Manufacturing, Construction and Energy Division

Greenhouse Gas Emissions Report

Ce questionnaire est disponible en français, veuillez téléphoner au 1-800-949-9491

Reference period:
January 1 - December 31, 2004

OBJECTIVE

Accurate tracking of greenhouse gas (GHG) emissions is an important part of assessing Canada's overall environmental performance. By providing a more precise picture of the sources and amounts of Canada's GHG emissions, mandatory reporting will contribute to the development, implementation, and evaluation of climate change policies and strategies.

The federal government continues to work in partnership with the provinces and territories to develop an efficient, harmonized, "single-window" domestic reporting system for GHG emissions that supports four complementary objectives:

- to support the federal system for large final emitters (LFEs);
- to meet provincial and territorial legislative and other reporting requirements for GHG emissions and other related information;
- to enhance the detail and level of precision of the National GHG Inventory; and
- to provide Canadians with information on GHG emissions.

Mandatory reporting will help to ensure timely and accurate reporting of GHG emissions, support public confidence in the transparency and integrity of domestic reporting, and provide a consistent basis of reporting across jurisdictions and among various sectors and sources.

AUTHORITY

This information is collected under the authority of the *Statistics Act*, Revised Statutes of Canada 1985, c.S-19, as well as under the authority of the *Canadian Environmental Protection Act, S.C. 1999, c. 33* (CEPA, 1999) and, in addition for facilities in Alberta, the *Climate Change Emissions Management Act, S.A. 2003, c. C-16.7*. Submission of a report is a legal requirement under these Acts.

DATA SHARING AGREEMENTS

In order to avoid duplication and to ease response burden, Statistics Canada has entered into data sharing agreements, under the provisions of Section 12 of the *Statistics Act*, whereby the collected information will be provided to Environment Canada and, in addition, to Alberta Environment for facilities in Alberta. This information is being collected by Statistics Canada for statistical and research purposes, by Environment Canada pursuant to CEPA 1999, and by Alberta Environment pursuant to the Climate Change and Emissions Management Act and the Specified Gas Reporting Regulation.

CONFIDENTIALITY

Statistics Canada is prohibited by law from divulging information collected for its own purposes, that relate to any identifiable business, without the previous knowledge or consent of the business. The information being collected for Statistics Canada will be treated in strict confidence, used for statistical purposes and will only be published in aggregate form, in accordance with the *Statistics Act*. The confidentiality provisions of the *Statistics Act* are not affected by either the *Access to Information Act* or any other legislation.

Environment Canada will release the collected information to other government organizations and the public in general, in accordance with the provisions of the *Canadian Environmental Protection Act, S.C. 1999, c. 33* (CEPA). For facilities in Alberta, the information may also be released in accordance with the *Climate Change Emissions Management Act, S.A. 2003, c. C-16.7* and the Specified Gas Reporting Regulation. Reporters can request that their information be treated as confidential by Environment Canada and, if in Alberta, by Alberta Environment (refer to Section VIII of this report for more information).

5-3100-5081.1: 2005-03-09 STC/IND-310-75372

Instructions for completing the report

This Greenhouse Gas Emissions Report collects data at the facility level.

1. **Complete** one report for each facility that emitted 100 kilotonnes or more (in CO_2 equivalent units) of GHGs in 2004.
2. **Return Date:** Please submit the completed report no later than **June 1, 2005**.
3. **Read the instructions** provided on each page.
4. **Definitions** are provided on page 15 for terms marked with an asterisk (*).
5. **Chemical Abstract Service (CAS)** Numbers and **Global Warming Potentials (GWP)** are provided in the glossary on page 24.

SECTION I. REPORTER* INFORMATION

First name

Last name

Position/Title

Telephone number ( ) -

ext. *(Maximum of 5 digits)*

Fax number ( ) -

E-mail address *(e.g. abcd@efghijk.ca)*

Mailing address

City/District/Municipality

Province/Territory

Postal code

Preferred language of correspondence: English French

Reporting company* legal name*

Reporting company trade name*

Reporting company business number*

SECTION II. FACILITY* INFORMATION

Facility name*

Facility location* *(actual location, not mailing address)*
Street or rural address*

City/District/Municipality

Province/Territory

Postal code

NPRI ID* *(if applicable)*

AB Approval Number* *(for Alberta facilities only)*

NAICS Code* *(a search tool is available to find a NAICS Code at the website: ghgreporting.gc.ca)*

SECTION III. ADDITIONAL CONTACT INFORMATION

Public Contact*

☐ Same as Reporter *(Check this box if Public Contact information is the same as Reporter information)*

First name

Last name

Position/Title

Telephone number ( ) -

ext. *(Maximum of 5 digits)*

Fax number ( ) -

E-mail address *(e.g. abcd@efghijk.ca)*

Mailing address

City/District/Municipality

Province/Territory

Postal code

Certifying Official*

☐ Same as Reporter *(Check this box if Certifying Official information is the same as Reporter information)*

☐ Same as Public Contact *(Check this box if Certifying Official information is the same as Public Contact information)*

First name

Last name

Position/Title

Telephone number ( ) -

ext. *(Maximum of 5 digits)*

Fax number ( ) -

E-mail address *(e.g. abcd@efghijk.ca)*

Mailing address

City/District/Municipality

Province/Territory

Postal code

SECTION IV. PARENT COMPANY INFORMATION

Enter information for each **Canadian** parent company* that owned 10% or more of the Reporting Company* on December 31, 2004.

Parent Company 1

Legal name*

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number* of parent company | DUNS number* of parent company *(if applicable)*

Parent Company 2

Legal name

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number of parent company | DUNS number of parent company *(if applicable)*

Parent Company 3

Legal name

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number of parent company | DUNS number of parent company *(if applicable)*

Parent Company 4

Legal name

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number of parent company | DUNS number of parent company *(if applicable)*

Parent Company 5

Legal name

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number of parent company | DUNS number of parent company *(if applicable)*

SECTION IV. PARENT COMPANY INFORMATION (concluded)

Parent Company 6

Legal name

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number of parent company | DUNS number of parent company *(if applicable)*

Parent Company 7

Legal name

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number of parent company | DUNS number of parent company *(if applicable)*

Parent Company 8

Legal name

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number of parent company | DUNS number of parent company *(if applicable)*

Parent Company 9

Legal name

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number of parent company | DUNS number of parent company *(if applicable)*

Parent Company 10

Legal name

% ownership of reporting company %

Mailing address

City/District/Municipality | Province/Territory | Postal code

Business number of parent company | DUNS number of parent company *(if applicable)*

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SECTION V. MAIN SECTOR OF ACTIVITY

Please select the main sector of activity for this **facility**.

- ○ **Oil & Gas***
  - Bitumen production by extraction from mined bituminous sands
  - Bitumen production by *in-situ* extraction from bituminous sands
  - Conventional heavy crude oil production
  - Conventional light/medium crude oil production
  - Frontier light/medium oil production
  - Natural gas distribution
  - Natural gas processing
  - Natural gas production
  - Natural gas transmission
  - Petroleum refining
  - Synthetic crude oil production (or upgrading)

- ○ **Manufacturing & Mining***
  - Aluminium and alumina
  - Cement
  - Chemical fertilizer
  - Chemicals
  - Glass
  - Lime
  - Mining of iron ore
  - Pulp & paper
  - Smelting and refining
  - Steel

- ○ **Electricity***
  - Thermal electricity generation
  - Useful thermal energy for sale generation

- ○ **Other**
  - Municipality and government
  - Other industrial, commercial, and institutional activities
  - Other

SECTION VI. GHG EMISSIONS INFORMATION

This section consists of:

PART A. GHG Emissions for 2004

PART B. GHG Emissions Calculation Methods

PART C. Total GHG Emissions

For PART A:

- Report Carbon Dioxide (CO_2), Methane (CH_4) and Nitrous Oxide (N_2O), Emissions by Source:
  - Stationary Combustion Emissions*
  - Industrial Process Emissions*
  - Fugitive Emissions*
  - Other Emissions*

- Report CO_2 emissions from biomass* combustion as a separate item.

- Report hydrofluorocarbon* (HFC), perfluorocarbon* (PFC) and sulphur hexafluoride* (SF_6) emissions by species.

SECTION VI. GHG EMISSIONS INFORMATION (continued)

PART A - GHG Emissions for 2004

INSTRUCTIONS

Report the direct* greenhouse emissions for this facility from January 1 to December 31, 2004.

An entry is **required** for the total emissions **for each gas type** and **emission category** below.

(1) Enter the appropriate quantity in tonnes.
(You may enter up to 8 digits in front of the decimal and up to 4 digits after the decimal);
- Enter a "0" (zero) if the emission was measured and the result was zero;
- Check "N/A" (not applicable*) if the emissions are not present or the emissions are not measured due to a lack of data.

(2) Calculate the quantity in tonnes of CO_2 equivalent units* by multiplying the quantity you entered in tonnes by the Global Warming Potential (GWP)* of the given GHG.

The CAS (Chemical Abstract Service) number* for each gas can be viewed on page 24.

TOTAL Stationary Combustion Emissions*

	N/A	(1) Tonnes		GWP		(2) Tonnes *(in CO_2e)*
Carbon dioxide (CO_2)	○		X	1	=	
Methane (CH_4)	○		X	21	=	
Nitrous oxide (N_2O)	○		X	310	=	
				Total:		

TOTAL Industrial Process Emissions*

Carbon dioxide (CO_2)	○		X	1	=	
Methane (CH_4)	○		X	21	=	
Nitrous oxide (N_2O)	○		X	310	=	
				Total:		

TOTAL Fugitive Emissions*

Carbon dioxide (CO_2)	○		X	1	=	
Methane (CH_4)	○		X	21	=	
Nitrous oxide (N_2O)	○		X	310	=	
				Total:		

Of the Total Fugitive Emissions reported above, how much was from Venting and Flaring? (non-mandatory)

Venting & Flaring Emissions*

Carbon dioxide (CO_2)	○		X	1	=	
Methane (CH_4)	○		X	21	=	
Nitrous oxide (N_2O)	○		X	310	=	
				Total:		

SECTION VI. GHG EMISSIONS INFORMATION (continued)

TOTAL Other Emissions*	N/A	(1) Tonnes	GWP	(2) Tonnes *(in CO_2e)*
Carbon dioxide (CO_2)	◯		X 1 =	
Methane (CH_4)	◯		X 21 =	
Nitrous oxide (N_2O)	◯		X 310 =	
			Total:	

Of the Total Other Emissions reported above, how much was from On-Site Transportation? (non-mandatory)

On-Site Transportation Emissions*				
Carbon dioxide (CO_2)	◯		X 1 =	
Methane (CH_4)	◯		X 21 =	
Nitrous oxide (N_2O)	◯		X 310 =	
			Total:	

Biomass Emissions*
(Do not include in total)

Carbon dioxide from biomass* (CO_2)	◯		X 1 =	

Hydrofluorocarbon (HFC) Emissions*

HFC-23 (CHF_3)	◯		X 11 700 =	
HFC-32 (CH_2F_2)	◯		X 650 =	
HFC-41 (CH_3F)	◯		X 150 =	
HFC-43-10mee ($C_5H_2F_{10}$)	◯		X 1 300 =	
HFC-125 (C_2HF_5)	◯		X 2 800 =	
HFC-134 (CHF_2CHF_2)	◯		X 1 000 =	
HFC-134a (CH_2FCF_3)	◯		X 1 300 =	
HFC-143 (CHF_2CH_2F)	◯		X 300 =	
HFC-143a (CF_3CH_3)	◯		X 3 800 =	
HFC-152a (CH_3CHF_2)	◯		X 140 =	
HFC-227ea (C_3HF_7)	◯		X 2 900 =	
HFC-236fa ($C_3H_2F_6$)	◯		X 6 300 =	
HFC-245ca ($C_3H_3F_5$)	◯		X 560 =	
			Total:	

SECTION VI. GHG EMISSIONS INFORMATION (continued)

Perfluorocarbon (PFC) Emissions*

	N/A	(1) Tonnes		GWP		(2) Tonnes *(in CO_2e)*
Perfluoromethane (CF_4)	○		X	6 500	=	
Perfluoroethane (C_2F_6)	○		X	9 200	=	
Perfluoropropane (C_3F_8)	○		X	7 000	=	
Perfluorobutane (C_4F_{10})	○		X	7 000	=	
Perfluorocyclobutane (c-C_4F_8)	○		X	8 700	=	
Perfluoropentane (C_5F_{12})	○		X	7 500	=	
Perfluorohexane (C_6F_{14})	○		X	7 400	=	
					Total:	

Sulphur Hexafluoride (SF_6) Emissions*

Sulphur hexafluoride (SF_6)	○		X	23 900	=	
					Total:	

SECTION VI. GHG EMISSIONS INFORMATION (concluded)

PART B - GHG emission calculation methods

Indicate the method(s) used to calculate the emissions reported. *(Check all that apply)*

- Monitoring or Direct Measurement* ◯
- Mass Balance* ◯
- Emission Factors* ◯
- Engineering Calculation* ◯

PART C - Total GHG Emissions

(1) Calculate the total quantity (in tonnes) for each GHG type, except for HFCs and PFCs, by adding the individual quantities (in tonnes) recorded in PART A.

(2) Calculate the total quantity (in tonnes of CO_2 equivalent) for each GHG type by adding the individual quantities (in tonnes of CO_2 equivalent) recorded in PART A.

(3) Determine the total GHG emissions for the facility (in tonnes of CO_2e) by adding the total quantities (in tonnes of CO_2e) recorded below for each GHG type.

Note: CO_2 emissions from biomass combustion are not included in the totals (record as a separate item).

Total GHG Emissions for the Facility

Greenhouse Gas	N/A	(1) Tonnes	(2) Tonnes *(in CO_2e)*
Carbon dioxide (CO_2)	◯		
Methane (CH_4)	◯		
Nitrous oxide (N_2O)	◯		
Hydrofluorocarbons (HFCs)	◯		
Perfluorocarbons (PFCs)	◯		
Sulphur Hexafluoride (SF_6)	◯		
		(3) **Total:**	
CO_2 emissions from biomass	◯		

SECTION VII. COMMENTS

This section is optional.·

- Enter any comments you wish to include related to the information you have reported.
- If you are a reporter in Alberta, you may use this comment field to provide information referred to in Section 6 of the Specified Gas Reporting Regulation - Additionnal Specified Gas Emission Information.
- Enter your company or facility website if you wish to provide more information. *(e.g. contextual information on environmental activities, etc.)*

Comments:

Website:

SECTION VIII. CONFIDENTIALITY REQUEST

The 2004 Gazette Notice indicated that the Minister of the Environment intends to publish the information collected on 2004 emissions.

Under the Canadian Environmental Protection Act (CEPA 1999) and the Alberta Climate Change and Emissions Management Act, you can request that part or all of the information that you have provided in this report be treated as confidential. You must provide appropriate justification to support this request. (see Confidentiality Request* in the Definitions section (page 23) for more information)

Are you requesting confidentiality of this report under CEPA? . . . . . ◯ Yes ◯ No

If yes, you must **submit a written request** with appropriate justification and supporting documentation by mail to Environment Canada with **your report submission**. Environment Canada will be in contact with you regarding your request.

Environment Canada
GHG Division
Place Vincent Massey, 19th Floor
351 St-Joseph blvd.
Gatineau, Quebec
K1A 0H3

For Alberta facilities only:

Are you requesting confidentiality of this report under the Alberta Climate Change and Emissions Management Act? . . . . . ◯ Yes ◯ No

If yes, you must **submit a written request** with appropriate justification and supporting documentation by mail to Alberta government with y**our report submission**. The Alberta government will be in contact with you regarding your request.

Director
Environmental Monitoring and Evaluation Branch
Environmental Assurance
10th Floor, Oxbridge Place
9820-106 Street
Edmonton, Alberta
T5K 2J6

SECTION IX. STATEMENT OF CERTIFICATION

A signed and dated Statement of Certification* (SoC) must be submitted for the 2004 GHG report.

This statement is to contain facility information, total GHG emissions, and the name and contact information for the Certifying Official for the report.

Before completing the Statement of Certification:

1. **Review** the GHG report and make any required corrections.

To complete the Statement of Certification:

1. **Print** the blank Statement of Certification (SoC) that was sent to you on company letterhead.
2. **Complete** the SoC by copying the appropriate information from the GHG report.
3. **Have** the completed SoC signed by the Certifying Official.

   (NOTE: If this facility is in Alberta, prepare 2 copies.)

SECTION X. SUBMIT YOUR REPORT

You have now completed the GHG report.

The GHG report, the Statement of Certification and the request for confidentiality, including justification and supporting documentation (if applicable), are to be submitted **no later than June 1, 2005**.

1. **Retain** a copy of all information submitted and all other information upon which this report is based.

2. **Send** the report by mail to Statistics Canada.

   GHG Reporting
   Statistics Canada
   11th Floor, Section B-8,
   Jean Talon Building,
   Ottawa, Ontario
   K1A 0T6

3. **Send** the signed Statement of certification by mail to Environment Canada. If the facility is located in Alberta, **send** a second signed Statement of Certification to Environment Canada (it will be forwarded to the Alberta government).

   Environment Canada
   GHG Division
   Place Vincent Massey, 19th Floor
   351 St-Joseph blvd.
   Gatineau, Quebec
   K1A 0H3

DEFINITIONS / EXPLANATORY INFORMATION

SECTION I. REPORTER INFORMATION

Reporter

The individual who will serve as the main contact for the reporting company or reporting facility. This individual should be the person completing the report and he/she will receive all information, mailings and inquiries regarding this reporting requirement.

Reporting Company

The person or company that operates the facility that is required to submit a GHG report. If your company operates more than one reporting facility, ensure that the company name is used consistently for all facilities. In Alberta, the reporting company is the person responsible for the facility.

Legal Name

For corporations, it is the corporate name appearing on either the Articles or Certificate of Incorporation, or the Memorandum of Association. The legal name for partnerships may vary, depending on the province in which the partnership is based. Provincial statutory requirements may exist for the legal names of both limited partnerships, and limited liability partnerships. If there is no provincial statutory requirement, the legal name of the partnership may require the inclusion of every name belonging to the partnership. For individuals operating a business that is neither a corporation nor a partnership, it is the individual's first and last name.

Trade Name

The name under which an individual, partnership or corporation chooses to operate. It is synonymous with "Operating Name". The operating name is the name by which the company may be known to its customers or clients. It may be the same as the Legal Name but this is not always the case.

Business Number

A nine-digit registration number issued by the Canada Revenue Agency (CRA) to Canadian businesses that register for one or more of the following accounts: 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 Business Number. This registration number will stay the same no matter how many or what types of accounts a business has.

SECTION II. FACILITY INFORMATION

Facility

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

Contiguous Facility

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

Equipment

Includes transportation machinery integral to the production process(es) carried on at the facility.

Pipeline Transportation System

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''.

Offshore Installation

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.

DEFINITIONS / EXPLANATORY INFORMATION (continued)

Facility pursuant to Alberta's Specified Gas Reporting Regulation

Means (i) any plant, structure or thing where an activity listed in section 2 of the Schedule of Activities to the Environmental Protection and Enhancement Act occurs, and (ii) a site or one or more contiguous or adjacent sites that are operated and function in an integrated fashion where an activity listed in any of sections 3 to 11 of the Schedule of Activities to the Environmental Protection and Enhancement Act occurs, including all the buildings, equipment, structures, machinery and vehicles that are an integral part of the activity.

Facility Name

The name of the facility or any other information which, in addition to the "Reporting Company" name, completely identifies the facility. For example:

REPORTING COMPANY NAME	FACILITY NAME
Specialty Pharmaceuticals	Liquids Plant
XYZ Airlines	Calgary
ABC Refineries	Alberta Processing Plant
International Manufacturing	ABC Manufacturing Division

Facility Location

The site address of the facility (i.e. where the facility is physically located). Enter the street address (street number, street name and other identifiers such as suite number or building designation) or rural address for the facility. **Do not use** a mailing address (e.g. post office box). If a street or rural address is not available, enter latitude and longitude information (using the format: degrees, minutes, seconds).

Rural Address

Information that describes the land on which the facility is located. For example:

- Quarter, Section, Township, Range, Meridian or
- Lot, Concession, Township, County or
- Lot, Range, Parish, County or
- Land descriptions used in the region.

Alberta (AB) Approval Number

The number of the approval or registration given to your facility in the province of Alberta if it is subject to an *Environmental Protection and Enhancement Act* (EPEA) approval or registration. This is only applicable to facilities located in the province of Alberta. This number will consist of a family approval number (up to 8 digits), followed by the renewal number (2 digits if you have had a renewal of your approval), followed by an amendment number (2 digits if you have had amendments) (e.g. 12345678-12-12). **Only enter the family approval number**. From the above example, this would be: 12345678.

National Pollutant Release Inventory Identification (NPRI ID)

A permanent number that was assigned to your facility if an NPRI report was previously submitted for your facility. The NPRI ID is specific to the facility, at a particular location, and does not change even if ownership or the name of the facility does.

North American Industry Classification System (NAICS) Code

A six-digit code that was developed by Statistics Canada, the U.S. Office of Management and Budget and Mexico's Instituto Nacional de Estadistica Geografia e Informatica, 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. Industries within these sectors are grouped according to their production processes. Enter the classification code that best describes the primary activity at the facility.

SECTION III. ADDITIONAL CONTACT INFORMATION

Public Contact

The Public Contact does not have to be the same person who prepares the report or signs the Statement of Certification and does not necessarily need to be someone at the reporting facility. However, this person should be able to answer questions from the public about the report. The public contact will be identified in the GHG report that is released to the public.

Certifying Official

The authorized company official who is signing the required Statement of Certification to be submitted with the GHG report. This person must have delegated powers to accept legal responsibility for the information provided. Some facilities may choose a CEO, the environmental coordinator or the plant manager. The name of the company official will not appear in the public report.

SECTION IV. PARENT COMPANY INFORMATION

Parent Company

The person or highest level company or group of companies that owns the reporting company.

Business Number

A nine-digit registration number issued by the Canada Revenue Agency (CRA) to Canadian businesses that register for one or more of the following accounts: 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 Business Number. This registration number will stay the same no matter how many or what types of accounts a business has.

DUNS Number

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. Enter the DUNS number for your parent company if applicable. This number may be available from your company's treasurer or financial officer.

SECTION V. MAIN SECTOR OF ACTIVITY

The activities defined below represent the primary sources of emissions likely to be subject to GHG reduction targets under the proposed federal Large Final Emitter (LFE) system.

Oil & Gas

Bitumen production by extraction from mined bituminous sands

The production of bitumen that has a density of 1,000 kg/m^3 or greater (10º API or less) and a viscosity of 10,000 centipoises or greater by extraction from mined bituminous sands.

Bitumen production by in-situ extraction from bituminous sands

The production of bitumen (a very heavy form of crude oil) that has a density of 1,000 kg/m^3 or greater (10º API or less) and a viscosity of 10,000 centipoises or greater by "in-situ" extraction from bituminous sands.

Conventional heavy crude oil production

The production of crude oil that has a density of greater than 900 kg/m^3 (less than 25º API) but less than 1,000 kg/m^3 (more than 10º API) obtained via "conventional" recovery methods (i.e., normal primary, secondary or tertiary processes) from a "conventional" source (i.e., not from bituminous sands, shales or carbonates) in a "conventional" location (i.e., not from the frontier, including the offshore).

Conventional light/medium crude oil production

The production of crude oil that has a density of less than 900 kg/m^3 (greater than 25º API) obtained via "conventional" recovery methods (i.e., normal primary, secondary or tertiary processes) from a "conventional" source (i.e., not from bituminous sands, shales or carbonates) in a "conventional" location (i.e., not from the frontier, including the offshore).

Frontier light/medium oil production

The production of crude oil that has a density of less than 900 kg/m^3 (greater than 25º API) obtained via "conventional" recovery methods (i.e., normal primary, secondary or tertiary processes) from a "conventional" source (i.e., not from bituminous sands, shales or carbonates) in a frontier (including an offshore) location.

Natural gas distribution

Natural gas distribution comprises the transport and ancillary storage of marketable natural gas from the terminus of a natural gas transmission system to the end-use consumers of the marketable natural gas.

Natural gas processing

The processing of natural gas encompasses the facilities (processing plants) located between the field batteries and the beginning of the long-haul transmission pipelines, which separate out more of the impurities and heavier hydrocarbon components until the transmission pipeline specifications are met.

Natural gas production

The production of natural gas ("NGProd") encompasses the collection of the natural gas, as it comes from the ground, into field batteries, which begin the process of separating out the impurities and heavier hydrocarbon components.

Natural gas transmission

Natural gas transmission comprises the transport and ancillary storage of marketable natural gas from a natural gas battery or natural gas plant to the head of a natural gas local distribution system.

Petroleum refining

The production of refined petroleum products ("RPPs") from natural gas liquids and a mixture of various types of crude oil using any of a wide variety of particular refining equipment and installations.

Synthetic crude oil production (or upgrading)

The production of synthetic crude oil ("SCO") obtained via the upgrading of heavy oil, including but not limited to, bitumen.

DEFINITIONS / EXPLANATORY INFORMATION (continued)

Manufacturing & Mining

Aluminium and alumina

The production of alumina from bauxite or primary aluminum from alumina. This includes the anode making process and excludes secondary activities such as rolling, drawing, casting or extruding aluminum into basic shapes.

Cement

Production of cement from limestone. The activity of quarrying limestone and shipping this to the kiln is excluded.

Chemical fertilizer

The production of nitrogenous fertilizer materials. Also includes the production of nitric acid, whether or not for use as a fertilizer material.

Chemicals

The production of ethylene, propylene, benzene, toluene, xylene and other petrochemicals. Also includes the production of alpha olefins, terephthalic acid, styrene, ethylene glycol, methanol, adipic acid, diamine, TiO_2 pigment, carbon black, chlorine, iso-butane, linear alkyl benzene, methylamine, hydrogen. Emissions related to the production of resins, pharmaceuticals, adhesives and other chemicals not defined above are excluded.

Glass

Production of glass from sand and cullet.

Lime

The production of lime from limestone. The activity of quarrying limestone and shipping this to the kiln is excluded.

Mining of iron ore

The production of iron ore pellets including the processing and agglomeration of iron ore concentrate into iron ore pellets (both flux and acid pellets).

Pulp & paper

The production of newsprint, pulp, paperboard and other paper products. This does not include any emissions associated with the production of wood products, paper converting activities; wastewater effluent treatment equipment or landfill sites.

Smelting and refining

The smelting of non-ferrous metals, except aluminium, from ores or recycled materials; and refining these metals by electrolytic or other processes. Emissions from secondary activities, such as rolling or extruding basic shapes, from metal are not included.

Steel

The production of steel from iron ore and/or scrap iron. This includes production from blast furnaces, electric arc furnaces and direct reduced iron furnaces and any related coke or lime making operations. This does not include emissions associated with the production of cold rolled steel products.

Electricity

Thermal electricity generation

The generation of electricity from fossil fuels or fuels derived from fossil fuels.

Useful thermal energy for sale generation

“Useful Thermal Energy” means thermal energy, including, but not limited to, steam, used in any heating or cooling application, or in any industrial or commercial process, with the exception of on-site electricity production.

SECTION VI. GREENHOUSE GAS EMISSION INFORMATION

Direct emissions

GHG emissions from sources that are actually located at the reporting facility.

Carbon dioxide equivalent (CO_2e)

A unit of measure used to allow the addition or the comparison between different gases that have a Global Warming Potential (GWP). Since many GHGs exist and their GWPs vary, the emissions are added in a common unit, CO_2 equivalent. To express GHG emissions in units of CO_2 equivalent, the quantity of a given GHG (expressed in units of mass) is multiplied by its GWP.

Global Warming Potential (GWP)

A relative measure of the warming effect that the emission of a GHG might have on the Earth's atmosphere. Calculated as the ratio of radiative forcing (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 carbon dioxide. For example, the GWP for nitrous oxide (N_2O) is 310, which means that 1 kg of N_2O emissions is equivalent to 310 kg of CO_2 emissions.

CAS number (or CAS registry number)

Refers to the Chemical Abstract Service number, a unique numerical identifier that is given to a chemical compound. The Chemical Abstracts Service, a division of the American Chemical Society, assigns these identifiers to every chemical that has been described in the literature.

Not Applicable (N/A)

You may only select the N/A box in those cases where:

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

Enter the digit "0" in the numeric field if you have calculated the emissions and they are zero.

Stationary Combustion Emissions

Direct emissions resulting from non-vehicular fuel combustion occurring at the facility 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 Other Emissions*. (See Biomass Emissions* for special consideration of CO_2 emissions from the combustion of biomass).

Industrial Process Emissions

Direct 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 & steel, aluminium) and chemical production (e.g. adipic acid, nitric acid).

Fugitive Emissions

Defined as intentional (e.g. venting and flaring*) or unintentional (e.g. leaks) releases of gases from industrial activities. In particular, they may arise from the production, processing, transmission, storage and use of fuels, and include emissions from combustion only when it does not support a productive activity (e.g. flaring of natural gases at oil and gas production facilities). You are required to enter your total fugitive emissions (including venting and flaring) in the Total Fugitive Emissions field.

Venting and flaring emissions represent a source of emissions likely to be covered under the proposed LFE system. You may also report these emissions separately in the report form (non-mandatory).

DEFINITIONS / EXPLANATORY INFORMATION (continued)

Venting and Flaring Emissions

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

Flaring emissions result from the controlled combustion of a gas and/or liquid stream, produced on-site, for other than fuel purposes, including waste petroleum incineration and hazardous emission prevention systems, whether in pilot or active mode. In upstream petroleum activities, flaring occurs during, among others, well testing, natural gas gathering system and processing plant operations, crude oil production, and pipeline operations. Flaring also occurs as part of the petroleum refining and chemical fertilizer and steel production.

Other Emissions

Any direct emissions that do not fall under Stationary Fuel Combustion, Industrial Processes or Fugitive Emissions. Included are:

- emissions from on-site (i.e. at the facility) disposal of waste, and waste or wastewater treatment; and
- emissions from transportation that is integral to the production process.

You are required to enter your total Other emissions in the Total Other Emissions field (see Biomass Emissions* for special consideration of CO_2 emissions from the combustion of biomass in waste).

On-site transportation emissions* may represent a source of emissions likely to be covered under the proposed LFE system. These emissions may also be reported separately in the report form (non-mandatory).

On-site Transportation Emissions

Refers to emissions that result from transportation that is integral to the production process. This includes emissions from off road transport activities occurring on-site where emissions of CO_2, CH_4 and N_2O result from the associated fuel combustion process. A general example for this category is emissions associated with the transport of intermediate materials from one stage of the production process to another.

Biomass

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, 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, animal or plant-derived oils.

Biomass Emissions

CO_2 emissions from the combustion of biomass are to be reported separately and are not included in the facility's emission total. Enter in this field CO_2 emissions from:

- combustion of biomass fuels
- incineration of the biomass portion of waste (CO_2 emissions from incineration of the fossil-based portion of waste are reported under Other Emissions)

Please note that CH_4 and N_2O emissions from the combustion of biomass are included in the facility's emission total. Enter these emissions either under Stationary Combustion (if the biomass is burned for energy purposes), or under Other Emissions (if it is burned as a disposal method).

Hydrofluorocarbon (HFC) Emissions

Emissions of HFCs may occur through unintentional leaks or operating losses from various systems. Possible uses of these gases include:

- refrigeration and air conditioning systems (e.g. a common one is HFC-134a)
- fire suppression systems (e.g. fire extinguishers)
- blowing agents in the production of various foams
- propellants in aerosols
- use as solvents

An HFC may be used as a pure gas or as a component in a mixture (e.g. HFC-152a is a component of the refrigerant R-500). Check material safety data sheets (MSDS) for information on the composition of chemical mixtures.

DEFINITIONS / EXPLANATORY INFORMATION (continued)

Perfluorocarbon (PFC) Emissions

Main sources of PFC emissions occur in the aluminium sector (i.e. primary aluminium production) and in semi-conductor manufacturing (cleaning purposes).

PFCs are also being used as replacements for ozone depleting substances that have been phased-out. Such uses include:

- refrigeration and air conditioning
- fire suppression and explosion protection
- foam production and aerosols
- solvent cleaning

Similarly to HFCs, some applications use chemical mixtures that have PFCs as a component of the mixture.

Sulphur Hexafluoride (SF_6) Emissions

Main uses of SF_6 include:

- insulating gas in electrical equipment (e.g. gas insulated switchgear, circuit breakers)
- cover gas in magnesium smelting and casting
- cleaning agent in the production of semi-conductors

Other applications where SF6 is employed include:

- cover gas for special foundry products in the aluminium industry
- substitute for ozone depleting substances in various applications (e.g. fire suppression and explosion protection)
- other minor applications (e.g. leak detectors, various electronic applications)

Monitoring or Direct Measurement

This type of method may involve continuous emission monitoring systems (CEMS) (emissions recorded over an extended and uninterrupted period), predictive emission monitoring (correlations developed between measured emission rates and process parameters) or source testing (e.g. stack sampling).

Mass Balance

This type of method involves the application of the law of conservation of mass to a facility, process or piece of equipment. Emissions are determined from the difference in the input and output of a unit operation where the accumulation and depletion of a substance are included in the calculations.

Emission Factors

This method uses emission factors (EF) to estimate the rate at which a pollutant is released into the atmosphere (or captured) as a result of some process activity or unit throughput. The EFs used may be average or general EFs, or technology-specific EFs.

Engineering Calculations

This type of method may involve estimating emissions from engineering principles and judgement, using knowledge of the chemical and physical processes involved, the design features of the source, and an understanding of the applicable physical and chemical laws.

SECTION VIII. CONFIDENTIALITY REQUEST

Confidentiality Request

A reporter may submit a written request (along with supporting information for justification) that part, or all, of the submission be treated as confidential, based on the reasons set out in Section 52 of the CEPA 1999.

CEPA Section 52 states the basis on which a confidentiality request can be made:

- the information constitutes a trade secret;
- public disclosure may cause material financial loss to, or prejudice to the competitive position of the company; or
- interfere with contractual or other negotiations between the company and others.

To be treated as confidential, the reporter must demonstrate that they treat the information as confidential and wish to continue to do so. They must also demonstrate that this information is not available to the general public through legal means. A request for confidentiality is not determinative. A determination of whether the information is confidential will be based on an objective analysis of the facts (information provided by the reporter in support of its confidentiality request).

Under the Alberta Regulation 251/2004, Climate Change and Emissions Management Act, Specified Gas Reporting Regulation, a report may include a written request that portions of the report be kept confidential, for a period of up to 5 years, on the basis that the information is commercial, financial, scientific or technical information that would reveal proprietary business, competitive or trade secret information about a specific facility, technology or corporative initiative.

SECTION IX. STATEMENT OF CERTIFICATION

Statement of Certification

The Statement of Certification is a document with your company letterhead and signature of an authorized company official (Certifying Official) where the person who signs this statement acknowledges 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.

GLOSSARY

Chemical Abstract Service (CAS) number and Global Warming Potential (GWP) for the GHGs or GHG species

Greenhouse Gas	Formula	CAS number	GWP
Carbon dioxide	CO_2	124-38-9	1
Methane	CH_4	74-82-8	21
Nitrous oxide	N_2O	10024-97-2	310
Sulphur hexafluoride	SF_6	2551-62-4	23 900
Hydrofluorocarbons (HFC):			
HFC-23 (trifluoromethane)	CHF_3	75-46-7	11 700
HFC-32 (difluoromethane)	CH_2F_2	75-10-5	650
HFC-41 (fluoromethane)	CH_3F	593-53-3	150
HFC-43-10mee (1,1,1,2,3,4,4,5,5,5-decafluoropentane)	$C_5H_2F_{10}$	138495-42-8	1 300
HFC-125 (pentafluoroethane)	C_2HF_5	354-33-6	2 800
HFC-134	CHF_2CHF_2	359-35-3	1 000
HFC-134a (1,1,1,2-tetrafluoroethane)	CH_2FCF_3	811-97-2	1 300
HFC-143 (1,1,2-trifluoroethane)	CHF_2CH_2F	430-66-0	300
HFC-143a (1,1,1-trifluoroethane)	CF_3CH_3	420-46-2	3 800
HFC-152a (1,1-difluoroethane)	CH_3CHF_2	75-37-6	140
HFC-227ea (1,1,1,2,3,3,3-heptafluoropropane)	C_3HF_7	431-89-0	2 900
HFC-236fa (1,1,1,3,3,3-hexafluoropropane)	$C_3H_2F_6$	690-39-1	6 300
HFC-245ca (1,1,2,2,3-pentafluoropropane)	$C_3H_3F_5$	679-86-7	560
Perfluorocarbons (PFC):			
Perfluoromethane (tetrafluoromethane)	CF_4	75-73-0	6 500
Perfluoroethane (hexafluoroethane)	C_2F_6	76-16-4	9 200
Perfluoropropane (octafluoropropane)	C_3F_8	76-19-7	7 000
Perfluorobutane (decafluorobutane)	C_4F_{10}	355-25-9	7 000
Perfluorocyclobutane (octafluorocyclobutane)	$c\text{-}C_4F_8$	115-25-3	8 700
Perfluoropentane (dodecafluoropentane)	C_5F_{12}	678-26-2	7 500
Perfluorohexane (tetradecafluorohexane)	C_6F_{14}	355-42-0	7 400