions in CO<sub>2</sub> equivalent units will be automatically calculated by the EDR system.

A not applicable (N/A) box will be available for each emission source category and gas listed, and the reporter may select this box only in those cases where:

- the emission source or emission type does not occur at the facility; or
- the emissions from a given source are not estimated due to the unavailability of data.

If a reporter has calculated the emissions for a given category or gas type and the emissions are zero, the reporter is to enter the digit “0” in the relevant numeric field.

## 4.2 Carbon Dioxide, Methane and Nitrous Oxide Emissions

The reporting facility needs to calculate and report its direct emissions of the three gases CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O individually. When reporting these emissions, the reporter is required to disaggregate the emissions by the following source categories:

- Stationary Fuel Combustion
- Industrial Process
- Venting and Flaring
- Other Fugitive
- Waste and Wastewater
- On-site Transportation

Additional information on each of these categories is provided in the following subsections.

### 4.2.1 Stationary Fuel Combustion Emissions

This category includes emissions from non-vehicular combustion sources occurring at the facility, where the fuel is burned for the purpose of producing energy (e.g. to generate electricity, heat or steam). This includes on-site waste incineration if the waste is combusted for energy. Emissions from waste incineration used as a disposal method are included under the Waste and Wastewater Emissions category (see section 4.2.5). Special consideration is needed for CO<sub>2</sub> emissions from the combustion of biomass (see section 4.2.7).

This category of emissions is a common, cross-sector type; it is likely that most facilities in the various sectors have on-site operations that produce this type of emissions.

### 4.2.2 Industrial Process Emissions

This category refers to emissions from an industrial process involving chemical reactions other than combustion and where the primary purpose of the industrial process is not energy production. Examples of industrial processes that represent sources of this category of emissions include mineral production (e.g. cement, lime), metal production (e.g. iron and steel, aluminium) and chemical production (e.g. adipic acid, nitric acid).

This category of emissions is expected to be more unique to specific sectors and to specific facilities in a given sector, depending on the operations performed at the facility.

**Note:** In instances where industrial process emissions are produced in combination with emissions from fuel combusted for energy purposes, the emissions are to be categorized according to the primary purpose of the activity — either “energy” or “process.”<sup>16</sup> If the primary purpose is the generation of energy, the emissions

are included under Stationary Fuel Combustion Emissions, and if it is process-related, the emissions are included under Industrial Process Emissions. The reduction of iron in a blast furnace through the oxidation of coke is an example. Invariably, the heat released is used within the process or for other energy needs; however, in this case, since the primary purpose of coke oxidation is to produce pig iron, the emissions are categorized as Industrial Process Emissions.

#### 4.2.3 Venting and Flaring Emissions

Venting emissions are defined as the intentional release to the atmosphere of a waste gas or liquid stream. These include, but are not limited to, emissions of casing gas, associated (or solution) gas, treater, stabilizer, dehydrator off-gas and blanket gas as well as emissions from pneumatic devices that use natural gas as a driver, compressor start-up, pipeline and other blowdowns, and metering and regulation station control loops.

Flaring emissions are defined as intentional releases of gases from industrial activities from the controlled combustion of a gas and/or liquid stream produced on site not for the purpose of producing energy. They may arise from waste petroleum incineration, hazardous emission prevention systems (whether in pilot or active mode), well testing, natural gas gathering systems, processing plant operations, crude oil production, pipeline operations, petroleum refining as well as chemical fertilizer and steel production.

In general, venting and flaring emissions are a result of the handling or processing of fuel in the fossil fuel industries.

**Note:** Flaring of landfill gas is to be accounted for under the Waste and Wastewater Emissions category (see section 4.2.5).

#### 4.2.4 Other Fugitive Emissions

Other fugitive emissions are defined as intentional or unintentional (e.g. leaks) releases of gases from industrial activities, other than those that fall under Venting and Flaring Emissions described above. In general, other fugitive emissions are a result of the handling or processing of fuel in the fossil fuel industries. In particular, they may arise from the production, processing, transmission, storage and use of solid, liquid or gaseous fuels. Examples include leakage from natural gas transmission lines and processing plants, accidental release from oil and gas wells, and releases from the mining and handling of coal.

#### 4.2.5 Waste and Wastewater Emissions

This category refers to any direct emissions from on-site (i.e. at the facility) disposal of waste and waste or wastewater treatment. Sources of emissions from on-site waste disposal and waste or wastewater treatment at a facility may include landfilling of solid waste, flaring of landfill gas, treatment of liquid waste and waste incineration. GHG emissions from waste-to-energy conversion, where waste material is used directly as fuel or converted into fuel, must be calculated and reported under Stationary Fuel Combustion Emissions. There are emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O from waste disposal, and special consideration is necessary for CO<sub>2</sub> emissions originating from biomass materials in waste (see section 4.2.7).

16 This distinction is in accordance with that provided in Volume 1, Reporting Instructions, of IPCC/OECD/IEA (1997: p. 2.1).

#### 4.2.6 On-site Transportation Emissions

This category refers to any direct emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O resulting from fuel combustion in machinery used for the on-site (i.e. at the facility) transportation of products and material integral to the production process. The terminology “integral to the production process” means transporting raw or intermediate products and materials within the production process. Examples of such activities may include:

- equipment used at a steel mill to move molten metal to different stages in the steel production process;
- equipment used at oil sands operations to mine and/or move oil sand or other materials to subsequent on-site processes (e.g. crushing, extraction); and
- equipment used at above- or below-ground mining operations to mine and/or move mined materials or other intermediate products or materials to different on-site production processes.

#### 4.2.7 Memo Item — CO<sub>2</sub> Emissions from Biomass

##### (i) CO<sub>2</sub> Emissions from Combustion of Biomass

The facility may use biomass materials as a fuel source in its on-site combustion processes. The reporting facility is to report the CO<sub>2</sub> emissions from the combustion of biomass fuels, but these are not to be included in the emission totals for the facility. The reporter is to record these emissions separately in the EDR application (as a memo item only). For the CH<sub>4</sub> and N<sub>2</sub>O emissions resulting from the combustion of biomass fuels, the reporter *is to include* these emissions in the facility totals.

Similarly, for waste incineration processes that may be occurring at the facility, the waste stream may be composed of organic (or biomass) materials and fossil fuel-based carbon materials (e.g. plastics, rubber, liquid solvents, waste oil). The CO<sub>2</sub> emissions from the biomass portion being incinerated are to be reported separately in the GHG report as a memo item (not included in the CO<sub>2</sub> emission totals), whereas the CO<sub>2</sub> emissions

resulting from incineration of the fossil fuel-based fraction are included in the facility totals.

As a further example of combustion of biomass materials, in the case of flaring of landfill gas, the CO<sub>2</sub> emissions produced from this combustion process are to be recorded as a memo item (not included in the emission totals), since landfill gas is considered a biomass material. However, the CH<sub>4</sub> and N<sub>2</sub>O emissions from this process are to be included in the emission totals and are to be reported under the Waste and Wastewater Emissions category.

##### (ii) CO<sub>2</sub> Emissions from Non-combustion of Biomass

Waste disposal can produce substantial amounts of CO<sub>2</sub>, a result of aerobic decomposition of organic (or biomass) material in the waste stream. The reporter is not required to report these CO<sub>2</sub> emissions. (Reported and counted emissions are to include CH<sub>4</sub> and N<sub>2</sub>O.)

#### 4.3 Hydrofluorocarbon, Perfluorocarbon and Sulphur Hexafluoride Emissions

The reporting facility also needs to calculate and report its direct emissions of the HFC and PFC gas species listed in Table 1 and the gas SF<sub>6</sub>, if the facility emits these GHGs from industrial processes and industrial product use.

HFC, PFC and SF<sub>6</sub> emissions from industrial processes are described as emissions resulting from a chemical or physical transforming of material, such as HFCs and PFCs used as foam-blowing agents and PFC emissions from anode effects in primary aluminium smelting.

Industrial product use is described as the use of a product for an industrial process that does not react in the process, such as SF<sub>6</sub> and HFCs used in the magnesium industry as a cover gas. Use of SF<sub>6</sub> in electrical equipment (e.g. gas-insulated switchgears, circuit breakers) is also considered as an industrial product use.

The following subsections provide additional details on these GHGs and possible sources of such emissions.

### 4.3.1 Hydrofluorocarbons

#### (i) Overview

HFCs are a series of synthetic gases containing carbon, hydrogen and fluorine (see Table 1 for the individual HFC species). While HFCs are emitted in small quantities, they have disproportionate effects as a result of long atmospheric lifetimes, which in turn lead to large GWPs. The HFC species have 100-year GWPs ranging from 140 to as high as 11 700. The use of HFCs is expected to grow substantially as a result of the phasing out of various ozone-depleting substances (IPCC/OECD/IEA, 1997). HFCs are not included under the Montreal Protocol because they are not considered to be ozone-depleting substances.

#### (ii) Sources

The main sources of HFC emissions from industrial processes and industrial product use include emissions arising from foam blowing and the use of HFCs as a cover gas in metal production.

Emissions of HFCs from other applications, such as refrigeration, air conditioning, propellants in aerosols, fire extinguishers and solvents, are not considered industrial process or industrial product use emissions under the mandatory reporting of GHG emissions and therefore are not to be reported.

### 4.3.2 Perfluorocarbons

#### (i) Overview

PFCs are a family of industrial gases, and they are to be reported by individual PFC gas species (see Table 1). Total emissions of PFCs are relatively low; however, they are potent GHGs, with 100-year GWPs ranging between 6500 and 9200. PFCs are not ozone-depleting substances, so they are not included under the Montreal Protocol (IPCC/OECD/IEA, 1997).

#### (ii) Sources

The main sources of PFC emissions from industrial processes and industrial product use are attributed to two areas — aluminium production and foam blowing. PFC emissions are an undesirable by-product of aluminium production, while PFCs are purchased and used as foam-blowing agents.

Emissions of PFCs from other applications, such as refrigeration, air conditioning, semiconductor manufacturing, solvents, aerosols and fire extinguishing, are not considered industrial process or industrial product use emissions under the mandatory reporting of GHG emissions and therefore are not to be reported.

### 4.3.3 Sulphur Hexafluoride

#### (i) Overview

SF<sub>6</sub> is a synthetic gas with chemical properties that render it relatively inert, which makes it a preferred choice in various industrial applications. It is a particularly potent GHG, with a 100-year GWP of 23 900 and an estimated lifetime of about 3200 years (IPCC/OECD/IEA, 1997).

#### (ii) Sources

The main sources of SF<sub>6</sub> emissions from industrial processes and industrial product use include SF<sub>6</sub> used as a cover gas in magnesium smelting and casting as well as for special foundry products in the aluminium industry. Use of SF<sub>6</sub> as an insulating gas in electrical equipment (e.g. gas-insulated switchgear, circuit breakers) is also considered as an industrial product use.

Emissions of SF<sub>6</sub> from other applications, such as fire suppression and explosion protection, leak detection and various electronic applications, are not considered industrial process or industrial product use emissions under the mandatory reporting of GHG emissions and therefore are not to be reported.

## 4.4 Estimation Methods

The reporting facility must identify and report the type of estimation method or methods used to determine the quantities of emissions reported. Such methods include monitoring or direct measurement, mass balance, emission factors and engineering estimates.

Reporters are reminded of the legal requirement to keep copies of the information submitted, together with any calculations, measurements and other data on which the information is based.

For Phase 1, there are no specific protocols to define how reporters must calculate their GHG emissions. However, where reasonable, reporters should use methods that are consistent with the methodologies approved by the UNFCCC and developed by the IPCC. Refer to sections 2.1–2.4 for background information and a more complete description of the flexibility allotted to reporters in their estimation procedures. If the reporter wishes to obtain further details on the IPCC methodologies, Table 2 presents specific references to the relevant sections of the IPCC Guidelines and the Good Practice Guidance for the emission sources subject to reporting.

**Table 2: Reference to Methodological Guidance in the IPCC Guidelines and Good Practice Guidance, by Emission Source<sup>17</sup>**

Emission Source Category	IPCC Guidelines – Reference Manual (Volume 3)	Good Practice Guidance
CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O		
Stationary Fuel Combustion	Energy chapter (Chapter 1), pages 1.1–1.62	Energy chapter (Chapter 2), pages 2.1–2.43
Industrial Process	Industrial Process chapter (Chapter 2), pages 2.1–2.42	Industrial Process chapter (Chapter 3), pages 3.9–3.38
Venting and Flaring	Energy chapter (Chapter 1), pages 1.99–1.131	Energy chapter (Chapter 2), pages 2.70–2.93
Other Fugitive	Energy chapter (Chapter 1), pages 1.99–1.131	Energy chapter (Chapter 2), pages 2.70–2.93
Waste and Wastewater	Waste chapter (Chapter 6), pages 6.1–6.29	Waste chapter (Chapter 5), pages 5.5–5.31
On-site Transportation	Energy chapter (Chapter 1), pages 1.62–1.91	Energy chapter (Chapter 2), pages 2.44–2.50
HFCs, PFCs, SF <sub>6</sub>		
HFCs	Industrial Process chapter (Chapter 2), pages 2.58–2.59	Industrial Process chapter (Chapter 3), pages 3.93–3.99
PFCs	Industrial Process chapter (Chapter 2), pages 2.34–2.37, 2.58–2.59	Industrial Process chapter (Chapter 3), pages 3.39–3.47, 3.93–3.99
SF <sub>6</sub>	Industrial Process chapter (Chapter 2), pages 2.38–2.39, 2.62–2.63	Industrial Process chapter (Chapter 3), pages 3.48–3.63

<sup>17</sup> The IPCC Guidelines and Good Practice Guidance documents are available on-line at the following link: [www.ipcc-nggip.iges.or.jp/public/public.htm](http://www.ipcc-nggip.iges.or.jp/public/public.htm).

## APPENDIX A: FREQUENTLY ASKED QUESTIONS

### Quick Reference

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Page 24 . . . . .	Q18	The requirements ask facilities to report emissions of three GHGs — CO <sub>2</sub> , CH <sub>4</sub> and N <sub>2</sub> O — by six sources this year. What are the sources, and why have they changed?
Page 24 . . . . .	Q19	In reporting 2004 emissions, “Other” was listed as an emissions source category. This category no longer exists. Where are these emissions to be reported for 2005 data?
Page 25 . . . . .	Q20	When reporting GHG emissions, is the requirement to report as a CO <sub>2</sub> equivalent or actual tonnage of each gas? For example, would I report 100 tonnes of N <sub>2</sub> O or 31 000 tonnes of CO <sub>2</sub> equivalents for N <sub>2</sub> O?
Page 25 . . . . .	Q21	Why does the pipeline definition refer to “pipeline transportation system” while the definition used for other emissions reporting purposes in the NPRI refers to “pipeline installation”?
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## LINKAGES TO EXISTING PROGRAMS

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## GENERAL

### Q1

#### **How many facilities will be affected by mandatory greenhouse gas (GHG) reporting? What sort of facilities are these? Where are they located?**

In Phase 1 of mandatory GHG reporting, only those facilities that emit the equivalent of 100 000 tonnes (100 kt) or more of carbon dioxide (CO<sub>2</sub>) (in CO<sub>2</sub> equivalent units) per year are required to report. This threshold is expected to apply to about 400 facilities across Canada, in all sectors.

Major industrial facilities that produce electricity, heat or steam on site using fossil fuels are those that would typically emit more than 100 kt of GHGs per year. These could include certain power generation facilities, integrated steel mills, facilities involved in smelting and refining metals, petroleum refineries and chemical production facilities. Other operations, such as large landfills and incinerators, could also be subject to mandatory reporting.

### Q2

#### **Are landfills and incinerators included in mandatory reporting of 2005 emissions?**

Yes, any facility that emits more than 100 kt of CO<sub>2</sub> equivalents in 2005 must report. Landfills and incinerators fall within the definition of “facility.” (See the Waste and Wastewater category in section 4.2.5 for technical details).

### Q3

#### **When can I submit the required information for 2005 emissions? Can I send the information before June 1, 2006?**

The information will be collected electronically through an electronic data reporting (EDR) system that has been developed by Statistics Canada. The system is expected to be ready to collect data submissions by March 15, 2006. Reporters will therefore be able to submit their information between March 15, 2006, and June 1, 2006. There is a registration step that must be completed by new reporters before submitting a report (see section 1 for Reporting Process Overview).

### Q4

#### **Are there penalties for not reporting, late submission or faulty reporting?**

All persons who operate a facility that is subject to the reporting requirements outlined in the *Canada Gazette* notice issued on March 12, 2005, under the authority of the *Canadian Environmental Protection Act, 1999* (CEPA 1999) are legally obligated to provide whatever information is required by the notice. Any person in contravention of CEPA 1999 through not reporting, late submission or faulty reporting will be referred to enforcement staff and may be subject to enforcement action. Further information on enforcement and compliance under CEPA 1999 can be found on the following website: [www.ec.gc.ca/CEPARRegistry/enforcement/](http://www.ec.gc.ca/CEPARRegistry/enforcement/).

### Q5

#### **Who must report emissions if the facility underwent a change of operator during 2005?**

If the person who operates the facility that is subject to reporting changes during the calendar year, the person who operates the facility as of December 31, 2005, must report for the entire calendar year.

**Q6****Do emissions need to be reported if a facility closed during 2005?**

If operations at a facility are terminated in any calendar year, the last operator of that facility is required to report for the portion of the calendar year during which the facility was in operation (if the facility emissions meet the reporting threshold requirement).

**Q7****If the parent company of a facility is not Canadian, does the facility need to report?**

If the facility is located in Canada and exceeds the reporting threshold, then the reporter is required to submit a report for the facility. The reporter would not, however, be required to provide parent company information if there is no Canadian parent company.

**Q8****Will you be offering any type of training sessions and/or workshops for GHG reporters?**

It is expected that there will be information sessions again this year, similar to those held during the first year of reporting. Further information will be available in early 2006. Please check the website ([www.ghgreporting.gc.ca](http://www.ghgreporting.gc.ca)) for periodic updates.

**Q9****What is the D-U-N-S number?**

D-U-N-S numbers are unique nine-digit identification sequences that provide unique identifiers of single business entities while linking corporate family structures together. The internationally recognized numbering system is developed and maintained by the private firm of D&B (formerly Dun and Bradstreet).

D&B links the D-U-N-S numbers of parents, subsidiaries, headquarters and branches of more than 62 million corporate family members around the world. Used by the world's most influential standards-setting organizations, the D-U-N-S number is recognized, recommended and/or required by more than 50 global, industry and trade associations, including the United Nations, the U.S. federal government, the Australian government and the European Commission.

If a facility or company does not have a D-U-N-S number, it is not required to get one in order to submit an emissions report.

**Q10****What is a Statement of Certification?**

A Statement of Certification is a document with the company letterhead and signature of an authorized company official stating that the information contained in the attached emissions report is true, accurate and complete.

**Q11****How will I get a Statement of Certification?**

The standard form, Statement of Certification, will be available to reporters through the reporting application. You will be asked to print a Statement of Certification document on company letterhead (at the time of submission), and this document is to be signed by a designated company official who attests to the accuracy and completeness of the submission. The signed original document must then be sent to Environment Canada. (For facilities in Alberta, reporters must also send a second signed Statement of Certification to the Alberta government).

**Q12****Who is to sign the Statement of Certification on behalf of a reporting facility?**

The reporting facility may designate anyone within its organization to sign, provided that the individual has delegated powers to accept legal responsibility for the information provided and is in a position to knowledgeably attest to the completeness and accuracy of the submitted report. Facilities may, for example, designate the chief executive officer, the environmental coordinator or the plant manager to sign the report certification.

**Q13****Since the *Canada Gazette* notice on reporting requirements for 2005 does not indicate any specific mandatory protocol or methodology for estimation or quantification of GHG emissions, what is the need for a “Statement of Certification” by an officer of the reporting facility?**

There are two important reasons for the required certification:

1. To provide assurance, from a suitable representative of the reporting facility, that the facility has complied with the reporting requirements. In signing, the officer is attesting that:
  - he/she has reviewed the submitted report and any supporting documents;
  - he/she has exercised due diligence to ensure that the information provided is true and complete; and
  - to the best of the signing officer’s knowledge, the amounts and values provided in the report are accurate, based on reasonable estimates using available data and quantification methodology chosen by the reporting facility.
2. To provide a reasonable degree of openness, transparency and visible accountability in the reporting process and, in so doing, to ensure a high degree of public and stakeholder confidence in the integrity of the reporting system and the results obtained.

**Q14****What are the requirements for the retention of records?**

The March 12, 2005, *Canada Gazette* notice indicates that records must be maintained for a period of three years. This means that for 2005 data, for example, they must be held until March 12, 2008 (three years from the date on which the notice came into force). This conforms to terms of CEPA 1999 that limit notices to a maximum of three years. However, as is the case with other environmental reports required under CEPA 1999, future potential *Canada Gazette* notices may update that requirement and extend the retention of records beyond the three-year period.

**Q15****Will I receive any feedback on my report?**

No, in the current phase of the reporting system, individual feedback to reporters will not normally be provided. However, appropriate government authorities will respond to specific requests for information.

For *general questions* about the federal GHG reporting program, please contact:

Greenhouse Gas Division, Environment Canada  
Place Vincent Massey, 19<sup>th</sup> Floor  
351 St. Joseph Boulevard  
Gatineau QC K1A 0H3  
Telephone: (819) 994-0684  
Facsimile: (819) 953-3006  
Electronic mail: ghg@ec.gc.ca

For *technical assistance* with electronic data reporting, please contact:

Statistics Canada  
Telephone: 1-800-949-9491

For assistance with *Government of Alberta GHG reporting requirements*, please contact:

Richard Melick  
Air Specialist  
Environmental Monitoring and Evaluation Branch  
Alberta Environment  
10<sup>th</sup> Floor, Oxbridge Place  
9820 - 106 Street  
Edmonton, AB T5K 2J6  
Telephone: (780) 422-9495  
Electronic mail: richard.melick@gov.ab.ca

## TECHNICAL INFORMATION

### Q16

#### **Will any guidelines be issued on the estimation of GHG emissions for the 2006 reporting year?**

No, there will be no specific protocols developed for estimating GHG emissions for the first phase of reporting, which continues for the 2006 reporting year (2005 emissions data). Guidance is provided to assist reporters in categorizing emissions and in using the United Nations Framework Convention on Climate Change guidelines. This technical guidance document is designed to help potential reporters determine if they are required to submit a report. It also includes technical information related to GHG emissions to be reported and the required reporting format.

### Q17

#### **If a reporting emitter adopts estimation or quantification protocols for future years that are different from those used in Phase 1 and if the resulting estimates of emissions differ significantly, how will the differing results be handled?**

The purpose behind the phased approach to the development of the full domestic reporting system is to develop, test, assess and refine all aspects of reporting, including estimation and quantification protocols and methodologies. Until suitable methodologies and protocols are finalized, variations in results can be expected if there are changes in selected methodologies from one year to the next. It is important to recall that, as per the *Canada Gazette* notice, reporters are to keep copies of the required information, together with any calculations, measurements and other data on which the information is based.

### Q18

#### **The requirements ask facilities to report emissions of three GHGs — CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O — by six sources this year. What are the sources, and why have they changed?**

Facilities are required to report their CO<sub>2</sub>, methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) emissions in six categories, namely: Stationary Fuel Combustion, Industrial Process, Venting and Flaring, Other Fugitive, Waste and Wastewater and On-site Transportation. These refined source categories provide increased detail that will allow a better understanding of the sources of emissions.

### Q19

#### **In reporting 2004 emissions, “Other” was listed as an emissions source category. This category no longer exists. Where are these emissions to be reported for 2005 data?**

It is expected that most of the emissions that were reported under “Other” last year will fit within the new categories of Waste and Wastewater or On-site Transportation. If any significant emissions do not fit within the six categories defined for 2005 data, they can be included in the comments field of the EDR form.

**Q20**

**When reporting GHG emissions, is the requirement to report as a CO<sub>2</sub> equivalent or actual tonnage of each gas? For example, would I report 100 tonnes of N<sub>2</sub>O or 31 000 tonnes of CO<sub>2</sub> equivalents for N<sub>2</sub>O?**

The reporter will be required to report the emissions of each individual GHG type, expressed in units of tonnes for each. For the example listed above, the reporter would report 100 tonnes of N<sub>2</sub>O.

Please note, however, that when a potential reporter is assessing whether he/she needs to submit a report, he/she will need to convert the emissions to CO<sub>2</sub> equivalent units to compare them with the reporting threshold.

If the facility does meet or exceed the reporting threshold of 100 kt of CO<sub>2</sub> equivalents for 2005, emissions for that facility must be reported.

**Q21**

**Why does the pipeline definition refer to “pipeline transportation system” while the definition used for other emissions reporting purposes in the NPRI refers to “pipeline installation”?**

The definition used for National Pollutant Release Inventory (NPRI) purposes focuses on emissions of criteria air contaminants from *stationary* combustion sources at a pipeline installation (a collection of equipment at a single site, including compressor and storage stations), whereas for GHG reporting purposes, the concern is with both point source emissions at such sites along a pipeline as well as *fugitive* emissions along the length of the entire pipeline system.

A natural gas transmission company that has several pipeline operations or networks within and across several provinces is to use the provincial boundaries to identify its “pipeline transportation systems” and then report GHG emissions for each discrete system.

**Q22**

**I have a facility that is a pipeline transportation system. What should I enter as the location of this facility?**

The location of a pipeline transportation system can be defined as the location of the largest unit in the system. Alternatively, you could define the location of the facility as the point where the boundary coincides with the point of entry or start of the pipeline system. A third possibility is to specify the location of the start and end points of the system using longitudinal and latitudinal coordinates. A description of the extent of the pipeline system and an indication of nearby cities or towns would also be helpful in locating such a facility. Once a location has been selected for the first year of reporting, it is important that it be kept constant in subsequent years (unless it no longer applies for some reason). The explanations above apply similarly to facilities other than pipeline transportation systems that are spread out over large areas.

**Q23**

**What should be entered as the location of an offshore installation?**

Offshore installations are to be specified using longitudinal and latitudinal coordinates.



**Q24****How does the presence of a cogeneration unit on site influence emissions reporting? What if I am not the operator of the cogeneration unit?**

If there is a cogeneration unit located on site at your facility and it generates direct GHG emissions, these emissions are to be reported. The emissions are to be categorized under Stationary Fuel Combustion, since cogeneration units produce energy (typically of at least two forms). Total direct GHG emissions are to be reported, even if some of the resultant energy is exported off site. If the operator of the cogeneration unit is different from the operator of the overall facility, a separate report is to be submitted by the operator of the cogeneration unit (if the reporting threshold is reached).

**Q25****Do emissions related to space heaters need to be reported?**

Yes, reporters are required to include emissions from space heaters utilizing combustion (i.e. burning fuel), and these emissions are to be included as part of the total under the Stationary Fuel Combustion category (unless the fuel burned is a biomass material, in which case special consideration is necessary for the CO<sub>2</sub> emissions — see section 4.2.7).

**Q26****Am I required to report emissions from the combustion of biomass?**

Yes, it is necessary to calculate and report the quantity of emissions of CH<sub>4</sub> and N<sub>2</sub>O from the combustion of biomass materials. This includes emissions resulting from biomass burned for any purpose *except* land clearing (see note below). The CO<sub>2</sub> emissions from biomass combustion should be reported in a separate notation as a memo item and are not to be included as part of the total emissions from the facility. The CH<sub>4</sub> and N<sub>2</sub>O emissions, however, are to be included in the emission totals.

The following materials are considered to be biomass materials:

- plant materials, animal waste or any product made of either of these;
- wood and wood products;
- charcoal;
- agricultural residues and wastes;
- organic material above and below ground, both living and dead, such as trees, crops, grasses, tree litter, roots, etc.;
- municipal and industrial wastes (where the organic material is biological in origin; this would include wastewater treatment sludges from pulp and paper plants). It is important to note that only the biomass portion of industrial or municipal waste is to be included in this category. If the portion derived from fossil fuels is combusted, the emissions from this portion must follow the rules for non-biomass-based sources;
- bio-alcohols;
- black liquor;
- landfill gas;
- sludge gas; and

- animal or plant-derived oils.

Note: Occasionally, tree stumps, branches, twigs and leaves are burned on site as land is cleared. None of the GHGs emitted (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O) from this activity are to be reported.

## Q27

**If most of the CO<sub>2</sub> emissions from my facility are from the burning/combustion of natural gas in the boilers and furnaces, do they count as “CO<sub>2</sub> emissions from the combustion of biomass”?**

Standard commercial natural gas is a fossil fuel and hence does not fall into the category of biomass fuels. Thus, all GHG emissions from the combustion of commercial natural gas (e.g. CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O) must be reported and counted in emission totals or when assessing whether a facility meets the reporting threshold.

Only specialized, biomass-derived natural gas (e.g. CH<sub>4</sub> produced from a digester or landfill and usually used on site) would be considered a biomass fuel. (CO<sub>2</sub> emissions from the combustion of biomass materials are not included in Stationary Fuel Combustion totals, as it is assumed that the biomass is produced in a sustainable manner).

## Q28

**How are emissions from electricity consumption reported by a facility?**

Reporters are required to report on direct GHG emissions only from sources occurring at the facility. For electricity that may be generated on site, total GHG emissions resulting from the generation of this electricity are to be reported even if some of the resultant electricity is exported off site.

The indirect emissions associated with the import of electricity (not generated on site) are not to be reported.

## Q29

**Where should CO<sub>2</sub> emissions from natural gas sweetening be reported in terms of categorization?**

CO<sub>2</sub> released as a result of processing, such as the sweetening of natural gas, should be reported in the Venting and Flaring category (as it is venting in this case).

## Q30

**Do I need to report transportation emissions?**

As stated in the *Canada Gazette* notice of March 12, 2005, on-site transportation emissions must now be reported under their own category (as opposed to reporting in 2005, where these emissions were to be reported under the broader “Other” category). Only emissions from on-site transportation activities that are integral to the production process of the facility must be reported. As an example, the transport of feed materials (e.g. by truck or rail) from their on-site storage location to a specific process unit would be considered integral to the production process. An example of a transportation activity that is non-integral to the production process would be a manager who uses a company vehicle (e.g. pickup truck or car) to conduct inspections of activities on the grounds of the facility. Additionally, emissions from transportation to and from the facility are not to be reported.

## ELECTRONIC DATA REPORTING (EDR) SYSTEM

### Q31

#### Who will be collecting the data/information?

The required information (emissions and related data) will be collected by Statistics Canada through an EDR system on behalf of Environment Canada and Alberta Environment. Statistics Canada will also be collecting this information for its own statistical and research purposes.

### Q32

#### How secure is the access to the on-line electronic reporting system?

Statistics Canada has provided the infrastructure, methods and tools to ensure that your data are kept confidential and secure. Encryption, firewalls, intrusion detection software and operating system security protect your data.

State-of-the-art security technologies have been used to build a secure staging area (SSA) to protect the confidentiality of your data. This secure area is physically disconnected from the Internet.

Once transmitted to the SSA, your data are protected by authentication using public key infrastructure (PKI) certificates. These certificates are used to monitor, control, protect and confirm the identity of users.

When you log in to the GHG Reporting Site, you will be issued a certificate. This certificate attaches to your browser while you are logged in to the site. The information from your questionnaire that you transmit back to Statistics Canada will be encrypted using this certificate.

In addition, all communication with Statistics Canada takes place through a secure socket layer (SSL) — adding another layer of security to your transaction.

### Q33

#### Is there a guideline available on how to use the EDR?

The EDR site will provide reporters with on-screen instructions, definitions and explanations to assist them in their registration and in completing their reports. Additionally, a telephone help line service will be available during core business hours to assist reporters who have technical concerns or other questions.

### Q34

#### What hardware and software do reporters need to use the EDR system?

Reporters will require the following hardware and software:

Hardware:

- Pentium-class computer
- 56K or greater speed modem or a high-speed connection

Software:

- Operating system: Microsoft Windows 95, 98, NT (with service pack 4 or higher), 2000, Millennium Edition, XP (Home Edition and Professional)
- Web browser: Microsoft Internet Explorer 4.01 or higher or Netscape Communicator 4.06 or 7.76

The EDR system is not compatible with Macintosh software systems. Reporters who have access to Macintosh systems only can contact the Statistics Canada help line (1-800-949-9491) to obtain information on an alternative reporting method.

**Q35****What do I do if I cannot access the reporting (EDR) website?**

If you require assistance, please contact the help line at **1-800-949-9491** weekdays from 8:00 a.m. to 5:00 p.m. Eastern Time.

**Q36****What do I do if my facility ID or password does not work?**

Please contact the help line at **1-800-949-9491** weekdays from 8:00 a.m. to 5:00 p.m. Eastern Time.

**Q37****Is there an alternative method of reporting emissions?**

Although on-line reporting is preferred, reporters who experience difficulty or do not have access to a computer that meets the system requirements can contact the Statistics Canada help line (**1-800-949-9491**), where they will be provided with information on an alternative reporting method.

**Q38****Do I have to report my data in one session, or will I be able to save my reported data partway through the submission and complete my emissions report later?**

The EDR system will allow reporters to save partial reports that can be retrieved and completed or corrected at a later time. Security provisions have been made to prevent any unauthorized users from tampering with partially completed or submitted reports.

**Q39****Can I use my existing software (i.e. existing company software that is used to collect process or purchase information) to upload files to the Statistics Canada reporting site for Phase 1?**

No, the reporting system will not support software for uploading files for Phase 1. This feature will be considered in subsequent phases.

## PUBLICATION AND CONFIDENTIALITY OF DATA

### Q40

#### **Will the information I provide to Statistics Canada be kept confidential?**

Under the *Statistics Act*, Statistics Canada is prohibited from publishing any information that could identify an individual facility. Information that can be related to an individual business must therefore be protected and kept strictly confidential by Statistics Canada. There are no pieces of legislation that override the confidentiality provisions of the *Statistics Act*; for example, the federal *Access to Information Act* recognizes, in section 24, the statutory prohibition against disclosure set out in the confidentiality provisions of the *Statistics Act*.

The information is also being collected on behalf of Environment Canada, under the authority of CEPA 1999. The Minister of the Environment has indicated the intent to publish information collected pursuant to the March 12, 2005, *Canada Gazette* notice. Persons will be afforded an opportunity to request that their information be treated as confidential and that it therefore not be published. If the Minister is of the view that the information for which a confidentiality request has been submitted is enveloped by one of the enumerated categories of information found in section 52 of CEPA 1999, then the Minister would be authorized to publish the information only pursuant to the public interest exemption found in subsection 53(3) of CEPA 1999. If the Minister questions the validity of a confidentiality request, procedures are set out in section 53 of CEPA 1999 affording persons an opportunity to further justify their claims with both the Minister and, failing which, the Federal Court. The information, once in the hands of Environment Canada, is subject to the provisions of the federal *Privacy Act* and the *Access to Information Act*.

The Alberta *Climate Change and Emissions Management Act* has come into force, and an agreement between Statistics Canada and the Government of Alberta enables Statistics Canada to collect data on GHG emissions on behalf of the Government of Alberta. It is the intention of the Government of Alberta to make public the reported data, subject to the terms of provincial privacy and access to information laws.

Other provinces and territories, with appropriate legislation, may enter into similar agreements with Statistics Canada or are already in the process of putting such agreements in place.

### Q41

#### **Some industries might be concerned that releasing their GHG emissions data to the public could affect their competitive position. How have you addressed those concerns in the reporting system?**

Reporting emitters are required to report GHG emissions whose public disclosure will not affect their competitive position. Similar data are already being collected and disclosed by the Government of Ontario as well as the Alberta government. In addition, federal legislation provides companies with the opportunity to request the non-public disclosure of data whose publication they feel would jeopardize their competitive position, as defined under CEPA 1999. These provisions provide adequate protection of confidentiality where warranted, while at the same time ensuring public access to information that is in the public interest.

**Q42****Who will have access to information reported?**

Statistics Canada will be providing data to the Minister of the Environment, who, as noted above, has indicated the intent to publish facility emissions data (except for confidential data protected under CEPA 1999).

Only non-confidential aggregate data will be published by Statistics Canada.

Assuming that they have in force legislation that provides the authority to collect and compile the reporting of GHG emissions information, provinces or territories will be able to enter into a data-sharing agreement with Statistics Canada. In accordance with their respective provincial or territorial legislation, a copy of the reported data could be made publicly available, subject to terms of provincial or territorial privacy and access to information laws.

**Q43****How do I request that my submission be treated as confidential?**

There are provisions under CEPA 1999 whereby reporters may submit, with the information that they are required to provide, a written request that this information be treated as confidential based on reasons set out in CEPA 1999 (section 52).

During the on-line process of reporting emissions, reporters will be asked if they are requesting confidentiality of their report under CEPA 1999. A similar question will be asked if there are applicable provincial/territorial statutes. The reporter must choose *yes* or *no*; if *yes* is chosen, the reporter must submit a written request along with justification and supporting documentation to Environment Canada (and the Government of Alberta for Alberta facilities). The reporter is to send this written request along with the Statement of Certification by mail, postmarked no later than the reporting deadline. Environment Canada will be alerted by the GHG reporting system that the request has been made, and the entire submission will be kept confidential until the request is processed.

**Q44****If one is granted confidentiality in the first reporting year, must one submit a confidentiality request every year thereafter?**

Yes, a request for confidentiality must be submitted each year, since a request for confidentiality applies only to the reporting year in which the request was made.

**Q45****Is there an appeal process if one has not been granted confidentiality? If so, what is the timeline to submit the appeal?**

Under CEPA 1999, a reporter has the ability to submit an appeal. As per section 53 of CEPA 1999, when a request for confidentiality is denied by Environment Canada, the department will inform the reporter that data submitted by the reporter will be published and that the reporter has the option of having this decision reviewed by the Federal Court within a thirty-day period. If no appeal to the Federal Court is made, then the information is made publicly available. If an appeal is made, the Federal Court reviews the confidentiality request and the reporter's information is kept confidential until this process is complete.

## LINKAGES TO EXISTING PROGRAMS

### Q46

**I currently report emissions to the Ontario Air Emissions Registry. Am I required to submit my information to the federal government as well?**

Yes, you will need to report 2005 data to both reporting systems. Ontario and the federal government are working towards a harmonized GHG reporting system; however, it will not be in place in time to collect 2005 data.

### Q47

**My company operates a facility in Alberta. We are required to make a submission on our GHG emissions to the Alberta government. Will we be required to submit this information to the federal government as well?**

As was the case last year, the 2005 data will be collected through the single-window GHG reporting system for Environment Canada and provincial governments with the requisite authority to compel such information. Reporters will be required to report only once, but separate statements of certification and requests for non-disclosure (if applicable) must be submitted to both legal authorities (Environment Canada and the Government of Alberta).



## APPENDIX B: REFERENCES

Environment Canada (2005), *Canada's Greenhouse Gas Inventory, 1990–2003*, Environment Canada, Gatineau, Quebec, Canada  
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([www.ipcc-nggip.iges.or.jp/public/public.htm](http://www.ipcc-nggip.iges.or.jp/public/public.htm)).

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(<http://unfccc.int/resource/docs/convkp/conveng.pdf>).



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