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## **GUIDANCE DOCUMENT**

### ***HEAVY-DUTY VEHICLE AND ENGINE GREENHOUSE GAS EMISSION REGULATIONS***

**made under the**

***Canadian Environmental Protection Act, 1999***

This is not a legal document. It does not in any way supersede or modify the *Canadian Environmental Protection Act, 1999* (CEPA 1999 or the Act) or the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* (the Regulations). In the event of an inconsistency between this document and the Act and/or the Regulations, the Act and the Regulations prevail.

**Transportation Division**

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## A. INTRODUCTION

This guidance document provides information about the requirements of the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* (the Regulations) established under the authority of the *Canadian Environmental Protection Act, 1999* (CEPA 1999 or the Act). This guidance document cites both the Regulations and the Act to aid in understanding the requirements of the Regulations and the Act.

Canadian manufacturers, distributors and importers of heavy-duty vehicles and engines have legal obligations under these Regulations. The Regulations applies to heavy-duty pickup trucks and vans, tractors, as well as a wide variety of vocational vehicles such as: school, transit and intercity buses; recreational vehicles (motor homes); as well as freight, delivery, service, cement, refuse and dump trucks.

This guidance document may be updated from time to time to improve clarity and to address issues with the implementation of the Regulations. The most recent version of the guidance document can be accessed from:

<http://ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=71EF09D7-1>

Figure 1 illustrates how this document is organized, each chapter covering a specific aspect of the Regulations.

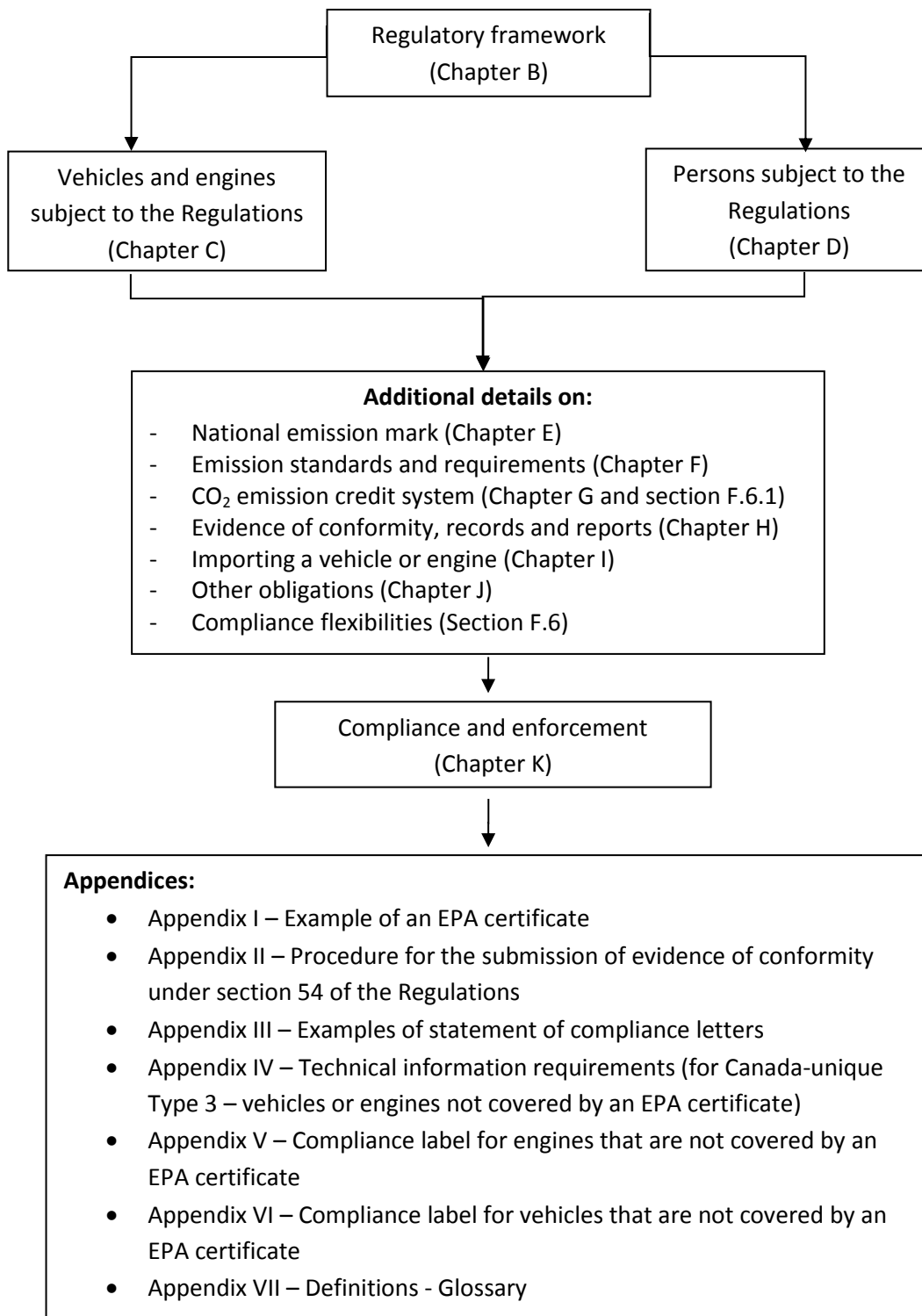


Figure 1: Document Overview



## **B. REGULATORY FRAMEWORK**

### **B.1 Introduction to regulatory framework**

The Regulations establish Canadian emission standards and test procedures under the authority of the Act. These standards and procedures are aligned with those of the U.S. Code of Federal Regulations (CFR) for on-road heavy-duty vehicles and engines, which were published by the Environmental Protection Agency (EPA) in the U.S. Federal Register on September 15, 2011 in the Final Rule, entitled *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles*.

You can find the Regulations at:

<http://ec.gc.ca/lcpe-cepa/eng/regulations/DetailReg.cfm?intReg=214>

You can find the U.S. Final Rule at:

<http://www.epa.gov/otaq/climate/regs-heavy-duty.htm>.

### **B.2 Purpose of the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations***

The purpose of the Regulations is to reduce greenhouse gas (GHG) emissions from heavy-duty vehicles and engines by establishing emission standards and test procedures that are harmonized with the federal requirements of the United States.

### **B.3 The *Canadian Environmental Protection Act, 1999* (CEPA 1999 or the Act)**

CEPA 1999 is “an act respecting pollution prevention and the protection of the environment and human health in order to contribute to sustainable development.” CEPA 1999 is Canada’s main federal environmental protection legislation. Part 7, Division 5 of the Act, allows Environment Canada to make regulations for controlling vehicle, engine and equipment emissions.

You can find the Act at:

<http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=26A03BFA-1>

### **B.4 The CEPA Environmental Registry**

The CEPA Environmental Registry (the Registry) gives Canadians the opportunity to learn more about how the federal government administers the Act and invites industries, individuals, interest groups and others to participate in the public consultations and decision-making processes that take place under the Act. The main goal of the Registry is to make it easier to access current information related to CEPA 1999. The Registry is where the public can view information on up-to-date environmental regulations and their support documents. The Registry contains guidance materials and templates related to the Regulations. It also has information on other instruments, including other transportation related regulations, voluntary agreements and interim orders. The Registry is also where public consultations are announced.

You can access the CEPA Environmental Registry at:

[www.ec.gc.ca/ceparegistry](http://www.ec.gc.ca/ceparegistry)

## **B.5 The Code of Federal Regulations**

The Code of Federal Regulations (CFR) is a list of U.S. regulations, parts of which are incorporated by reference in the Environment Canada regulations. The *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* incorporate by reference five (5) specific parts of the CFR from Title 40, Chapter I, namely:

- Part 86, CONTROL OF EMISSIONS FROM NEW AND IN-USE HIGHWAY VEHICLES AND ENGINES
- Part 600, FUEL ECONOMY AND GREENHOUSE GAS EXHAUST EMISSIONS OF MOTOR VEHICLES
- Part 1036, CONTROL OF EMISSIONS FROM NEW AND IN-USE HEAVY-DUTY HIGHWAY ENGINES
- Part 1037, CONTROL OF EMISSIONS FROM NEW HEAVY-DUTY MOTOR VEHICLES
- Part 1065, ENGINE-TESTING PROCEDURES

For concision, only the part and section numbers are provided for CFR references in this document (i.e. "PART.SECTION of the CFR") and all references to the CFR identified herein are found in Title 40.

You can find these parts at:

[http://www.ecfr.gov/cgi-bin/text-idx?sid=27d0dad4dd3d4c1969aad205b798e315&c=ecfr&tpl=/ecfrbrowse/Title40/40tab\\_02.tpl](http://www.ecfr.gov/cgi-bin/text-idx?sid=27d0dad4dd3d4c1969aad205b798e315&c=ecfr&tpl=/ecfrbrowse/Title40/40tab_02.tpl)

When amendments are made to sections of the CFR that are incorporated by reference, these U.S. amendments come automatically into force in the Regulations, as the CFR is incorporated "as amended from time to time". Therefore, changes to these sections of the CFR should be taken into consideration when complying with the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations*.

## **B.6 The references to the Act and the various sections of the CFR incorporated in the Regulations**

The Regulations include references to CEPA 1999 and to the CFR. References to the Act are usually related to those sections that provide the authority to regulate a specific activity, or these references may also be to a definition. For example, subsection 3(a) of the Regulations refers to section 149 of the Act. This section of the Act is where vehicles and engines are defined.

When the Regulations incorporate by reference a specific section of the CFR, this section is usually part of a standard or a test procedure. An example of this may be found in section 16 of the Regulations. In this section, the test procedure and standards for determining the total leakage rate of an air conditioning system are incorporated by referencing the corresponding provisions of the CFR, namely section 1037.115(c).

Subsection 1(2) of the Regulations also includes general information specific to references to the CFR. It should be noted that when the Regulations refers to the CFR, they exclude:

- references to the EPA or its Administrator using any kind of discretion;
- references to the Secretary of Transportation exercising discretion in any way;
- alternative standards related to fleet averages, other averages, emission credits, small volume manufacturers or financial hardship – meaning that if, for instance, a company participates in the Averaging, Banking and Trading (ABT) program in the U.S. , credits obtained under the U.S. program may not be used in Canada, as well as if a company uses some exemptions for small volume manufacturers or financial hardship in the U.S., these are not applicable in Canada; and
- standards established by any authority other than the EPA or evidence of conformity with any authority other than the EPA.

In summary, in order to understand the requirements of the Regulations, being aware of those sections of the Act and of the CFR that are referenced is also needed.

U.S. amendments made to sections of the CFR that are incorporated by reference in the Regulations should be taken into consideration, as the CFR sections are incorporated in the Regulations “as amended from time to time” and their amendments come automatically into force.

## **B.7 Differences between the Regulations and the CFR**

While the goals of Environment Canada and EPA are similar, the laws of Canada and the U.S. differ. Thus, there are important differences in how environmental regulations are developed and enforced in Canada and in the U.S.

The Regulations were developed to align Canadian emission standards and test procedures with those of the EPA. The provisions are as similar as possible, while respecting the different regulatory authorities in the Act in Canada and those in the *Clean Air Act* in the U.S.

# **C. VEHICLES AND ENGINES SUBJECT TO THE REGULATIONS**

## **C.1 Introduction to vehicles and engines subject to the Regulations**

The Regulations set requirements for the whole range of on-road heavy-duty vehicles of the 2014 and later model years from heavy-duty pick-up trucks and vans to tractors, as well as a wide variety of vocational vehicles such as: school, transit and intercity buses; as well as freight, delivery, service, cement, garbage and dump trucks.

This effectively includes all on-road vehicles with a Gross Vehicle Weight Rating (GVWR) of more than 3,856 kg (8,500 lb), except medium-duty passenger vehicles as defined in subsection 1(1) of the *On-Road Vehicle and Engine Emission Regulations* and those vehicles that are subject to the *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations*. Trailers are also not subject to the Regulations.

The Regulations apply to heavy-duty vehicles and engines manufactured in or imported into Canada. They introduce GHG emission standards that apply to prescribed classes of heavy-duty vehicles. Under the Regulations, the heavy-duty pick-up trucks and vans are regulated as “Class 2B and Class 3 heavy-duty

vehicles”, and combination tractors as “tractors”. All other heavy-duty vehicles not covered under the two aforementioned prescribed classes are regulated as “vocational vehicles”, which include buses. Section C.2 of this document describes the classes (also referred to as weight classes) and prescribed classes.

The Regulations also establish separate GHG emission standards for engines designed to be used in vocational vehicles and tractors.

The standards apply to stand-alone (loose) engines, as well as those that are already installed in vocational vehicles and tractors.

## C.2 Heavy-duty vehicles and engines subject to the Regulations

The Act and the Regulations apply to the prescribed classes of vehicles and engines established under the Regulations.

The following table presents a summary of heavy-duty vehicle weight classes defined in the Regulations.

Table 1 – Heavy-duty Vehicle Weight Classes Defined in the Regulations

Weight Class	Heavy-duty vehicle having a GVWR of more than:	...but not more than:
Class 2B	3,856 kg (8,500 lb)	4,536 kg (10,000 lb)
Class 3	4,536 kg (10,000 lb)	6,350 kg (14,000 lb)
Class 4	6,350 kg (14,000 lb)	7,257 kg (16,000 lb)
Class 5	7,257 kg (16,000 lb)	8,845 kg (19,500 lb)
Class 6	8,845 kg (19,500 lb)	11,793 kg (26,000 lb)
Class 7	11,793 kg (26,000 lb)	14,969 kg (33,000 lb)
Class 8	14,969 kg (33,000 lb)	n/a

As per subsections 5(1) and (2) of the Regulations, the prescribed classes of vehicles and engines set out in the Regulations are as follows:

- Class 2B and Class 3 heavy-duty vehicles;
- vocational vehicles;
- tractors;
- heavy-duty incomplete vehicles; and
- heavy-duty engines.

### *C.2.1 Class 2B and Class 3 heavy-duty vehicles*

The Class 2B and Class 3 heavy-duty vehicle prescribed class includes heavy-duty vehicles that have a GVWR of more than 3,856 kg (8,500 lb), but not more than 6,350 kg (14,000 lb). This prescribed class mainly includes heavy-duty pick-up trucks and vans.

Certain Class 2B and Class 3 heavy-duty vehicles are subject to the vocational vehicle standards, as explained below in section C.2.2.

### *C.2.2 Vocational vehicles*

Vocational vehicles include:

- Class 4 to Class 6 heavy-duty vehicles
- Class 7 and Class 8 heavy-duty vehicles that are not a tractor
- Vocational tractors

Vocational tractors are tractors that are not designed primarily to operate at high and constant speeds such as on highways, or would otherwise not benefit from efficiency improvements designed for line-haul tractors, such as aerodynamic devices. Vocational tractors also meet specific physical characteristics, as described in section F.6.6.1.

- Heavy-duty incomplete vehicles that are not a cab-complete vehicle and are equipped with spark-ignition engines conforming to the alternative standards referred to in section 25 of the Regulations

Section 25 of the Regulations provides alternate standards for a limited number of spark-ignition engines that are primarily designed to be used for pickup trucks and vans, in the case where these engines are not installed (loose) or installed in heavy-duty incomplete vehicles that are not cab- complete vehicles. When these vehicles are equipped with an engine conforming to section 25, these vehicles are defined as vocational vehicles and must comply with the CO<sub>2</sub> emission standard pertaining to vocational vehicles. Section F.5.1.4 of this document provides more detail on section 25 of the Regulations.

- Class 2B and Class 3 heavy-duty vehicles that are excluded from the standards set out in section 1037.104 of the CFR [the exclusion itself being specified under section 1037.104(f)], which are those that are not chassis-certified for criteria pollutants under Part 86, Subsection S of the CFR.

### *C.2.3 Tractors*

Tractors are Class 7 or Class 8 heavy-duty vehicles manufactured primarily for pulling a trailer, but not for carrying cargo other than the cargo in the trailer.

#### **C.2.4**      *Heavy-duty incomplete vehicles*

A heavy-duty incomplete vehicle is manufactured by assembling components — none of which, taken separately, constitutes a heavy-duty incomplete vehicle. It consists of, at a minimum, a chassis structure, a powertrain and wheels in the state in which all of those components are to be part of the heavy-duty completed vehicle, but it requires further manufacturing operations to become so.

Heavy-duty incomplete vehicles include cab-complete vehicles (also known as chassis-cab within the industry), incomplete tractors and incomplete vocational vehicles. Heavy-duty incomplete vehicles must meet the same requirements of the Regulations as for complete vehicles. For example, an incomplete vocational vehicle must meet the emission standards and requirements applicable to vocational vehicles.

It should be noted that, for concision, any provision applying to tractors or vocational vehicles also applies, for the purpose of this document, to incomplete tractors or incomplete vocational vehicles, respectively.

#### **C.2.5**      *Heavy-duty engines*

As per subsection 5(2) of the Regulations, the prescribed class of engines are heavy-duty engines. Heavy-duty engines are engines that are designed to be used for motive power in vocational vehicles or tractors.

In the Regulations, the engines are also further categorised as follows:

- “Light heavy-duty engine” are heavy-duty engines that are designed to be used in Class 2B, Class 3, Class 4 or Class 5 heavy-duty vehicles
- “Medium heavy-duty engine” are heavy-duty engines that are designed to be used in Class 6 and Class 7 heavy-duty vehicles
- “Heavy heavy-duty engine” are heavy-duty engines that have cylinder liners designed for multiple rebuilds and designed to be used in Class 8 heavy-duty vehicles

### **C.3 Model year and its importance**

The model year is the year used by a vehicle manufacturer or engine manufacturer to designate the period of production of a particular model of a vehicle or engine, as the case may be, and is determined in accordance with section 4 of the Regulations. This is relevant as standards and test procedures apply per model year.

The model year can span a period of up to two calendar years less one day, but can include only one January 1. If the period of production does not include a January 1, the model year corresponds to the calendar year during which production occurred; otherwise it corresponds to the calendar year during which January 1 fell. For example, a vehicle produced between March 1, 2014 and January 31, 2015 would be a 2015 model year vehicle and would need to meet the standards applicable to the 2015 model year.

#### **C.4 Provisions that allow the importation of vehicles or engines whose assembly must be completed in Canada in order to comply with the Regulations**

Subsection 153(2) of the Act allows vehicles or engines that do not meet all the applicable requirements to be imported provided that they comply with these once their assembly in Canada is completed, before the engine or vehicle leaves the possession or control of the company and, in the case of a vehicle, before it is presented for registration. A company may be required to apply a national emissions mark (see chapter E).

#### **C.5 Vehicles or engines for which the Governor in Council has granted an exemption**

A company may apply to the Governor in Council to be granted an exemption from any standard prescribed under the Regulations. In order for such a request to be admissible, it must be submitted before importation and, in the case of a vehicle or engine manufactured in Canada, before applying the national emissions mark, before the vehicle or engine leaves the possession or control of the company and before the vehicle is presented for registration under the laws of a province or of an Aboriginal government. Under section 156 of the Act, an exemption from any prescribed standard will be granted only if, in the opinion of the Governor in Council, compliance with that standard would:

- a. create substantial financial hardship for the company;
- b. impede the development of new features for safety, emission monitoring or emission control that are equivalent or superior to those that conform to prescribed standards; or
- c. impede the development of new kinds of vehicles or engines or of systems and components for these.

An exemption may not be granted for a model of vehicle or engine if the exemption would substantially diminish the control of its emissions, or if the company applying for the exemption has not provided evidence that it has attempted in good faith to bring the model into conformity with all applicable prescribed standards.

Under subsection 156(4) of the Act, an exemption for financial hardship may not be granted:

- if the world production of vehicles or engines manufactured by the company or by the manufacturer of the model that is the subject of the application for exemption exceeded 10,000 vehicles or engines in the 12-month period beginning two years before the beginning of the exemption period (which does not exceed three years when abovementioned condition a. applies, and does not exceed two years when conditions b. or c. apply); or
- if the total number of vehicles or engines manufactured for, or imported into, the Canadian market by the company exceeded 1,000 vehicles or engines in that 12-month period.

Section 62 of the Regulations incorporates by reference section 44 of the *On-Road Vehicle and Engine Emission Regulations*. The latter describes the information to be provided to the Minister when applying for an exemption.

## **D. PERSONS SUBJECT TO THE REGULATIONS**

The Regulations apply to companies manufacturing, importing or distributing on-road heavy-duty vehicles and engines of the 2014 and later model years for the purpose of sale in Canada. However, CEPA 1999 requires that a person who is permanently importing from the U.S. a vehicle or engine of a prescribed class for their own use ensure that it bear a label showing that it conforms to the emission standards in effect at the time of its manufacture.

### **D.1 Introduction to persons subject to the Regulations**

Section 149 of the Act defines a company as:

1. an importer of vehicles or engines for the purpose of sale;
2. a Canadian vehicle or engine manufacturer; and
3. a distributor of Canadian vehicles or engines.

A person importing a vehicle or engine into Canada for other than the purpose of sale or lease is not a “company” as defined under the Act and Regulations. Nonetheless, it is important to note that such a person still needs to comply with CEPA 1999. The Act namely requires a person to ensure that the vehicles or engines of prescribed classes that they import bear a label showing that they conformed to the emission standards in effect at the time of their manufacture.

*Example: John Smith Trucking Company Inc. of Woodbine, Ontario purchases Class 7 tractors from a U.S. dealer and imports the vehicles directly into Canada for its Canadian trucking operations. John Smith Trucking Company Inc., as the importer, is not a “company” as defined under the Act and Regulations since it is importing the vehicles for use in its operations. However, the vehicles must bear a label showing that they conformed to the emission standards in effect at the time of their manufacture.*

### **D.2 Company under the Act**

In section 149 of the Act, a *company* is defined as a “person” who:

- a. is engaged in the business of manufacturing vehicles, engines or equipment in Canada;
- b. is engaged in the business of selling to other persons, for the purpose of resale by those persons, vehicles, engines or equipment obtained directly from a person described in paragraph (a) or the agent of such person; or
- c. imports any vehicle, engine or equipment into Canada for the purpose of sale (this includes importing vehicles to lease).

### **D.3 Canadian engine manufacturer**

A Canadian engine manufacturer is a person or company in Canada who, before sale of the engine to the first retail purchaser,

1. manufactures an engine from raw parts;



2. modifies equipment on the engine (for example by adding or modifying the emission control system, or altering the engine configuration in a way that affects emissions); or
3. modifies an engine (for example adapts a diesel engine to run on natural gas).

A Canadian engine manufacturer may need to apply the national emissions mark to its engines. See chapter E for more information about the national emissions mark.

#### **D.4 Canadian vehicle manufacturer**

A Canadian vehicle manufacturer is a person or company in Canada who, before the sale of the vehicle to the first retail purchaser,

1. manufactures a vehicle from raw parts;
2. takes part, along with other manufacturers, in the process of manufacturing a vehicle in stages (e.g. body and/or equipment installer);
3. alters a vehicle that was in conformity to the Regulations in such a manner that its stated type, mentioned on the vehicle compliance label, is no longer accurate (for example, by adding or removing features on a vehicle that considerably alters its GVWR, such that weight class is changed);
4. changes any of the components on a vehicle that may alter the value of a parameter used in the Greenhouse Gas Emissions Model (GEM ) which is a free computer simulation model provided by the EPA;
5. alters the engine (for example, adapts a diesel engine to run on natural gas);
6. alters the engine configuration in a way that affects emissions; or
7. alters the emission control system.

A Canadian vehicle manufacturer may need to apply the national emissions mark to its vehicles. See chapter E on the national emissions mark.

#### **D.5 Distributor of Canadian vehicles or engines**

A person who is engaged in the business of selling to other persons, for the purpose of sale by those persons, vehicles or engines obtained directly from a Canadian manufacturer or its agent, is a distributor of Canadian vehicles or engines and is a company under the Act.

Vehicles or engines, manufactured in Canada, that are transported between provinces or territories require a national emissions mark (see chapter E).

#### **D.6 Regulatory requirements for each type of “person” subject to the Act and Regulations**

Table 2 provides a summary of the responsibilities for the four different types of persons who have obligations under the Act and Regulations. When necessary, more detailed information is provided elsewhere in this guidance document, as outlined below.

Note that the type of person subject to the Act and Regulations, along with the corresponding obligations, may vary for a given vehicle or engine depending on the activity being carried out. For example, in the case of an importation of vehicles or engines for the purpose of sale or for personal use, the applicable requirements differ depending on the final application of the vehicle or engine, as the case may be.

Table 2 – Summary of Applicable Requirements

Summary of Applicable Requirements	Importer of engine or vehicle for the purpose of sale	Importer of engine or vehicle for personal use (i.e. not for sale)	Canadian manufacturer of vehicles or engines	Distributor of Canadian vehicles or engines	Chapters and sections in the guidance document
Affix the national emissions mark			✓	✓	E
Supply vehicles or engines that comply with emission standards	✓	✓	✓	✓	F
Provide evidence of conformity	✓ <sup>(1)</sup>	✓ <sup>(2)</sup>	✓	✓	H.1
Submit an importation declaration	✓ <sup>(3)</sup>	✓ <sup>(3)</sup>	✓ <sup>(3)</sup>	✓ <sup>(3)</sup>	I.1
Submit annual end of model year report	✓ <sup>(1)</sup>		✓	✓	H.2
Ensure prescribed label is affixed to the vehicle or engine	✓	✓	✓	✓	H.1.12
Provide maintenance instructions	✓ <sup>(1)</sup>		✓	✓	J.1
Cause notice of defect to be given, if necessary	✓		✓	✓	J.3

Ensure the engine bears a unique identification number <sup>(4)</sup>	✓	✓	✓	✓	Appendix V
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(1) The company may arrange with the vehicle or engine manufacturer that certain required information be provided by the vehicle or engine manufacturer on behalf of the company.

(2) The presence of the prescribed label on the vehicle or engine is considered to be evidence that the vehicle or engine conforms to the prescribed emission standards when it is imported by a person for purposes other than sale (for personal use).

(3) While the Regulations do not require a signed declaration to the Minister prior to importation, such declaration is required under the *On-Road Vehicle and Engine Emission Regulations* for heavy-duty vehicles and engines.

(4) Note that for vehicles, a Vehicle Identification Number (VIN) is required under the *Motor Vehicle Safety Regulations* of Transport Canada.

## D.7 Foreign vehicle or engine manufacturers subject to the Regulations

Vehicles or engines produced by foreign manufacturers (either in the United States or any other country) and imported into Canada must conform to the Act and the Regulations.

Importers may require the assistance of a foreign vehicle or engine manufacturer to demonstrate compliance with the Regulations. In particular, the assistance of foreign vehicle or engine manufacturers may be required to ensure that vehicles or engines imported into Canada meet the prescribed standards and to provide evidence of conformity to that effect. These requirements are described in chapters H and I.

A foreign entity (which is therefore at a location outside of Canada) is not considered to be a company under CEPA 1999 unless it engages, in Canada, in one of the activities under the definition of company outlined in section D.2. In the case of engines or vehicles manufactured outside of Canada, the responsibility for complying with the applicable provisions of the Regulations and the Act is with the person or company who imports<sup>1</sup> the engine or vehicle. In the event of a violation of a provision of the Act or the Regulations in respect of an imported engine or vehicle, the person or company who imports the engine would be subject to the enforcement provisions of the Act.

## E. NATIONAL EMISSIONS MARK

Several administrative provisions are aligned with those under other existing regulations under the Act, including provisions respecting the national emissions mark.

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<sup>1</sup> The ordinary meaning of import is to bring into the country or to cause to be brought into the country.

## E.1 Introduction to national emissions mark

Section 152 of the Act does not allow a company to transport engines and vehicles that are manufactured in Canada between provinces or territories unless the engines or vehicles have a national emissions mark (NEM) affixed.

The national emissions mark is the symbol shown in Figure 2. Section 150 of the Act specifies that the NEM is a national trademark and establishes limitations on any person's use of the mark (or the use of any other mark in such a manner that it is likely to be mistaken for a national emissions mark). Companies must obtain the Minister's authorization to use the national emissions mark (see section E.3.).



Figure 2: The National Emissions Mark

Subsections 5(4) and (5) of the Regulations state that a NEM must be affixed only to engines manufactured in Canada and to vehicles for which the main assembly is completed in Canada; these subsections also state that the NEM is not required if:

- The vehicle or engine will be used in Canada solely for purposes of exhibition, demonstration, evaluation or testing.
- The engine is to be installed in a heavy-duty vehicle before sale to the vehicle's first retail purchaser. As per subsections 26(9) and 27(10), the vehicle must be equipped with an engine that is in compliance with the Regulations. Of note, despite paragraph 5(5)(b), it is not forbidden that an engine installed in a vehicle bears a NEM.
- The engine is to be installed as a replacement engine in a heavy-duty vehicle that has a national emissions mark applied to it, if the replacement engine is of the same model year as the original engine, and is identical to or better than the original engine with respect to emissions.

## E.2 Conditions in regard to affixing a national emissions mark to an engine or vehicle

Section 153 of the Act prohibits a company from applying the national emissions mark to a vehicle or an engine unless the emission standards are met, the evidence of conformity has been produced in the prescribed form and manner and the company has applied for and received the Minister's authorization to do so. The emission standards that the vehicle and engine must meet are described in this document in chapter F.

### **E.3 Application of the national emissions mark**

Under section 151 of the Act, a company must have received authorization from the Minister to apply the national emissions mark to vehicles or engines.

When authorized, the company will receive an authorization in the form that is set out in Schedule 1 of the *On-Road Vehicle and Engine Emission Regulations*. The authorization will include a company identification number from the Minister.

### **E.4 Requirements for size, location and manner of affixing the national emissions mark to an engine or vehicle**

Requirements on the size, location and manner of affixing the national emissions mark to engines or vehicle can be found in section 7 of the Regulations, which references section 8 of the *On-Road Vehicle and Engine Emission Regulations*.

The national emissions mark shall be at least 7 mm in height and 10 mm in width. The identification number, assigned by the Minister to the authorized company, shall be in figures that are at least 2 mm in height and be located immediately below or to the right of the national emissions mark.

The national emissions mark shall be placed immediately beside the compliance label, the U.S. engine information label or the U.S. emission control information label, as the case may be. It may also be placed on the compliance label, the U.S. engine information label or the U.S. emission control information label, meaning that it is combined within the compliance or U.S. label.

The national emissions mark shall be on a permanently applied, weather resistant label that is readable.

### **E.5 Application for the Minister's authorization to use the national emissions mark**

A company must submit an application to obtain the Minister's authorization to use the national emissions mark. The authorization is obtained in accordance with section 6 of the Regulations, which references paragraphs 7(2)(a) to (c) and (e) of the *On-Road Vehicle and Engine Emission Regulations*. The following information must be included in the application:

1. the name and street address of the head office of the company and, if different, its mailing address;
2. the prescribed classes of the vehicles or engines for which the authorization is requested;
3. the street address of the location where the NEM will be applied;
4. the street address where records referred to in section 59 of the Regulations will be maintained; and
5. the information to show that the company is capable of verifying compliance with the standards in the Regulations (see section F.6 and chapter H for more information on compliance verification).

A company's application must be signed by a person who is authorized to act on behalf of the company. When the Minister authorizes a company to use the national emissions mark, a company identification number will be assigned to the company. The company identification number is not to be confused with the unique identification number that must be permanently affixed, engraved or stamped on every engine or the Vehicle Identification Number (VIN) for vehicles.

Note that, as per subsection 6(2) of the Regulations, a company that has already submitted an application and that is currently authorized to apply the national emissions mark to its heavy-duty vehicles or engines under the *On-Road Vehicle and Engine Emission Regulations*, does not need to submit a new application for the Regulations.

## **E.6 Information to show that the company is capable of verifying compliance with the standards**

The information that satisfies the requirement of paragraph 6(1) of the Regulations, which references paragraph 7(2)(e) of the *On-Road Vehicle and Engine Emission Regulations* to show that a company is capable of verifying compliance with the regulatory standards, may be presented in various forms, including, but not limited to, the following:

1. Recent experience in complying with Canadian regulatory emission standards

When applicable, a company may provide the Minister with the following statement:

"The company has applied the national safety mark to on-road vehicles within the last five years to certify conformance to Canadian vehicle emission regulatory standards".

Some aspects of the Regulations are designed to align with administrative requirements under the *Motor Vehicle Safety Act*. Accordingly, companies are requested to provide their authorization number assigned by the Minister of Transport to use the national safety mark.

2. Recent experience in obtaining EPA emission certification

When applicable, a company may provide the Minister with the following statement:

"The company has been issued certificates of conformity by the U.S. EPA within the last five years as evidence of conformity with U.S. regulatory emission standards for vehicles or engines covered under the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations*."

3. Technical Information

The company may provide technical information to show that it is capable of verifying compliance with the standards set out in the Regulations including, but not limited to, information describing the capabilities of the emission test facilities operated by, or on behalf of, the company to produce evidence that its engines or vehicles conform to the standards set out in the Regulations. This may include evidence that the emission test facility used on behalf of the company has produced test results used in support of a successful application to the EPA for the issuance of a certificate of conformity.

The company (if, for instance, it is in the business of distributing/importing) may arrange with the vehicle or engine manufacturer that certain required information be provided by the vehicle or engine manufacturer on behalf of the company.

The Minister will assess the information provided to determine whether the company meets the requirements for being authorized to affix the national emissions mark on engines or vehicles.

### **E.7 Imported engines or vehicles and the national emissions mark requirement**

Subsection 153(1) of the Act requires that imported engines or vehicles conform to the requirements of the Regulations as a condition for their importation into Canada. Also, affixing a national emissions mark to imported vehicles or engines is not required. Nonetheless, a company that is authorized by the Minister may apply the national emissions mark to engines or vehicles that are imported into Canada, provided they conform to the requirements of the Regulations.

## **F. EMISSION STANDARDS AND REQUIREMENTS**

### **F.1 Introduction to emission standards**

The Regulations set different emission standards and provisions for the different prescribed classes of vehicles and engines. The following table presents a summary of the various emissions standards and provisions, as well as the corresponding sections of the Regulations where these can be found:

Table 3 – Emission Standards Summary

<b>Vehicles and Engines</b>	<b>Applicable Standards</b>	<b>Corresponding Sections of the Regulations</b>	<b>Corresponding Parts of the Guidance Document</b>
Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a “vocational vehicle”)	Emission Control Systems	Section 14	F.2
	Adjustable Parameters	Section 15	F.3
	Air Conditioning Systems	Section 16	F.4
	N <sub>2</sub> O and CH <sub>4</sub> Emissions Standards	Section 20	F.5.1.1
	CO <sub>2</sub> Emission Standards	Section 21	F.5.1.2
Vocational vehicles	Emission Control Systems	Section 14	F.2
	Adjustable Parameters	Section 15	F.3
	CO <sub>2</sub> Emission Standards	Section 26	F.5.2.1

Tractors	Emission Control Systems	Section 14	F.2
	Adjustable Parameters	Section 15	F.3
	Air Conditioning Systems	Section 16	F.4
	CO <sub>2</sub> Emission Standards	Section 27	F.5.3.1
Heavy-duty Engines	Emission Control Systems	Section 14	F.2
	Adjustable Parameters	Section 15	F.3
	N <sub>2</sub> O and CH <sub>4</sub> Emissions Standards	Section 29	F.5.4.1
	CO <sub>2</sub> Emission Standards	Section 30	F.5.4.2

Of note, this table does not list alternative standards.

## F.2 Emission control systems

As per section 14 of the Regulations, an emission control system installed in a heavy-duty vehicle or heavy-duty engine must conform to the same requirements as the ones set out in subsections 11(1), (3) and (4) of the *On-Road Vehicle and Engine Emission Regulations*, except that the test procedures applicable for subsections 11(3) and (4) are the ones set out in the Regulations instead of the ones referred to in the *On-Road Vehicle and Engine Emission Regulations*.

## F.3 Adjustable parameters

An “adjustable parameter” is a device, system or element of design that is capable of being adjusted to affect the emissions or performance of a heavy-duty vehicle or heavy-duty engine during emission testing or normal in-use operation. This does not include a device, system or element of design that is permanently sealed by the vehicle or engine manufacturer or that is inaccessible using ordinary tools.

Section 15 of the Regulations requires that heavy-duty vehicles and engines that are equipped with adjustable parameters comply with the applicable standards for any specification within the adjustable range, meaning that the vehicle and engine must conform at any possible adjustment.

An adjustable roof fairing of a tractor is not considered an adjustable parameter, because subsection 1(8) of the Regulations requires that the roof height of a tractor equipped with an adjustable roof fairing be measured with the roof fairing at its lowest position.

## F.4 Air conditioning standards

The standard, set out in section 16 of the Regulation, applies to heavy-duty vehicles of Class 2B and Class 3 (excluding those that meet the definition of a “vocational vehicle”) and to tractors equipped with an



air conditioning system. This standard requires that these vehicles conform to the U.S. standard and test procedure set out in section 1037.115(c) of the CFR. The U.S. standard requires that percent leakage rate of refrigerant does not exceed 1.5 % per year for vehicles with a refrigerant capacity greater than or equal to 734 grams. For systems with a refrigerant capacity of less than 734 grams, the standard requires that the total leakage rate do not exceed 11.0 grams per year.

## **F.5 Introduction to emission standards for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub>**

As shown in Table 3 above, the standards in the Regulations address emissions of CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> from heavy-duty vehicles and engines.

For Class 2B and Class 3 heavy-duty vehicles, the Regulations include emission standards for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> and the vehicle performance is verified using prescribed test cycles on a chassis dynamometer. In regards to CO<sub>2</sub> emissions, the standard is a fleet average CO<sub>2</sub> emission standard for all vehicles of a company's fleet and is determined based on a work factor, which is defined as a weighting of pay-load capacity, towing-capacity and four-wheel drive capability. The standard is different for gasoline and diesel-powered vehicles. Emission standards for Class 2B and Class 3 heavy-duty vehicles are described in F.5.1 of this document.

In regard to vocational vehicles and tractors, the Regulations include heavy-duty engine standards for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub>, and also separate vehicle standards for CO<sub>2</sub>.

The compliance of heavy-duty engines is verified using prescribed emission test cycles on an engine dynamometer, while compliance with the vehicle standards for vocational vehicles and tractors is verified using the GEM computer simulation model. Emission standards for vocational vehicles and tractors are detailed in sections F.5.2 and F.5.3 of this document respectively, while heavy-duty engine standards are in section F.5.4.

### *F.5.1 Class 2B and Class 3 heavy-duty vehicles*

This section pertains to the emission standards relating to Class 2B and Class 3 heavy-duty vehicles and cab-complete heavy-duty vehicles of the 2014 and subsequent model years, excluding those referred to in the definition "vocational vehicle" in subsection 1(1) of the Regulations.

#### *F.5.1.1 N<sub>2</sub>O and CH<sub>4</sub> emissions standards*

Class 2B and Class 3 heavy-duty vehicles must have CH<sub>4</sub> and N<sub>2</sub>O emission values that do not to exceed 0.05 g/mile for N<sub>2</sub>O, and 0.05 g/mile for CH<sub>4</sub> for the applicable useful life of the vehicles.

Companies are allowed to have vehicles with a CH<sub>4</sub> or N<sub>2</sub>O family emission limit exceeding the emission standards, but are required to calculate their N<sub>2</sub>O and CH<sub>4</sub> emission deficits, expressed in megagrams of CO<sub>2</sub>, and then offset these deficits with CO<sub>2</sub> credits normalized by their global warming potential. The formula to calculate N<sub>2</sub>O and CH<sub>4</sub> emission deficits is set out in subsection 20(3) of the Regulations. In that case, vehicles have to conform to the CH<sub>4</sub> or N<sub>2</sub>O family emission limit provided by the company for the vehicle configuration.

Of note, a company cannot obtain CO<sub>2</sub> emission credits with respect to their N<sub>2</sub>O and CH<sub>4</sub> emissions for the purpose of participation in the CO<sub>2</sub> emission credit system set out in sections 34 to 47 (see section F.6.1 for information on CO<sub>2</sub> emission credits system, and section F.6.2.1 on fleets and subfleets of Class 2B and Class 3 heavy-duty vehicles).

#### F.5.1.2 *CO<sub>2</sub> emission standards*

The standard to be met for CO<sub>2</sub> emissions is a fleet average CO<sub>2</sub> emission standard. The emission standard for Class 2B and Class 3 heavy-duty vehicles corresponds to the average target value for all of these vehicles. Companies have to group all of their Class 2B and Class 3 heavy-duty vehicles of a given model year into a fleet, and their fleet average CO<sub>2</sub> emission value is being compared to the fleet average CO<sub>2</sub> emission standard. If the fleet average CO<sub>2</sub> emission standard is exceeded, the fleet incurs a deficit which must be offset in accordance with any of the modes set out in sections 34 to 47 of the Regulations.

The fleet average CO<sub>2</sub> emission value is calculated using the formula set out in section 23 of the Regulations. The fleet average calculation takes into account the CO<sub>2</sub> emission value for each vehicle configuration determined by the chassis testing set out in section 24 of the Regulations, as well as the number of vehicles in the vehicle configuration and in the fleet.

The fleet average CO<sub>2</sub> emission standard, as set out in sections 21 and 22, is calculated by averaging the CO<sub>2</sub> emission target values of each vehicle subconfiguration of the fleet. The CO<sub>2</sub> emission target values are determined based on the vehicle work factor (WF), which is defined as a weighting of pay-load capacity, towing-capacity and four-wheel drive capability, as set out in subsection 22(3). The CO<sub>2</sub> emission target values of each subconfiguration of vehicles of Class 2B and Class 3 are defined in grams of emissions per distance travelled (g/mile), and are different for gasoline and diesel-powered vehicles, as shown below [paragraphs 22(2)(a) and (b) of the Regulations].

As such, the CO<sub>2</sub> emission target value for heavy-duty vehicles equipped with a spark-ignition engine is calculated using of the following formula, where WF is the work factor:

$$(0.0440 \times WF) + 339$$

For heavy-duty vehicles equipped with a compression-ignition engine and vehicles that operate without an internal combustion engine, the CO<sub>2</sub> emission target value is expressed as:

$$(0.0416 \times WF) + 320$$

In addition, the Regulations include phase-in options for the fleet average CO<sub>2</sub> emission standard consisting of emission target values that become gradually more stringent for model years ranging from 2014 to 2018. As such, companies have the option, for these model years, to choose the CO<sub>2</sub> target values set out in one of the tables provided in paragraphs 22(4)(a) or (b) of the Regulations, instead of the target value calculated according to the formulas shown above.

#### F.5.1.3 *Compliance assessment*

The emission standards for Class 2B and Class 3 heavy-duty vehicles is based on testing the complete vehicle and CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> emission values are measured on a chassis dynamometer in accordance with section 24 of the Regulations, which incorporates the U.S. EPA test procedures and cycles. The emission values obtained in accordance with the U.S. test methods are determined by taking the arithmetic average of the city and highway emission test cycles (FTP-based city and HFET-based highway), weighted 0.55 and 0.45 respectively. The Regulations also provide specific requirements for the test methods and calculations of the emissions values for multi-fuel vehicles. In regard to electric vehicles and fuel cell vehicles, the emission value of CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> for these heavy-duty vehicles of Class 2B and Class 3 is be deemed to be 0 grams per mile.

#### F.5.1.4 *Alternative standard for spark-ignition engines designed to be used in Class 2B or Class 3 vehicles*

Section 25 of the Regulations provides an alternate standard for spark-ignition engines that are of the same model year, design and hardware to that of engines installed in their Class 2B or Class 3 vehicles. This section applies when the engines are installed in heavy-duty incomplete vehicles that are not cab-complete vehicles, or are sold without being installed in a vehicle (loose engines).

This option allows a company to include a limited number of spark-ignition engines in its fleet of Class 2B or Class 3 vehicles in the case where it sells or imports those not installed (loose) in vehicles or for use in vocational applications when these were primarily designed to be used for pickup trucks and vans (Class 2B or Class 3 vehicles).

The company may include no more than 10% of these engines from the total number of engines of the same model year, design and hardware included in the fleet, whether installed in vehicles or not.

The engines included in the fleet of Class 2B or Class 3 vehicles must, instead of conforming to the heavy-duty engine standards set out in sections 29 and 30 of the Regulations, conform to the emission standards for Class 2B and Class 3 heavy-duty vehicles for their N<sub>2</sub>O and CH<sub>4</sub> emissions and to the incorporated U.S. requirements for their CO<sub>2</sub> emissions, i.e. section 1037.150(m)(6) of the CFR. The company has to report this election in its end of model year report.

When these engines are installed in heavy-duty incomplete vehicles that are not cab-complete vehicles, these vehicles are considered vocational vehicles and must comply with the CO<sub>2</sub> emission standard pertaining to vocational vehicles set out in section 26 of the Regulations.

#### F.5.2 *Vocational vehicles*

This section applies to every vocational vehicle of the 2014 and subsequent model years. For vocational vehicles, separate sets of emission standards apply to the engine and the rest of the vehicle. Engines designed for use in vocational applications have to meet engine-based standards for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> independent of the CO<sub>2</sub> vehicle-based standards established for the rest of the vehicle. The standards for engines are described in section F.5.4 of this document, while the separate CO<sub>2</sub> vehicle standards are in this section. The separate vehicle-based standards take into consideration the non-engine-related technologies with which the vehicle is equipped and which also result in CO<sub>2</sub> emission reductions, such as low rolling resistance tires.

### F.5.2.1 *CO<sub>2</sub> emission standards*

Starting with model year 2014, the CO<sub>2</sub> emission rate of a vocational vehicle must not exceed, for the applicable useful life of the vehicle, the corresponding CO<sub>2</sub> emission standard according to the weight class of the vehicle and the model year. The applicable CO<sub>2</sub> emission standards for vocational vehicles are shown in Table 4.

Table 4 – CO<sub>2</sub> Emission Standards for Vocational Vehicles

<b>Class of vocational vehicle</b>	<b>CO<sub>2</sub> emission standard (g/tonne-mile*) for model years 2014 to 2016</b>	<b>CO<sub>2</sub> emission standard (g/tonne-mile*) for 2017 and subsequent model years</b>
Class 2B, Class 3, Class 4 and Class 5	388	373
Class 6 and Class 7	234	225
Class 8	226	222

\* The standards are expressed in g/tonne-mile representing the number of grams of CO<sub>2</sub> emitted from carrying a tonne of cargo (2000 lb) over a distance of one mile.

### F.5.2.2 *Compliance assessment*

The CO<sub>2</sub> emission rate for vocational vehicles is demonstrated with the EPA computer simulation model named Greenhouse gas Emissions Model (GEM), which was developed by the U.S. as a means for determining compliance for vocational vehicles, as well as tractors. The same model is used for these Regulations. The GEM computer model is available on EPA's Web site, where it can be downloaded at no charge along with a user guide, at: <http://www.epa.gov/otag/climate/gem.htm>.

The parameters to input in the GEM computer model are as follows: the applicable type of vocational vehicle and the rolling resistance level of the steer and drive tires. The fields for the others parameters present in the GEM computer model are to be left blank for vocational vehicles.

The steer tire rolling resistance and the drive tire rolling resistance are determined by the tire rolling resistance level expressed in kg/metric tonne and measured for each tire configuration in accordance with the U.S. requirements, which incorporate by reference the ISO 28580 test method, entitled *Passenger car, truck and bus tyres -- Methods of measuring rolling resistance -- Single point test and correlation of measurement*. Companies may have to contact the tire manufacturers to get information on the rolling resistance of tires installed on the vehicles they manufacture or import.

### F.5.2.3 *Alternative standard and exemptions for vocational vehicles*

In accordance with subsection 26(3), the Regulations allows exemptions for certain vocational vehicles, namely for vehicles equipped with tires of a speed rating at or below 88 km/h (55 mph) or that have components designed to work in an off-road environment that meet specific criteria, as specified in that subsection of the Regulations.

As set out in subsection 26(5) of the Regulations, a company may elect to conform to the emission standards and useful life applicable to a higher vehicle service class. However, if this is the case, the company must not obtain credits for those vehicles when participating in the CO<sub>2</sub> emission credit system, which is set out in section F.6.1. Conforming with a higher vehicle service class means, as an example, that a company may elect to conform to the emission standards applicable to medium heavy-duty vehicles (i.e. vehicles of Class 6 or Class 7) instead of the ones applicable to light heavy-duty vehicles (i.e. vehicles of Class 2B to Class 5).

The Regulations also provide in subsection 26(6) an alternative standard for vocational vehicles or cab-complete vocational vehicles equipped with a spark-ignition engine. Taking into account section 1037.150(l) of the CFR, companies have the option to group the vehicles in question in a fleet of Class 2B and Class 3 heavy-duty vehicles and comply with the standards applicable to Class 2B and Class 3 heavy-duty vehicles instead of complying with the applicable vocational vehicle and engine emissions standards. Also, companies that use this option must participate in the CO<sub>2</sub> emission credit system.

### **F.5.3 Tractors**

This section applies to every tractor of the 2014 and subsequent model years. For tractors, as for vocational vehicles, separate sets of emission standards apply to the engine and the rest of the vehicle. Engines designed for use in tractor applications have to meet engine-based standards for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> independent of CO<sub>2</sub> vehicle-based standards established for the rest of the vehicle. The standards for engines are described in section F.5.4 of this document, while the separate vehicle CO<sub>2</sub> standards for tractors are in this section. These separate vehicle-based standards take into consideration the non-engine-related technologies which the vehicle is equipped and which also result in CO<sub>2</sub> emission reductions, such as aerodynamic fairings, low rolling resistance tires, a speed limiter, weight reduction technologies, and idle reduction technology.

#### **F.5.3.1 CO<sub>2</sub> emission standards**

Starting with model year 2014, the CO<sub>2</sub> emission rate of a tractor must not exceed, for the applicable useful life of the vehicle, the corresponding CO<sub>2</sub> emission standard according to the weight class of the tractor, its characteristics (cab style and roof height), and the model year. The applicable CO<sub>2</sub> emission standards for tractors are shown in Table 5.

Table 5 – CO<sub>2</sub> emission standards for tractors

<b>Class of tractor</b>	<b>Characteristics</b>	<b>CO<sub>2</sub> emission standard (g/tonne-mile*) for the 2014 to 2016 model years</b>	<b>CO<sub>2</sub> emission standard (g/tonne-mile*) for the 2017 and subsequent model years</b>
Class 7	Low-roof (all cab styles)	107	104
	Mid-roof (all cab styles)	119	115

	High-roof (all cab styles)	124	120
Class 8	Low-roof day cab	81	80
	Low-roof sleeper cab	68	66
	Mid-roof day cab	88	86
	Mid-roof sleeper cab	76	73
	High roof day cab	92	89
	High roof sleeper cab	75	72

\* The standards are expressed in g/tonne-mile representing the number of grams of CO<sub>2</sub> emitted from carrying a tonne of cargo (2000 lb) over a distance of one mile.

#### F.5.3.2 Compliance assessment

As for vocational vehicles, the CO<sub>2</sub> emission rate for tractors is demonstrated with the GEM computer model. The GEM computer model is available on EPA's Web site, where it can be downloaded at no charge along with a user guide, at: <http://www.epa.gov/otaq/climate/gem.htm>.

The parameters to input in the GEM computer model for a tractor are the following:

- applicable type of tractor;
- coefficient of aerodynamic drag;
- rolling resistance level of the steer and drive tires;
- maximum vehicle speed to which the tractor is limited, if the tractor is equipped with a speed limiter;
- weight reduction value; and
- corresponding value if the tractor is equipped with idle reduction technology in the case of a Class 8 sleeper cab.

As set out in subsection 27(4), the coefficient of aerodynamic drag to use in the GEM computer model is identified from the drag area measured by coast down testing in accordance with the U.S. requirements, which can be found in subpart F of part 1037 of the CFR. This same subpart outlines the test method which takes into account the in-use tractor performances and its physical characteristics, such as if the tractor is equipped with technologies that improve the vehicle aerodynamics, for example fairing, profiled accessories, gap reducers, etc. With the table provided in the U.S. regulations in section 1037.520(b) of the CFR, and incorporated by reference, it is also possible to identify the corresponding Bin level, which allows flexibility to companies for the drag area to use, provided that some conditions are met in accordance with subsection 27(5) of the Regulations. In subsection 27(6), the Regulations allow determining the drag area with an alternative test method, as prescribed by the U.S. regulations. These alternative test methods include methods such as wind tunnel testing or computational fluid dynamic modelling.

As for vocational vehicles, the steer tire and drive tire rolling resistance for tractors are determined by the tire rolling resistance level expressed in kg/metric tonne and measured for each tire configuration in accordance with the U.S. requirements, which incorporate by reference the ISO 28580 test method, entitled *Passenger car, truck and bus tyres -- Methods of measuring rolling resistance -- Single point test and correlation of measurement*. Companies may have to contact the tire manufacturers to get information on the rolling resistance of tires installed on the vehicles they manufacture or import.

In the case of a tractor equipped with a vehicle speed limiter, the GEM computer model provides a field to indicate the maximum vehicle speed to which the tractor is limited, expressed in miles per hour.

In regard to vehicle weight reduction value, the input to be used in the GEM computer model is expressed in pounds (lb) and determined by summing the corresponding weight reduction values prescribed for wheels and for other components.

As set out in paragraph 27(2)(e) of the Regulations, weight reduction for wheels is calculated by multiplying the number of wheels of the tractor with the corresponding weight reduction values set out in the Regulations, depending if the tractor is equipped with single-wide tires or dual tires, and depending on the type of rims and their materials. Weight reduction for components other than wheels is calculated by summing the corresponding weight reduction values set out for weight reduction technologies installed on the tractors and for their materials, according to the list provided in the Regulations in the same section.

In the case of a Class 8 sleeper cab, as set out in paragraph 27(2)(f) of the Regulations, if the tractor is equipped with idle reduction technology that automatically shuts off the main engine after 5 minutes or less and meets the requirements set out in section 1037.660 of the CFR, the corresponding value to use in the GEM computer model is 5 g of CO<sub>2</sub>/tonne-mile. If the idle reduction technology includes an expiration point, the value to use in the GEM model may be calculated in accordance with section 1037.660(c) of the CFR.

#### F.5.3.3 *Alternative standard and exemptions for tractors*

As set out in subsection 27(7) of the Regulations, a company may elect to conform to the emission standards and useful life applicable to a higher vehicle service class. However, if this is the case, the company must not obtain credits for those vehicles when participating in the CO<sub>2</sub> emission credit system, which is set out in section F.6.1. Conforming with a higher vehicle service class for tractors means that a company may elect to conform to the emission standards applicable to heavy heavy-duty vehicles (i.e. tractors of Class 8) instead of the ones applicable for medium heavy-duty vehicles (i.e. tractors of Class 7).

#### F.5.4 *Heavy-duty engines*

The emission standards for heavy-duty engines apply to engines designed to be used in vocational vehicles or tractors.

F.5.4.1 *N<sub>2</sub>O and CH<sub>4</sub> emissions standards*

Starting with 2014 model year for compression-ignition heavy-duty engines, and starting with 2016 model year for spark-ignition heavy-duty engines, the applicable standard for CH<sub>4</sub> and N<sub>2</sub>O emissions is 0.10 g/BHP-hr for both of these compounds.

Companies that manufacture or import engines with a CH<sub>4</sub> or N<sub>2</sub>O family emission limit exceeding the emission standards are required to calculate their N<sub>2</sub>O and CH<sub>4</sub> emission deficits and then offset these with CO<sub>2</sub> credits normalized by their global warming potential. The formula to calculate N<sub>2</sub>O and CH<sub>4</sub> emission deficits is set out in subsection 29(4) and the vehicles have to conform to, as the case may be, the CH<sub>4</sub> or N<sub>2</sub>O family emission limit provided by the company for the tested engine configuration (see sections F.5.4.3 and F.6.2.4).

A company has the option to generate CO<sub>2</sub> credits if their engines have low N<sub>2</sub>O emissions. If heavy-duty engines of model year 2014, 2015, or 2016 conform to an N<sub>2</sub>O family emission limit that is less than 0.04 g/BHP-hr, a company is allowed to calculate CO<sub>2</sub> credits according to the formula in subsection 29(8) that takes into account N<sub>2</sub>O global warming potential. This option is not available for model year 2017 and beyond. Otherwise, a company cannot obtain CO<sub>2</sub> emission credits with respect to its N<sub>2</sub>O and CH<sub>4</sub> emissions.

F.5.4.2 *CO<sub>2</sub> emission standards*

For a spark-ignition engine, starting with model year 2016, the CO<sub>2</sub> emission standard requires an emission level of 627 g/BHP-hr.

For any other engine, starting with model year 2014, the CO<sub>2</sub> emission standard applies according to the type of application of the engine and model year. The CO<sub>2</sub> emission standards applicable to those other engines are shown in Table 6.

Table 6 – CO<sub>2</sub> Emission Standards for Heavy-duty Engines (Other than spark-ignition engines)

Model year	CO <sub>2</sub> emission standard (g/BHP-hr)				
	Light heavy-duty engines	Medium heavy-duty engines designed to be used in vocational vehicles	Heavy heavy-duty engines designed to be used in vocational vehicles	Medium heavy-duty engines designed to be used in tractors	Heavy heavy-duty engines designed to be used in tractors
2014 to 2016	600	600	567	502	475
2017 and subsequent model years	576	576	555	487	460



F.5.4.3 *Compliance assessment*

The emission values of the engines are measured using an engine dynamometer in accordance with the U.S. EPA test procedures and duty cycles incorporated by reference and that are presented in Table 7 below.

Table 7 – Test Procedures and Duty Cycles for Engines

<b>Emissions</b>	<b>Engines</b>	<b>Duty cycles</b>
N <sub>2</sub> O and CH <sub>4</sub>	All engines	Transient duty cycle
CO <sub>2</sub>	Medium heavy-duty compression-ignition engines designed to be used in tractors	Steady state duty cycle
	Heavy heavy-duty compression-ignition engines designed to be used in tractors	Steady state duty cycle
	Medium heavy-duty compression-ignition engines designed to be used in vocational vehicles or tractors	Steady state duty cycle and transient duty cycle
	Heavy heavy-duty compression-ignition engines designed to be used in both vocational vehicles and tractors	Steady state duty cycle and transient duty cycle
	All other engines, other that mentioned above for CO <sub>2</sub> emissions	Transient duty cycle

The emission values for heavy-duty engines are considered to be the emission values of the tested engine configuration [section 1036.235(a) of the CFR] for the engine family. According to the U.S. EPA requirements [section 1036.205(e) of the CFR], the number of engines of the tested configuration for the engine family must represent at least 1% of the number of engines sold for the engine family.

If the engine is sold in the U.S., the tested engine configuration is determined using the number of engines sold in the U.S. Otherwise, if no engines of the engine family are sold in the U.S., the tested engine configuration must be determined based on Canadian sales.

F.5.4.4 *Alternate standards for engines*

Subsection 31(1) of the Regulations includes an alternative emission standard for compression-ignition engines. If companies that manufacture or import compression-ignition engines of the 2014 to 2016 model years do not have remaining credits for these model years, they have the option to comply with this alternate CO<sub>2</sub> emission standard prescribed by the EPA (section 1036.620 of the CFR), which is based on model year 2011 engines.

Companies also have the option to comply with alternative phase-in emission standards for compression-ignition engines of the 2013 to 2016 model years set out in subsection 31(2). These alternative standards allow companies to follow a phase-in calendar prescribed by the EPA [section 1036.150(e) of the CFR], provided that they continue to comply with that calendar for the remaining model years covered by these alternative standards. Engines to which these alternative phase-in emission standards apply are not eligible for the early action credits of the CO<sub>2</sub> emission credit system.

## **F.6 Compliance flexibilities**

In order to help meet overall environmental objectives, the Regulations include provisions that establish compliance flexibilities, which include a CO<sub>2</sub> emission credit system for generating, banking and trading emission credits. This system also provides allowances for early action credits, as well as additional credits for innovative technologies to reduce GHG emissions and for advanced technologies, such as hybrid and electric vehicles. Further, the Regulations include compliance flexibilities for vocational tractors, an exemption for small volume companies manufacturing or importing vocational vehicles or tractors, as well as provisions for vehicles manufactured in stages. The following sections of this guidance document provide details on those compliance flexibilities.

### ***F.6.1 CO<sub>2</sub> emission credit system***

Companies have the option to comply with the CO<sub>2</sub> emission standards by using the CO<sub>2</sub> emission credit system set out in sections 34 and 35 of the Regulations. The system allows companies to generate, bank and trade emission credits. Under this system, companies are allowed to manufacture or import vehicles and engines with CO<sub>2</sub> emission levels worse than (above) the applicable emission standard, and others performing better than (below) the standard. The average fleet emission level must not exceed the applicable emission standard, otherwise the fleet incurs a deficit which must be offset in accordance with any of the modes set out below in this section. In order to participate in the CO<sub>2</sub> emission credit system, a company must group its vehicles and engines into fleets. The fleets and subfleets are defined in section 18 of the Regulations, and described below in section F.6.2.

In the case where a company is participating in the CO<sub>2</sub> emission credit system, every tractor or vocational vehicle within the fleet has to conform to the CO<sub>2</sub> family emission limit provided by the company for the subfleet of the vehicle. In the case of engines, every heavy-duty engine within a fleet has to conform to the CO<sub>2</sub> family certification level provided by the company corresponding to the emission level of the engine tested configuration.

Emission credits and deficits of a company are calculated in units of megagrams (Mg) of CO<sub>2</sub> for each of its fleets or subfleets, as applicable, of a given model year, using the mathematical formulas provided in section 35 of the Regulations and summarized in Table 8 below. If the result of the calculation is positive, the company generates credits, and if the result of the calculation is negative, the company incurs a deficit. In fact, credits are obtained when the fleet or subfleet emission levels fall below the applicable standard, while deficits are incurred when the fleet or subfleet emission levels exceed the applicable standard. A company obtains credits or incurs deficits for each of its fleets and subfleets of a

given model year when the company submits its end of model year report (see section H.2 for details on reporting).

Table 8 - Formulas for the Calculation of Credits or Deficits for Heavy-duty Vehicles and Engines

Fleets or subfleets	Formulas
Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a “vocational vehicle”)	$ECD = \frac{(A - B) \times C \times D}{1\,000\,000}$ <p>ECD is the number of credits (Mg)</p> <p>A is the fleet average CO<sub>2</sub> emission standard (g/mile)</p> <p>B is the fleet average CO<sub>2</sub> emission value (g/mile)</p> <p>C is the number of vehicles in the fleet</p> <p>D is the vehicle useful life, i.e. 120,000 miles</p>
Vocational vehicles or tractors	$ECD = \frac{(A - B) \times C \times D \times E}{1\,000\,000}$ <p>ECD is the number of credits (Mg)</p> <p>A is the CO<sub>2</sub> emission standard of the subfleet (g/tonne-mile)</p> <p>B is the CO<sub>2</sub> family emission limit for the subfleet (g/tonne-mile)</p> <p>C is the payload for the class of vehicles, as follows</p> <p style="padding-left: 40px;">2.85 tonnes (5,700 lb) for Class 2B to Class 5 vocational vehicles</p> <p style="padding-left: 40px;">5.6 tonnes (11,200 lb) for Class 6 and Class 7 vocational vehicles</p> <p style="padding-left: 40px;">7.5 tonnes (15,000 lb) for Class 8 vocational vehicles</p> <p style="padding-left: 40px;">12.5 tonnes (25,000 lb) for Class 7 tractors</p>

	<p style="text-align: center;">19 tonnes (38,000 lb) for Class 8 tractors</p> <p>D is the number of vehicles in the subfleet</p> <p>E is the useful life for the class of vehicles, as follows</p> <p style="padding-left: 40px;">110,000 miles for Class 2B, to Class 5 vocational vehicles</p> <p style="padding-left: 40px;">185,000 miles for Class 6 and Class 7 vehicles</p> <p style="padding-left: 40px;">435,000 miles for Class 8 vehicles</p>
<p>Heavy-duty engines</p>	$ECD = \frac{(A - B) \times C \times D \times E}{1\,000\,000}$ <p>ECD is the number of credits (Mg)</p> <p>A is the CO<sub>2</sub> emission standard of the fleet (g/BHP-hr)</p> <p>B is the CO<sub>2</sub> family certification level for the fleet (g/BHP-hr)<sup>(1)</sup></p> <p>C is the transient cycle conversion factor calculated in accordance with section 1036.705(b) of the CFR</p> <p>D is the number of engines in the fleet</p> <p>E is the useful life for the engine, as follows</p> <p style="padding-left: 40px;">110,000 miles for spark-ignition engines and for light heavy-duty engines that are compression-ignition engines</p> <p style="padding-left: 40px;">185,000 miles for medium heavy-duty engines that are compression-ignition engines</p> <p style="padding-left: 40px;">435,000 miles for heavy heavy-duty engines that are compression-ignition engines</p> <p><sup>(1)</sup> In the case of engines that are designed to be used in both vocational vehicles and in tractors, when calculating the credits or deficit, a company must select the duty cycle that corresponds to the vehicle in which the engine is installed and used the corresponding CO<sub>2</sub> family certification level.</p>

The credits or, in the case of a negative result, deficits are determined for each averaging set by summing the credits and deficits for all fleets or subfleets of that averaging set. The credits and deficits must be added together (before they are rounded), and then the result of this addition must be rounded to the nearest megagram of CO<sub>2</sub>.

An averaging set, as defined in the Regulations, is a group consisting of fleets used for the purpose of the CO<sub>2</sub> emission credit system, as follows:

For heavy-duty vehicles, the averaging sets are:

- Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles, excluding those that are “vocational vehicles”;
- Class 2B, Class 3, Class 4 and Class 5 vocational vehicles;
- Class 6 and Class 7 heavy-duty vehicles; and
- Class 8 heavy-duty vehicles.

For heavy-duty engines, the averaging sets are:

- Heavy-duty engines that are spark-ignition engines;
- Light heavy-duty engines that are compression-ignition engines;
- Medium heavy-duty engines that are compression-ignition engines; and
- Heavy heavy-duty engines that are compression-ignition engines.

Companies can exchange credits and offset a deficit of fleets within the same averaging set.

In the case of a deficit, a company is required to use credits obtained for an averaging set of heavy-duty vehicles or engines of a specific model year to offset the deficits incurred for that same averaging set with an equal number of emission credits no later than three model years after the year in which the deficit was incurred, as set out in subsection 45(6) of the Regulations.

When a company obtains credits, it has to first use these credits to offset any existing deficit incurred by the company. Any remaining credits can then be banked to be used to offset a future deficit or may be transferred to another company.

The CO<sub>2</sub> emission credit system allows a company to bank exceeding credits to offset a future deficit that could occur up to five model years after the year in which the credits were obtained, as set out in section 44 of the Regulations. Credits thus have a five-year lifespan, meaning that credits that are banked or transferred retain their full value through the five subsequent model years after the model year in which they were obtained.

A company may also obtain additional credits for innovative and advanced technologies, as described in sections F.6.3 and F.6.4.

## F.6.2 *Fleets and subfleets*

In these Regulations, a “fleet” is a group of heavy-duty vehicles or heavy-duty engines for participation in the CO<sub>2</sub> emission credit system (section 18 of the Regulations).

Companies may group heavy-duty vehicles and heavy-duty engines of the same model year into more than one fleet, but each fleet is composed solely of the vehicles or engines as described in the following sections.

Of note, every fleet has a corresponding applicable emissions standard that is based on vehicle type contained in the fleet. For example, a Class 7 low-roof tractor has to comply with an emission limit of 107 g/tonne-mile for the 2014 to 2016 model years (see section F.5.3.1 or Table 5.) and has to be grouped into a Class 7 low-roof tractor fleet.

A CO<sub>2</sub> family emission limit and a CO<sub>2</sub> family certification level must be assigned to each fleet or subfleet, as the case may be, and all vehicles or engines within the fleet must have emissions levels at or below the CO<sub>2</sub> family emission limit or CO<sub>2</sub> family certification level. For instance, for vocational vehicles and tractors, the emission rates, which are the results of the GEM simulation, must be at or below the assigned CO<sub>2</sub> family emission limit for the fleet. Companies may thus decide to have more than one fleet according to the CO<sub>2</sub> family emission limits.

### F.6.2.1 *Class 2B and Class 3 heavy-duty vehicles*

The fleets for Class 2B and Class 3 heavy-duty vehicles are composed of the following vehicles:

- Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles, excluding those defined as “vocational vehicle”

For Class 2B and Class 3 heavy-duty vehicles, for the purpose of participating in the CO<sub>2</sub> emission credit system, the fleet average CO<sub>2</sub> emission value must not exceed the fleet average CO<sub>2</sub> emission standard; otherwise, the incurred deficit will have to be offset. These calculations and values can be found in sections 21 to 23 of the Regulations.

Furthermore, for the purpose of participating in the CO<sub>2</sub> emission credit system, all of the following heavy-duty vehicles that are Class 2B or Class 3 heavy-duty vehicles must be grouped together into one separate fleet of vehicles:

- hybrid vehicles with regenerative braking;
- vehicles equipped with an engine that includes a Rankine-cycle or other bottoming cycle exhaust energy recovery system;
- electric vehicles;
- fuel cell vehicles; and
- vehicles that are manufactured with innovative technologies.

In regard to complying with N<sub>2</sub>O and CH<sub>4</sub> emission standards, when the Class 2B or Class 3 heavy-duty vehicles in the fleet exceed the standards and have more than one N<sub>2</sub>O or CH<sub>4</sub> family emission limits, the vehicles in the fleet must be further grouped into subfleets in order to calculate the deficit [section F.5.1.1 of this guidance document and subsection 20(3) of the Regulations]. A subfleet includes vehicles with identical N<sub>2</sub>O or CH<sub>4</sub> family emission limits, as the case may be, and that are of the same test group. A test group is as described in the U.S. in section 86.1827 of the CFR.

F.6.2.2 *Vocational vehicles*

The fleets for vocational vehicles are composed of the following vehicles:

<ul style="list-style-type: none"> <li>• Class 2B, Class 3, Class 4 and Class 5 vocational vehicles</li> </ul>
<ul style="list-style-type: none"> <li>• Class 6 and Class 7 vocational vehicles</li> </ul>
<ul style="list-style-type: none"> <li>• Class 8 vocational vehicles</li> </ul>

Further, for the purpose of participating in the CO<sub>2</sub> emission credit system, all vocational vehicles grouped in a fleet must be either:

- vocational tractors (see F.6.6.3 for more details),
- hybrid vehicles with regenerative braking,
- vehicles equipped with an engine that includes a Rankine-cycle or other bottoming cycle exhaust energy recovery system,
- electric vehicles,
- fuel cell vehicles, or
- vehicles manufactured with innovative technologies.

For example, if a company manufactures or imports Class 8 vocational tractors and Class 8 electric vocational vehicles, the company must have at least two fleets of Class 8 vocational vehicles, one with its vocational tractors and one with its electric vehicles.

The vehicles in the fleet must be further grouped into subfleets with identical CO<sub>2</sub> family emission limits, if the vehicles in the fleet have more than one family emission limit determined by the company.

F.6.2.3 *Tractors*

The fleets for tractors are composed of the following vehicles:

<ul style="list-style-type: none"> <li>• Class 7 low-roof tractors</li> </ul>
<ul style="list-style-type: none"> <li>• Class 7 mid-roof tractors</li> </ul>
<ul style="list-style-type: none"> <li>• Class 7 high-roof tractors</li> </ul>

<ul style="list-style-type: none"> <li>• Class 8 low-roof day cab tractors</li> </ul>
<ul style="list-style-type: none"> <li>• Class 8 low-roof sleeper cab tractors</li> </ul>
<ul style="list-style-type: none"> <li>• Class 8 mid-roof day cab tractors</li> </ul>
<ul style="list-style-type: none"> <li>• Class 8 mid-roof sleeper cab tractors</li> </ul>
<ul style="list-style-type: none"> <li>• Class 8 high-roof day cab tractors</li> </ul>
<ul style="list-style-type: none"> <li>• Class 8 high-roof sleeper cab tractors</li> </ul>

Further, for the purpose of participating in the CO<sub>2</sub> emission credit system, all tractors grouped in a fleet must be either:

- hybrid vehicles with regenerative braking,
- vehicles equipped with an engine that includes a Rankine-cycle or other bottoming cycle exhaust energy recovery system,
- electric vehicles,
- fuel cell vehicles, or
- vehicles manufactured with innovative technologies.

For example, if a company manufactures or imports Class 7 hybrid tractors and Class 7 electric tractors both with low roofs, the company must have at least two fleets of Class 7 low-roof tractors, one with its hybrid tractors and one with its electric tractors.

The tractors in the fleet must be further grouped into subfleets with identical CO<sub>2</sub> family emission limits if the tractors in the fleet have more than one family emission limit determined by the company.

#### F.6.2.4 *Heavy-duty engines*

The fleets for heavy-duty engines composed of the following engines:

<ul style="list-style-type: none"> <li>• spark-ignition engines</li> </ul>
<ul style="list-style-type: none"> <li>• light heavy-duty engines that are compression-ignition engines and that are designed to be used in vocational vehicles</li> </ul>
<ul style="list-style-type: none"> <li>• medium heavy-duty engines that are compression-ignition engines and that are designed to be used in vocational vehicles</li> </ul>
<ul style="list-style-type: none"> <li>• heavy heavy-duty engines that are compression-ignition engines and that are designed to be used in vocational vehicles</li> </ul>



- |  |
|--|
| <ul style="list-style-type: none"> <li>• medium heavy-duty engines that are compression-ignition engines and that are designed to be used in tractors</li> </ul> |
| <ul style="list-style-type: none"> <li>• heavy heavy-duty engines that are compression-ignition engines and that are designed to be used in tractors</li> </ul>  |

Also, all heavy-duty engines of a fleet must be of the same engine family and have an identical CO<sub>2</sub> family certification level, as well as identical N<sub>2</sub>O and CH<sub>4</sub> family emission limits.

When a company determines the CO<sub>2</sub> family certification level for its fleets of heavy-duty engines, as well as the N<sub>2</sub>O and CH<sub>4</sub> family emission limits, it must take into account section 1036.205(e) of the CFR, meaning that the number of engines that conform to the level and limits for the engine family must represent at least 1% of the number of engines sold of the engine family. These engines are considered to be the tested engine configuration [section 1036.235(a) of the CFR].

If the engine is sold in the U.S., the number sold in the U.S. is used to determine the tested engine configuration. Otherwise, if no engines of the engine family are sold in the U.S., the tested engine configuration must be determined based on Canadian sales.

### F.6.3 Allowances for innovative technologies

Companies may obtain additional emission credits for heavy-duty vehicles or engines that are equipped with innovative technologies. A GHG emission reduction technology is considered to be innovative if the total emission reduction attributable to it cannot be measured by either GEM computer simulation modelling or the test procedures specified under the Regulations. For example, for a tractor, if the vehicle has components that reduce the weight of the vehicle, but that are not listed under paragraph 27(2)(e) of the Regulations for the calculation of the weight reduction value to input into GEM, these components could be considered innovative technologies.

The test methods prescribed in the Regulations to calculate the additional credits for innovative technologies are listed in the following table with the corresponding sections of the Regulations describing the additional credits calculation:

Table 9 – Innovative Technology Additional Credit Calculation

<b>Vehicles or Engines</b>	<b>Determination of additional credits</b>	<b>Corresponding provisions of the Regulations for the additional credit calculation</b>
Class 2B and Class 3 heavy-duty vehicles	Five-cycle credit value determined in accordance with section 86.1869(c) of the CFR	Paragraph 41(1)(a)

	Alternative procedure set out in section 86.1869(d) of the CFR	Subsection 41(2)
Vocational vehicles and tractors	A to B testing determined in accordance with section 1037.610(c) of the CFR	Subparagraph 41(1)(b)(i)
	Improvement factor determined in accordance with sections 1037.610(b)(1) and 1037.610(c) the CFR	Subparagraph 41(1)(b)(ii)
Heavy-duty engines	Chassis A to B testing	Subparagraph 41(1)(c)(i)
	Engine dynamometer A to B testing	Subparagraph 41(1)(c)(ii)
	Improvement factor determined in accordance with section 1036.610(b)(1) of the CFR	Subparagraph 41(1)(c)(iii)

Except for the improvement factor calculation method, the result of the calculation provides the number of additional credits, expressed in megagrams of CO<sub>2</sub>, for the fleet. Therefore, these additional credits are added to the number of credits calculated for the fleet in section 35 of the Regulations. When using the improvement factor calculation method for vocational vehicles, tractors and heavy-duty engines, the result provides the total of credits for the fleet including the additional credits, and thus replaces the number of credits obtained in paragraphs 35(1)(b), (c), or (d) of the Regulations, as the case may be.

A company is not allowed to obtain additional credits more than once for a vehicle or engine with regard to the same type of GHG emission reduction technology.

#### *F.6.4 Incentives for advanced technologies*

Companies may obtain additional credits for heavy-duty vehicles or engines that are equipped with advanced technologies, meaning:

- electric vehicles;
- fuel cell vehicles;
- hybrid vehicles; and
- vehicles and engines that include a Rankine-cycle or other bottoming cycle exhaust energy recovery system.

Table 10 – Advanced Technology Additional Credit Calculation

Vehicles or Engines	Advanced technology	Determination of the additional credits	Corresponding sections of the Regulations for the additional credit calculation
Class 2B and Class 3 heavy-duty vehicles	Electric, fuel cell, hybrid, Rankine-cycle	Credit calculation is done as for conventional vehicles under paragraph 35(1)(a), but in a separate fleet [subsection 18(4)]	Section 37
Vocational vehicles and tractors	Electric, fuel cell, hybrid, Rankine-cycle	Improvement factor based on comparison with an “equivalent conventional vehicle”	Section 38
Vocational vehicles, tractors and heavy-duty engines	Post-transmission hybrid	Benefit obtained from A to B testing determined in accordance with section 1037.550 of the CFR taking into account 1036.525	Section 39
	Pre-transmission hybrid	Benefit obtained from A to B testing determined in accordance with part 1065 of the CFR or in accordance with section 1037.550 of the CFR taking into account section 1036.525	
Heavy-duty engines	Rankine-cycle or other bottoming cycle exhaust energy recovery system	Benefit obtained from A to B testing determined in accordance with subpart F of part 1037 of the CFR or an alternative procedure, as prescribed	Section 40

The result of the calculation provides the number of additional credits, expressed in megagrams of CO<sub>2</sub>, for the fleet. Therefore, these additional credits are added to the number of credits calculated for the fleet in section 35 of the Regulations.

A company that obtains credits for the above mentioned advanced Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles may multiply the number of credits obtained for those vehicles by 1.5.

A company that obtains additional credits for the above mentioned advanced vocational vehicles, tractors and heavy-duty engines may multiply the number of additional credits obtained by 1.5, if the company does not use the early action credit multiplier for the same vehicles or engines.

A company is not allowed to obtain additional credits more than once for a vehicle or engine with regard to the same type of GHG emission reduction technology, as per section 36 of the Regulations.

#### **F.6.5**      *Early action credits*

As per section 47, credits are available for averaging sets of heavy-duty vehicles and engines that reduce GHG emissions earlier than the Regulations specify. These credits are optional and are referred to as early action credits. They apply to:

- 2013 model year vehicles and compression-ignition engines,
- 2011-2013 model years electric vehicles, and
- 2015 model year spark-ignition engines.

The following table indicates in which end of model year report the early action credits must be reported. It also indicates in which model year the early action credits are valid and may be used to offset any deficit within its averaging set.

Table 11 – Early Action Credits

<b>Vehicles or engines</b>	<b>Model year of reporting*</b>	<b>Valid for model years</b>
2013 model year vehicles and compression-ignition engines	2014	2014 to 2018
2011-2013 model years electric vehicles	2014	2014 to 2018
2015 model year spark-ignition engines	2016	2016 to 2020

\*This is also the model year of the standards to which the emission levels are compared in order to obtain early action credits.

In order to obtain early action credits, except for electric vehicles, a company must group all its heavy-duty vehicles of a given fleet that it manufactures or imports for that model year into the applicable fleet (see section F.6.2 of this document or section 18 of the Regulations for details on fleets). In the case of heavy-duty engines, in order to obtain early action credits, a company must group all its engines of a given averaging set that it manufactures or imports for that model year into the applicable averaging set [see section F.6.1 of this document or subsection 1(1) of the Regulations for details on averaging sets].

A company that obtains credits for the above mentioned vocational vehicles, tractors and engines may multiply the number of credits obtained for those vehicles by 1.5. However, in the case of advanced vehicles or engines, the company may not use the additional credit multiplier for the same vehicles or engines, if it uses the early action credit multiplier.

Class 2B and Class 3 heavy-duty vehicles are not eligible for the early action credit multiplier.

### *F.6.6 Vocational tractors*

According to section 28 of the Regulations, when tractors meet the definition of a vocational tractor, companies have the option to comply with the CO<sub>2</sub> emission standards applicable for vocational vehicles (section 26 of the Regulations), instead of those applicable to tractors (section 27 of the Regulations).

There are some restrictions in regard to vocational tractors: a company is not allowed to apply the CO<sub>2</sub> emission standards of vocational vehicles to more than 5,250 Class 7 and Class 8 vocational tractors, in any consecutive three model year period. Vocational tractors exceeding that limit have to comply with the emissions standards applicable to tractors. Companies need to report this election in their end of model year report (see section F.6.6.4).

The following sections provided more details on provisions regarding vocational tractors.

#### *F.6.6.1 Definition of a vocational tractor*

A “vocational tractor” is a tractor that is not designed primarily to operate at high and constant speeds, such as on highways, or that does not benefit from efficiency improvements designed for line-haul tractors, such as aerodynamic devices. In addition, a vocational tractor meets one of the three following characteristics:

- it is a low-roof tractor that is designed for local pickup and delivery;
- it is a tractor that is designed for both on-road and off-road use, such as a tractor with a reinforced frame and increased ground clearance; or
- it is a tractor that has a Gross Combination Weight Rating (GCWR) of more than 54,431 kg (120,000 lb).

#### *F.6.6.2 Labelling requirements for a vocational tractor*

A vocational tractor that is not an EPA-certified heavy-duty vehicle must bear a compliance label, as prescribed in section 9 of the Regulations. Information required for vocational tractors include a

statement, in both official languages, that the vehicle is a vocational tractor. Complete details on compliance label are provided in section H.1.12 and Appendix VI of this document.

When a vocational tractor is an EPA-certified heavy-duty vehicle, according to section 1037.630(b)(2) of the CFR, the required EPA emission control information label includes a statement that the vehicle is certified as a vocational tractor.

#### F.6.6.3 *Fleet requirements for a vocational tractor*

As per paragraph 18(6)(a) of the Regulations, when participating in the CO<sub>2</sub> emission credit system, vocational tractors must to be grouped in a separate fleet of vocational tractors only.

For example, a company would group all vocational tractors of Class 7 in their own separate fleet and these vehicles would be subject to the CO<sub>2</sub> emission standard applicable for Class 6 and Class 7 vocational vehicles.

For details on the CO<sub>2</sub> emission credit system and fleets, see section F.6.1 of this document.

#### F.6.6.4 *Reporting requirements for a vocational tractor*

Further to the information required for vocational vehicles, in the case of vocational tractors, the end of model year report must contain a statement by a company that it manufactured or imported vocational tractors that comply with the CO<sub>2</sub> emission standards applicable to vocational vehicles, instead of those applicable to tractors [subparagraph 48(2)(b)(vi) of the Regulations].

The end of model year report must also provide the number of vocational tractors that conform to the emission standards applicable to vocational vehicles for the model year of the report, as well as for the two previous model years [subsection 48(8) of the Regulations].

For further details on reporting, see section H.2 of this document.

#### F.6.6.5 *Records required for a vocational tractor*

As per section 58 of the Regulations, when a vocational tractor conforms to the emission standards applicable to vocational vehicles instead of tractors, the records that a company must maintain under the Act must include the demonstration that the tractor meets the definition “vocational tractor”. See section H.1.9.3 for details on what may be considered for records.

## **F.7 Small volume exemption**

The Regulations set out, in section 17, a provision for a company that manufactures or imports a small volume of tractors and vocational vehicles.

A company has the option to exempt its vocational vehicles and tractors of a given model year from complying to the CO<sub>2</sub> emission standards, provided that it is considered a small volume company under the Regulations; to be considered as such, the company must meet the following criteria:

- The company manufactured or imported for sale in Canada less than 200 tractors and vocational vehicles in 2011; and
- Its average number of tractors and vocational vehicles manufactured or imported for sale in Canada for the three most recent consecutive model years preceding the model year for which the exemption is requested is also less than 200.

When a company elects to use this exemption, it is not exempted from the application of the Regulations. If the tractors and vocational vehicles in question are not covered by an EPA certificate, they are exempted from complying with the CO<sub>2</sub> emission standards set in subsection 26(1) or 27(1) of the Regulations. If, on the other hand, these vehicles are covered by an EPA certificate, they are exempted from complying with subsection 13(4) of the Regulations, which requires that the company participate in the CO<sub>2</sub> emission credit system when its vehicles exceed the applicable CO<sub>2</sub> emission standard. Engines in these vehicles are still required to comply with the applicable emission standards of the Regulations.

When a company makes the election to be exempted under section 17 of the Regulations, it is not allowed to use the CO<sub>2</sub> emission credit system for any of its vehicles or engines of the model year for which it is exempted.

As set out in subsections 17(3) and (4) of the Regulations, the company must also provide information relating to mergers or purchases of any company to be entitled to the exemption.

When a company elects to exempt its vocational vehicles and tractors as a small volume company, it must still provide an end of model year report. The report must state this election, as described in subparagraph 48(2)(b)(v) of the Regulations. Furthermore, as set out under subsection 48(5) of the Regulations, the end of model year report must contain the following information:

- the number of tractors and vocational vehicles that the company imported or manufactured in 2011 for sale in Canada;
- the average number of tractors and vocational vehicles that the company manufactured or imported for sale in Canada for the three most recent consecutive model years preceding the model year of the report; and
- the number of tractors and vocational vehicles that the company manufactured or imported for sale in Canada for the model year of the report.

For further details on reporting, see section H.2 of this document.

## **F.8 Vehicles manufactured in stages**

Section 11 of the Regulations contains requirements for heavy-duty vehicles manufactured in stages so that when a company alters a heavy-duty vehicle that is in conformity with the Regulations in a way that may affect emissions, it must ensure that the vehicle still conforms to all applicable standards when the work carried out to alter the vehicle is completed.

A heavy-duty vehicle is altered when:

- The stated type of vehicle, among those referred to in subparagraphs 18(3)(a)(i) to (xiii) of the Regulations, which corresponds to its applicable fleet, is no longer accurate, meaning that the alterations made to the vehicle changed the fleet in which the vehicles must belong and the applicable standard to which the vehicle must conform. For example, when a company changes the GVWR of a Class 5 vocational vehicle to make it a vocational vehicle of Class 6, an alteration is made to the vehicle.
- The company alters the emission control system.
- The company alters the engine configuration in a way that might affect emissions.
- The company replaces any of the components of the vehicle that might alter the value of a parameter used in the GEM computer simulation model.

If a company does not alter a vehicle in the above mentioned ways, the company has no obligation under the Section 11 of the Regulations for this vehicle.

If a company alters a heavy-duty vehicle in one of the above mentioned ways, the company must

- ensure that any label affixed to the vehicle by the previous manufacturer remains applied to the altered vehicle. Labels may be the U.S. emission control information label, the compliance label and/or the national emissions mark, as the case may be;
- apply to the altered vehicle an additional label that sets out the following information:
  - The words “THIS VEHICLE WAS ALTERED BY / CE VÉHICULE A ÉTÉ MODIFIÉ PAR”, followed by the name of the company that altered the vehicle,
  - The month and year during which the alteration was made to the vehicle,
  - The national emissions mark (the national emissions mark may also be displayed on a separate label applied immediately beside the U.S. emission control information label or the compliance label that was previously affixed on the vehicle), and
  - The type of vehicle referred to in subparagraphs 18(3)(a)(i) to (xiii) of the Regulations, if it differs from the type set out on the compliance label that was previously affixed on the vehicle or if the regulatory subcategory that is set out on the U.S. emission control information label is changed;
- obtain and produce the evidence of conformity referred to in section 54 of the Regulations for the altered vehicle; and
- provide an end of model year report as required by section 48 of the Regulations.

A company that alters a vehicle must not participate in the CO<sub>2</sub> emission credit system with respect to that altered vehicle.

### **F.9 Engines or vehicles covered by an EPA certificate of conformity and sold concurrently in Canada and in the U.S.**

Under subsection 13(1) of the Regulations, an engine or a vehicle that is covered by an EPA certificate of conformity and that is sold concurrently in Canada and in the U.S. must conform to the standards set out in the EPA certificate of conformity instead of the following standards set out in Table 12 (see sections H.1.3.2 and H.1.3.3 for details on vehicles and engines sold concurrently). All other



requirements of the Regulations not listed must also be met (such as evidence of conformity, reporting, importation documents, notice of defect, etc.).

Table 12 – Standards that an EPA Certificate Replaces for Engines and Vehicles Covered by an EPA Certificate of Conformity and Sold Concurrently in Canada and the U.S.

<b>Vehicles and Engines</b>	<b>Standards</b>	<b>Corresponding provisions of the Regulations</b>
Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a “vocational vehicle”)	Emission Control Systems	Section 14
	Adjustable Parameters	Section 15
	Air Conditioning Systems	Section 16
	N <sub>2</sub> O and CH <sub>4</sub> Emissions Standards	Subsection 20(1)
Vocational vehicles	Emission Control Systems	Section 14
	Adjustable Parameters	Section 15
	CO <sub>2</sub> Emission Standards	Subsection 26(1)
Tractors	Emission Control Systems	Section 14
	Adjustable Parameters	Section 15
	Air Conditioning Systems	Section 16
	CO <sub>2</sub> Emission Standards	Subsection 27(1)
Heavy-Duty Engines	Emission Control Systems	Section 14
	Adjustable Parameters	Section 15
	N <sub>2</sub> O and CH <sub>4</sub> Emissions Standards	Subsection 29(1)
	CO <sub>2</sub> Emission Standards	Section 30 or subsections 31(1) or (2)

In some cases, it is possible for the EPA to issue a certificate of conformity for an engine or a vehicle with emission levels above the applicable standard. Vehicles and engines certified under the EPA averaging

provisions may not exceed the prescribed maximum emission level, i.e. the family emission limits or family certification level, as the case may be.

If a vehicle or engine is covered by an EPA certificate, but not sold concurrently in Canada and in the U.S., it must comply with standards set out in Table 12.

## **G. CO<sub>2</sub> EMISSION CREDIT SYSTEM FOR VEHICLES AND ENGINES COVERED BY AN EPA CERTIFICATE**

### **G.1 Introduction to CO<sub>2</sub> emission credit system**

The Regulations include a system of emission credits to help meet overall environmental objectives in a manner that provides the regulated industry with compliance flexibility. The system allows companies to generate, bank and trade emission credits. Under this system, companies are allowed to manufacture or import vehicles and engines with CO<sub>2</sub> emission levels worse than the applicable emission standard and others performing better than the standard, provided that their average fleet emission level does not exceed the applicable emission standard. In a case where the applicable emission standard is exceeded, the fleet incurs a deficit which must be offset (see applicable conditions in section F.6.1). In order to participate in the CO<sub>2</sub> emission credit system, a company must group into fleets its vehicles and engines and calculates its credits and deficits, expressed in units of megagrams of CO<sub>2</sub>. Details on the CO<sub>2</sub> emission credit system are provided in section F.6.1, as well as details on fleets in section F.6.2.

Companies manufacturing or importing vehicles and engines covered by an EPA certificate must participate in the CO<sub>2</sub> emission credit system if they manufacture or import vehicles or engines that have a CO<sub>2</sub> family emission limit or a CO<sub>2</sub> family certification level above the applicable standards. However some flexibility is provided in the Regulations and this is outlined in the following sections of this document.

### **G.2 CO<sub>2</sub> emission credit system for vehicles and engines covered by an EPA certificate**

In the case of a company that manufactures or imports a Class 2B or Class 3 heavy-duty vehicle or a heavy-duty engine that is covered by an EPA certificate, but that exceeds the N<sub>2</sub>O or CH<sub>4</sub> emission standard under the Regulations, the company must conform to subsections 20(3) to (6) or 29(4) to (7), as applicable, by offsetting their deficit with CO<sub>2</sub> credits normalized by the global warming potential for each of these compounds.

If a heavy-duty engine, a vocational vehicle or a tractor conforms to a CO<sub>2</sub> family certification level or a CO<sub>2</sub> family emission limit, as applicable, that exceeds the applicable CO<sub>2</sub> emission standard, the company must participate in the CO<sub>2</sub> emission credit system to offset any deficit (see section F.6.1 for more information on the CO<sub>2</sub> emission credit system) with the following restrictions and allowances that are detailed in section G.3 for engines and section G.4 for vehicles.

When a company participates in the CO<sub>2</sub> emission credit system with heavy-duty vehicles and engines covered by an EPA certificate, they must comply with the provisions related to the CO<sub>2</sub> emission credit system of the CO<sub>2</sub> emission standards the certificate replaces, as per subsection 13(3) of the Regulations.

### **G.3 CO<sub>2</sub> emission credit system for engines covered by an EPA certificate and exceeding the applicable CO<sub>2</sub> emission standard**

As set out in subsection 13(8) of the Regulations, when a company imports a heavy-duty engine covered by an EPA certificate that exceeds the applicable CO<sub>2</sub> emission standard, the company must participate in the CO<sub>2</sub> emission credit system and group all its engines into fleets, if the number of engines sold in Canada by the company:

- is more than 1000 and exceeds the number of engines of the same engine family sold in the United States, or
- is between 101 and 1000 and is more than twice the number of engines of the same engine family sold in the United States.

For example, if a company imports 300 engines of an engine family in Canada exceeding the standard, the company must be able to provide evidence that 151 or more engines of the same engine family and covered by the same EPA certificate were sold in the U.S. in order to be exempt from participating in the CO<sub>2</sub> emission credit system.

If the number of engines sold in Canada is 100 or less, the company may import these engines without participating in the CO<sub>2</sub> emission credit system.

### **G.4 Participation in the CO<sub>2</sub> emission credit system for vocational vehicles and tractors covered by an EPA certificate and exceeding the applicable CO<sub>2</sub> emission standard**

When a company imports a vocational vehicle or a tractor covered by an EPA certificate that exceeds the applicable CO<sub>2</sub> emission standard, the company must participate in the CO<sub>2</sub> emission credit system and group all its vocational vehicles and tractors into fleets.

For model year 2014 to 2016, the Regulations provide some allowances for vocational vehicles and tractors covered by an EPA certificate. As set out in subsection 13(4) of the Regulations, the phase-in requirements for vocational vehicles and tractors covered by an EPA certificate allow companies to exempt from the CO<sub>2</sub> emission credit system:

1. all of their model year 2014 vocational vehicles and tractors,
2. all of their model year 2015 and 2016 vocational vehicles and tractors if the number of their heavy-duty vehicles sold in Canada is 500 or less,
3. up to 50% of their model year 2015 vocational vehicles and tractors if the number of their heavy-duty vehicles sold in Canada is greater than 500,

4. up to 25% of their model year 2016 vocational vehicles and tractors if the number of their heavy-duty vehicles sold in Canada is greater than 500.

There is no exemption from participating in the CO<sub>2</sub> emission credit system for 2017 model year and beyond if the company manufactures or imports vehicles above the applicable standards.

When a company elects to take advantage of these transitional flexibilities, some CO<sub>2</sub> credit restrictions apply. When using the phase-in options:

- Credits obtained for model year 2015 and 2016 may only be used for that same model year, meaning that these credits may not be carried over as they are not valid for subsequent model years (subsection 13(5) of the Regulations);
- Credits obtained in previous model years may only be used if the company does not use the phase-in exemptions in any given year [subsection 13(6) of the Regulations]. For example, if a company participated in the CO<sub>2</sub> emission credit system for all its model year 2014 vehicles, but decides to only group 50% of its vehicles for model year 2015, the credits obtained for model year 2014 are no longer valid.
- Early action credits may only be used during a given model year if the company does not use the phase-in exemption for that model year [subsection 13(7) of the Regulations; see section F.6.5. for details on early action credits]. For example, if a company decides to only group into fleets 50% of its vehicles for model year 2015, it may not use early action credit for model year 2015. Then, if for model year 2016 it participates in the CO<sub>2</sub> emission credit system and includes all its model year 2016 vehicles in its fleet, the company is allowed to use early action credits for that model year.

## **H. EVIDENCE OF CONFORMITY, RECORDS AND REPORTS**

As per section 153 of the Act, evidence of conformity must be obtained and produced and records must be maintained and furnished in order to demonstrate conformity of vehicles and engines to which a national emissions mark has been applied.

### **H.1 Evidence of conformity**

This section aims to provide guidance on the provisions of the Regulations regarding evidence of conformity requirements and, specifically, what is required and what procedures should be followed when submitting evidence of conformity for heavy-duty vehicles and engines manufactured for sale in Canada or imported for sale into Canada.

#### *H.1.1 Introduction to evidence of conformity*

A heavy-duty vehicle or engine must conform to the applicable standards at the time of its assembly, in the case of a vehicle, or its manufacture, in the case of an engine, was completed. Evidence of conformity for those standards must be produced in the prescribed form provided by the Regulation.

Evidence of conformity depends if the vehicle or engine is covered, or not, by an EPA certificate and also if it is sold concurrently, or not, in Canada and in the United States.

When a vehicle or engine is covered by an EPA certificate and sold concurrently in Canada and in the United States, the evidence of conformity must be produced according to section 53 of the Regulations. Section H.1.3 of this guidance provided details in that case.

Otherwise, i.e. if those two conditions are not met, a vehicle or engine is considered a “Canada-unique” vehicle or engine and evidence of conformity is then produced in accordance with section 54 of the Regulations. The term “Canada-unique” is used for the purpose of this document.

A Type 1<sup>2</sup> Canada-unique vehicle or engine is a vehicle or engine that is specifically listed on an EPA certificate, and sold in Canada, but not sold in the United States. A Type 3 Canada-unique vehicle or engine is a vehicle or engine that is not specifically listed on an EPA certificate. Section H.1.4 of this guidance document provides details in that case.

### H.1.2 Background on the evidence of conformity

The following flow-chart illustrates the different ‘types’ of engines and vehicles and identifies which section addresses the appropriate evidence of conformity requirements:

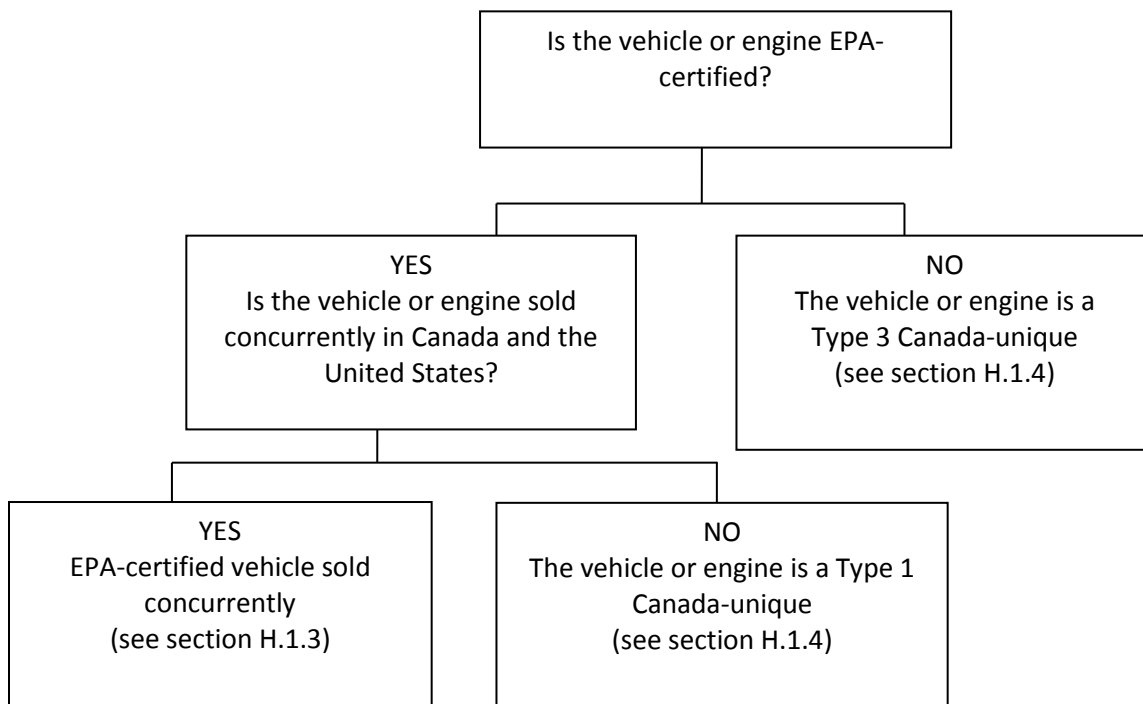


Figure 3: Determination of Evidence of Conformity to the Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations

<sup>2</sup> The type of Canada-unique vehicles and engines referred to herein are the same as those previously defined for the purpose of other Environment Canada regulations. Of note, Type 2 is not accepted for conformity with the Regulations covered in this document; this explains why this document does not cover evidence of conformity for vehicles and engines of that type.

### *H.1.3 Engines and vehicles covered by an EPA certificate and sold concurrently in Canada and in the United States (section 53)*

Section 53 of the Regulations identifies the evidence of conformity that is required for a vehicle or an engine that is covered by a valid EPA certificate and sold concurrently in Canada and in the United States. An example of an EPA certificate is included in Appendix I.

#### *H.1.3.1 Vehicles and engines covered by an EPA certificate*

For the purpose of the Regulations, a vehicle or engine is considered to be covered by an EPA certificate if:

- For Class 2B and Class 3 heavy-duty vehicles, its test group is specifically listed on a valid EPA certificate
- For vocational vehicles and tractors, its vehicle family is specifically listed on a valid EPA certificate
- For engines, its engine family is specifically listed on a valid EPA certificate.

In this case, the evidence of conformity information listed in section 53 is to be submitted only upon written request from Environment Canada. This information should be maintained and provided in accordance with section 59 of the Regulations. The following are the documentation requirements to meet section 53:

- a copy of the EPA certificate covering the vehicle or the engine and, if applicable, a copy of the evidence of the EPA approval concerning the vehicle or engine as referred to in paragraph 27(6)(a), in paragraph (a) of A in the formula set out in subsection 40(1) or in paragraph 41(2)(a), as the case may be;
- a document demonstrating that the vehicle or engine that is covered by the EPA certificate is sold concurrently in Canada and the United States; (see details H.1.3.2 and H.1.3.3)
- a copy of the records submitted to the EPA in support of the application or amended application for the EPA certificate in respect of the vehicle or engine; and
- in the case of a heavy-duty vehicle, a U.S. emission control information label or, in the case of a heavy-duty engine, a U.S. engine information label that is permanently affixed to the vehicle or engine in the form and location set out in
  - section 1037.35 of the CFR, for the applicable model year of the heavy-duty vehicle, and
  - section 1036.35 of the CFR, for the applicable model year of the heavy-duty engine.

#### *H.1.3.2 Engines sold concurrently*

For the purpose of the Regulations, an engine sold in Canada is considered to be sold concurrently if any of the following applies within one year (365 days) preceding the engine's importation into Canada, the

application of the NEM or, in the case of subsection 153(2) of the Act, before the engine leaves possession or control of the company:

- An engine of the same engine family and model year is sold to the first retail purchaser or leaser in the United States. This must be substantiated with any of a, b, or c below:
  - a) copy of dated invoice to the first U.S. retail purchaser/leaser
  - b) copy of dated invoice to a U.S. party who sells or leases at the U.S. retail level (e.g. dealer)
  - c) copy of dated purchase order between a U.S. party and the first U.S. retail purchaser/leaser
- A dated advertisement of the same engine family of the same model year targeted at U.S. consumers (this could include sales brochure, printed ad, magazine, price list etc.) demonstrating that the product was actively marketed and available for delivery in the U.S.
- A dated U.S. manufacturer/importer/dealer list for the same engine family of the same model year demonstrating that the product was actively marketed and available for delivery in the U.S.

Before the import of an engine, before applying the NEM, or, in the case of subsection 153(2) of the Act, before the engine leaves the possession or control of the company, a company must ensure that it has the complete evidence of conformity available (including EPA certification) and at least one of the above-listed concurrent sale documents that is appropriately dated. The evidence of conformity must be available prior to any of the above actions taking place. Otherwise, a company must produce a Canada-unique submission of evidence of conformity as per section H.1.4.

#### H.1.3.3 *Vehicles sold concurrently*

For the purpose of the Regulations, a vehicle sold in Canada is considered to be sold concurrently if any of the following applies within one year (365 days) preceding the vehicle's importation into Canada, the application of the NEM or, in the case of subsection 153(2) of the Act, before the vehicle leaves possession or control of the company:

- A vehicle of the same test group or vehicle family, as the case may be, and model year is sold to the first retail purchaser or leaser in the United States. This must be substantiated with any of a, b, or c below:
  - a) copy of dated invoice to the first U.S. retail purchaser\leaser
  - b) copy of dated invoice to a U.S. party who sells or leases at the U.S. retail level (e.g. dealer)
  - c) copy of dated purchase order between a U.S. party and the first U.S. retail purchaser/leaser
- A dated advertisement of the same test group or vehicle family, as the case may be, and model year targeted at U.S. consumers (this could include sales brochure, printed ad, magazine, price list etc.) demonstrating that the product was actively marketed and available for delivery in the U.S.
- A dated U.S. manufacturer/importer/dealer list for the same test group or vehicle family, as the case may be, and model year demonstrating that the product was actively marketed and available for delivery in the U.S.

- A copy of dated invoice from the same test group or vehicle family, as the case may be, and model year from the factory to a U.S. distributor showing that the products have been wholesaled in the U.S. This demonstrates sale of products at the wholesale level which will inevitably convert to retail sales over time.

Before the import of a vehicle, before applying the NEM, or, in the case of subsection 153(2) of the Act, before the vehicle leaves possession or control of the company, a company must ensure that it has the complete evidence of conformity available (including EPA certification), and at least one of the above listed concurrent sale documents that is appropriately dated. The evidence of conformity must be available prior to any of the above actions taking place. Otherwise, a company must produce a Canada-unique submission of evidence of conformity as per section H.1.4

#### *H.1.4 Canada-unique engines and vehicles (Section 54)*

Evidence of conformity must be submitted to Environment Canada as per section 54 of the Regulations when the vehicle or engine is Canada-unique, which requires that the evidence of conformity be produced “in a form and manner satisfactory to the Minister”.

Since the Regulations are aligned with those of the United States, the general intent is to enable companies to establish compliance in Canada by submitting information similar to that which must be provided to obtain an EPA certificate in the U.S.; as set out under paragraph 53(c) of the Regulations, this information must also be maintained as a record for vehicles and engines covered by an EPA certificate that are sold concurrently in Canada and the United States. The following paragraphs summarize the information used as evidence of conformity for Canada-unique engines and vehicles. It should be noted that this list may change from time to time to respond to evolving testing and information requirements for different types of engines or vehicles, and to stay aligned with the requirements in the United States.

A separate submission is required for each vehicle family, engine family or test group. For a vehicle or engine that is either not covered by an EPA certificate of conformity or not sold concurrently in Canada and in the United States, the evidence of conformity in this situation must be submitted before the importation of the subject engine, or before the engine leaves the possession or control of the company, and before affixing the national emissions mark to the vehicle or engine.

Appendix II illustrates the procedure to provide evidence of conformity “in a form and manner satisfactory to the Minister” for the vehicles and engines referred to in section 54 of the Regulations.

The information that needs to be submitted varies according to the type of Canada-unique vehicle or engine under consideration, as shown in Table 13:



Table 13 – Section 54 - Evidence of Conformity and Submission Timelines

Canada unique - Type	What to submit	When to submit
<p>Type 1 – Covered by an EPA certificate and sold in Canada, but not in the United States</p>	<ul style="list-style-type: none"> <li>• A copy of the EPA certificate that shows that the test group, vehicle family or engine family is specifically listed on a valid EPA certificate<sup>3</sup>;</li> <li>• A copy of the records submitted to the EPA in support of the application for the issuance of the EPA certificate;</li> <li>• A statement of compliance letter;</li> <li>• A U.S. emission control information label or, a U.S. engine information label; and</li> <li>• A copy, in both official languages, of the emission-related maintenance instructions and instructions required, if applicable, under sections 51 and 52 of the Regulations.</li> </ul>	<ul style="list-style-type: none"> <li>• Before the importation of the subject vehicle or engine, or in the case of subsection 153(2) of the Act before the subject vehicle or engine leaves the possession or control of the company, or before affixing the national emissions mark to the engine or vehicle</li> </ul>
<p>Type 3 – Not covered by an EPA certificate</p>	<ul style="list-style-type: none"> <li>• Information equivalent to what must be submitted to the EPA to obtain a certificate is required, as described in Appendix II: technical information similar to the records submitted to the EPA in support of the application for the issuance of the EPA certificate in respect of an engine or vehicle;</li> <li>• A statement of compliance letter;</li> <li>• A compliance label (in the Regulations under section 8 for engines or section 9 for vehicles); and</li> <li>• A copy, in both official languages, of the emission-related maintenance instructions and instructions required, if applicable, under sections 51 and 52 of the Regulations.</li> </ul>	

<sup>3</sup> The submission of an EPA certificate as the evidence of conformity for a Type 1 engine or vehicle is acceptable where it establishes that the engine family, vehicle family or test group, as the case may be, of the engine or vehicle complies with all applicable standards set out in the Regulations established under the CEPA 1999, as should be stated in the statement of compliance letter (e.g. no deviations from prescribed standards).

It should be noted that the information requirements that are listed above reflect what information constitutes a form and manner satisfactory to the Minister.

### *H.1.5 Statement of compliance letter*

A submission of evidence of conformity to the Regulations for Canada-unique engines and vehicles must contain an original signed letter from an authorized representative of the company in Canada that offers for sale in Canada, or intends to import into Canada, the subject engines or vehicles. Examples of statement of compliance letters are provided in Appendix III.

The statement of compliance letter must include as a minimum:

- Name and address of the company;
- Business number assigned to the company by the Minister of National Revenue;
- The identification of the engines or vehicles (e.g. make, model, model year, test group, vehicle fleet or engine family);
- Projected Canadian sales;
- An unconditional statement of compliance with all the applicable emission standards set out in the Regulations;
- A statement that the engines or vehicles are manufactured to the same specifications as those set out in the evidence of conformity;
- A statement acknowledging that the signatory is authorized to act on behalf of the company; and
- A request for an acknowledgment by Environment Canada that the evidence of conformity submitted has been obtained and produced in a form and manner satisfactory to the Minister.

The following additional information may also be included:

- The identity of persons (both inside or outside of the company) that Environment Canada may contact regarding the submission (e.g. technical contacts for importers);
- An indication of whether any information is to be treated as confidential; and
- Any other information believed to be relevant.

### *H.1.6 Technical information*

The technical information required for Canada-unique engines and vehicles is equivalent to that specified in a paragraph 53(c) of the Regulations, which defines one of the records to be maintained for vehicles and engines covered by an EPA certificate that are sold concurrently in Canada and the United States. The list of technical information that Environment Canada requires for Canada-unique engines and vehicles can be found in Appendix IV. It is based on the records that must be submitted to the EPA in support of the application for the issuance of the EPA certificate.

If the engine or vehicle is or was EPA-certified, a copy of the most recent records submitted to the EPA in support of the application for the issuance of the EPA certificate is deemed to be satisfactory for the technical information of the evidence of conformity. The engine or vehicle covered by the submission must be manufactured to the same specifications as those set out in the most recent records submitted to the EPA.

#### *H.1.7 Sample information or compliance label*

For a Type 1 Canada-unique engine or vehicle submission, a sample drawing or copy of the U.S. engine information label or the U.S. emission control information label for vehicles must be included in the submission of evidence of conformity. The information labels must meet all requirements of their applicable section under the appropriate part of the CFR, either section 1036.135 of the CFR for engines, or section 1037.135 of the CFR for vehicles.

For a Type 3 Canada-unique engine or vehicle submission, a sample drawing or copy of the compliance label must be included in the submission of evidence of conformity. The compliance label must meet the requirements provided in sections 8 or 9 and 10 of the Regulations. Sample labels can be found in Appendices V and VI.

#### *H.1.8 Submission of the evidence of conformity: required documentation and timing*

When a company submits evidence of conformity to Environment Canada, the company is responsible for identifying which information in the submission is confidential. Any confidential information will be dealt with in accordance with Canadian law, including the *Access to Information Act*, the *Privacy Act* and Part 11 of CEPA 1999.

The *Access to Information Act* is available at:

[//laws-lois.justice.gc.ca/eng/acts/A-1/index.html](http://laws-lois.justice.gc.ca/eng/acts/A-1/index.html),

and the *Privacy Act* which is available at:

<http://laws-lois.justice.gc.ca/eng/acts/P-21/index.html>.

#### *H.1.9 Other records*

##### *H.1.9.1 Information required in records when participating in the CO<sub>2</sub> emission credit system*

According to section 56 of the Regulations, when a company participates in the CO<sub>2</sub> emission credit system, it must maintain records containing the information shown in Table 14 for each of its fleets and each of its vehicles or engines.

Table 14 – Records to Be Maintained when Participating in the CO<sub>2</sub> Emission Credit System

Vehicles or engines	Required information	
<p>Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a “vocational vehicle”)</p>	<p>For the fleet</p>	<ul style="list-style-type: none"> <li>• the model year</li> <li>• the fleet average CO<sub>2</sub> emission standard</li> <li>• the fleet average CO<sub>2</sub> emission value</li> <li>• if applicable, the N<sub>2</sub>O and CH<sub>4</sub> emission values</li> <li>• the values and data used in calculating the fleet average CO<sub>2</sub> emission standard and the fleet average CO<sub>2</sub> emission value and, if applicable, in calculating the N<sub>2</sub>O and CH<sub>4</sub> emission values</li> <li>• the values and data used in calculating the number of CO<sub>2</sub> emission credits and, if applicable, the number of early action credits</li> <li>• the number of CO<sub>2</sub> emission credits used to offset a N<sub>2</sub>O or CH<sub>4</sub> emission deficit, if applicable</li> <li>• the GVWR, curb weight, GCWR, type of transmission, gear ratio, axle ratio and type of engine for each vehicle configuration</li> </ul>
	<p>For each vehicle</p>	<ul style="list-style-type: none"> <li>• the model year and vehicle configuration</li> <li>• the fleet average CO<sub>2</sub> emission standard</li> <li>• for a vehicle covered by an EPA certificate, the applicable test group described in section 1827 of part 86 of the CFR</li> <li>• the name and street address of the plant where the vehicle was assembled</li> <li>• the vehicle identification number</li> <li>• the CO<sub>2</sub> emission value that applies to the fleet of the vehicle and the values and data used in calculating that value</li> <li>• the name and the street or mailing address of the first retail purchaser of the vehicle in Canada</li> </ul>
<p>Vocational vehicles and tractors</p>	<p>For the fleet</p>	<ul style="list-style-type: none"> <li>• the model year,</li> <li>• the CO<sub>2</sub> emission standard that applies to the vehicles of each subfleet</li> <li>• the CO<sub>2</sub> emission rate for each subfleet</li> <li>• the values and data, including the GEM computer simulation model inputs and results, used in calculating the CO<sub>2</sub> emission rate for each subfleet</li> <li>• the values and data used in calculating the number of CO<sub>2</sub> emission credits and, if applicable, the number of early action credits, for each fleet</li> </ul>

Vehicles or engines	Required information	
		and subfleet
	For each vehicle	<ul style="list-style-type: none"> <li>• the model year and subfleet of the vehicle</li> <li>• the CO<sub>2</sub> emission standard that applies to the vehicles of each subfleet</li> <li>• for a vehicle covered by an EPA certificate, the vehicle family described in section 230 of part 1037 of the CFR</li> <li>• the name and street address of the plant where the vehicle was assembled</li> <li>• the vehicle identification number;</li> <li>• the CO<sub>2</sub> emission rate that applies to the subfleet of the vehicle and the values and data used in calculating that rate</li> <li>• the name and the street or mailing address of the first retail purchaser of the vehicle in Canada</li> </ul>
Heavy-duty Engines	For the fleet	<ul style="list-style-type: none"> <li>• the model year</li> <li>• the CO<sub>2</sub> emission standard that applies to the engines of each fleet</li> <li>• the CO<sub>2</sub> deteriorated emission level value for each fleet</li> <li>• the values and data used in calculating the number of CO<sub>2</sub> emission credits and, if applicable, the number of early action credits</li> </ul>
	For each engine	<ul style="list-style-type: none"> <li>• the model year, the engine configuration and the fleet of the engine</li> <li>• the date of manufacture</li> <li>• the gross power</li> <li>• the identification of the emission control system</li> <li>• the CO<sub>2</sub> emission standard that applies to the engines of the fleet</li> <li>• the applicable engine family</li> <li>• the name of the engine manufacturer</li> <li>• the unique identification number of the engine</li> <li>• the deterioration factor and whether it constitutes a multiplicative deterioration factor or an additive deterioration factor, and the values and data used in calculating that factor</li> <li>• the name and the street or mailing address of the first retail purchaser of the engine in Canada</li> </ul>

#### H.1.9.2 *Records required for engines covered by an EPA certificate and sold concurrently*

According to section 57 of the Regulations, when a company imports an engine covered by an EPA certificate and sold concurrently in Canada and the United States that conforms to a CO<sub>2</sub> family certification level exceeding the CO<sub>2</sub> emission standard applicable to the model year, the company must maintain records demonstrating the number of heavy-duty engines sold in the United States that are of the same engine family. The purpose of these records is to show compliance with subsection 13(8), which is described in section G.3 of this document.

Records may include:

- U.S. Averaging, Banking and Trading (ABT) report showing the number of engines sold in the United States (referred to as the U.S. directed production volumes in the CFR);
- Dated invoices for engines sold in U.S., e.g. invoices between manufacturers and distributors;
- Agreement of sales between engine manufacturers and vehicle manufacturers.

#### H.1.9.3 *Records required for a vocational tractor*

Section 58 of the Regulations requires that the records include the demonstration that the tractor meets the definition of a “vocational tractor”, when a vocational tractor conforms to the emission standards applicable to vocational vehicles instead of tractors.

Records may include:

- When the vehicle is EPA-certified, the records required by EPA set out in section 1037.630(b)(4) of the CFR.
- When the vehicle is not EPA-certified, the records may contain, but are not limited to the following: technical details and specifications describing the intended use of the vehicle and characteristics, such as the list of purchasers showing the intended use, specifications of a reinforced frame or increased ground clearance, and information on the GCWR.

See section F.6.6 for details on vocational tractors.

### *H.1.10 Administrative information*

#### H.1.10.1 *Responsibility for submitting the evidence of conformity and how it should be maintained*

The company that seeks to import an engine or vehicle, offers an engine or vehicle for sale or applies a national emissions mark is responsible for producing the evidence of conformity, as required under sections 53 and 54 of the Regulations, and for maintaining records, as required under sections 56 to 58 of the Regulations.

When the same engines or vehicles are being imported or offered for sale by two different companies, the evidence of conformity has to be produced by each company. When two different companies import or offer for sale the same Canada-unique engine or vehicle, both companies need to submit a statement of compliance letter and the proper evidence of conformity. However, instead of submitting the information twice, both statement of compliance letters may reference the information submitted by

only one of the two companies and indicate that a copy of the letter has been sent to the other company. It is each company's responsibility to ensure compliance with all applicable sections of the Regulations, such as national emissions mark requirements, submission of reports and maintenance of records etc.

To reduce the regulatory paperwork burden upon companies seeking to import Canada-unique engines or vehicles, some manufacturers may voluntarily submit relevant technical documentation directly to Environment Canada. In this case, companies in Canada are then required to submit a statement of compliance letter prior the importation of the subject engine or vehicle, or before the engine or vehicle leaves the possession or control of the company (pursuant to subsection 153(2) of the Act), and before affixing the national emissions mark to the subject engine or vehicle. It is the responsibility of companies (importers) to ascertain whether this technical documentation has been submitted for engines or vehicles they plan to import.

Section 59 of the Regulations sets out the requirements for maintenance and submission of records, which are described below:

- Evidence of conformity and records must be maintained in writing or in a readily readable electronic or optical form for each model year.
  - Evidence of conformity and records must be maintained for the following period:

Evidence of conformity and records	Maintenance period
Evidence of conformity and records referred to in sections 53 and 54	At least 8 years after the day on which the main assembly of the vehicle or manufacture of the engine was completed
Copy of the end of model year reports referred to in sections 48 and 49	at least 8 years after the end of the calendar year that corresponds to the model year
Records referred to in section 56, when participating in the CO <sub>2</sub> emission credit system	
Records referred to in section 57, for engines covered by an EPA certificate and exceeding the applicable standards	
Records for vocational tractors referred to in section 58	at least 3 years after the end of the calendar year that corresponds to the model year in question

- If the copy of the reports, the evidence of conformity and the records are maintained on behalf of a company by a third party, the company must keep a record of the name, street address and, if different, the mailing address of the person who maintains those records.
- If the Minister requests in writing the evidence of conformity or the records, or a summary of any of them, the requested information must be provided, in one of the official languages, within 40 days after the day on which the request was made to the company. If the evidence of conformity or records must be translated from a language other than French or English, it must be provided 60 days after the day on which the request was made to the company.

#### H.1.10.2 *Where to send the evidence of conformity*

##### *Electronic copies*

The electronic documentation must be either in PDF, Microsoft Office format or FileMaker Pro format. It should be sent to [Emission-Verification@ec.gc.ca](mailto:Emission-Verification@ec.gc.ca) with a case specific subject line:

- For a submission pertaining to a Canada-unique engine or vehicle:  
“Canada-unique Submission - Name of Company – ECA # (once assigned)”
- For a submission pertaining to an engine or vehicle covered by an EPA certificate and sold concurrently in Canada and the United States (when requested):  
“Evidence of Conformity Submission - Name of Company - EC201X-XXX”

##### *Paper copies*

Paper copies should be sent to:

Director  
Transportation Division  
Energy and Transportation Directorate  
Environment Canada  
351 St. Joseph Blvd.  
Gatineau, QC K1A 0H3

#### H.1.10.3 *Environment Canada acknowledgements*

Environment Canada will send acknowledgements to the manufacturer or the importer when evidence of conformity is received and considered to be “in a form and manner that is satisfactory to the Minister” based on the elements previously discussed in this section. The acknowledgement that the “form and manner” are satisfactory to the Minister does not relieve the company of the obligation to comply with the Regulations and the Act.

In cases where a company is submitting applications for more than one test group, vehicle family or engine family, it would be helpful if the company were to state the order in which it would prefer Environment Canada to process them.

When a company submits information for a test group, vehicle family or engine family for which an identical submission was received and acknowledged by Environment Canada in a previous year, the



company should notify Environment Canada that the submission is a direct carry-over to facilitate and accelerate the process.

Environment Canada will strive to respond to submissions according to the timelines shown in Table 15, but incomplete submissions may result in acknowledgement delays beyond the dates given in the table. When information is found to be missing and Environment Canada is waiting to receive additional information from a company, that wait time is added to the processing time listed below.

Table 15 – Environment Canada Response Time for Submissions of Evidence of Conformity

Vehicle or engine		Environment Canada’s turnaround time when COMPLETE information is provided
Section 53	Specifically listed on an EPA certificate (subsection 13(1) and section 53)	<ul style="list-style-type: none"> <li>Information receipt (Environment Canada requested the info): 15 calendar days after date of receipt</li> </ul>
Section 54	Type 1 – Specifically listed on an EPA certificate and sold in Canada but not in the United States	<ul style="list-style-type: none"> <li>Confirmation that the information was produced in a form and manner satisfactory to the Minister: 15 calendar days after date of receipt</li> </ul>
	Type 3 – Not specifically listed on an EPA certificate and sold in Canada but not in the United States	<ul style="list-style-type: none"> <li>Information receipt: 15 calendar days after date of receipt</li> <li>Confirmation that the information was produced in a form and manner are satisfactory to the Minister: 60 calendar days after date of receipt</li> </ul>

#### *H.1.11 Contact for questions or concerns*

For concerns relating to evidence of conformity, please contact the Vehicle and Engine Testing and Emissions Verification Section, Transportation Division of Environment Canada at:

Email: [Emission-Verification@ec.gc.ca](mailto:Emission-Verification@ec.gc.ca)

Phone: 613-998-3579

For concerns relating to other administrative requirements please contact the Regulatory Administration Section, Transportation Division of Environment Canada at:

Email: [VehicleandEngineInfo@ec.gc.ca](mailto:VehicleandEngineInfo@ec.gc.ca)

### H.1.12 Labelling requirements

Engines or vehicles imported or manufactured into Canada require labelling.

Vehicles covered by an EPA certificate must bear an U.S. emission control information label that is permanently affixed to the vehicle and, for heavy-duty engines, a U.S. engine information label that is permanently affixed to the engine.

The U.S. labels are in the form and location set out in the CFR as indicated in Table 16:

Table 16 – CFR References for U.S. Labels

<b>Vehicles and engines</b>	<b>Sections of the CFR</b>
Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a “vocational vehicle”)	86.35
Vocational vehicles and tractors	1037.135
Heavy-duty engines	1036.135

Engines and vehicles that are not EPA-certified must bear a compliance label that meets the requirements set out in sections 8 and 9 of the Regulations. Details on the information required on the labels are provided in Appendix V and VI of this document.

The physical requirements are set out in section 10 of the Regulations. These requirements state that the compliance labels required by the Regulations must:

- be applied to a conspicuous and readily accessible location;
- in the case of a vehicle, be permanently attached to the vehicle;
- in the case of an engine, be permanently attached to an engine part that is necessary for normal engine operation and does not normally require replacement during the engine’s useful life;
- be resistant to or protected against any weather condition;
- have lettering that is clear and indelible, indented, embossed or in a colour that contrasts with the background colour of the label;
- have lettering that is in block capitals and numerals that are not less than 2 mm in height; and
- have units that are identified by the appropriate name or symbol.

## H.2 Reporting

All companies that manufacture or import heavy-duty vehicles or engines for the purpose of sale in Canada must submit to the Minister an end of model year report. This report will cover all the heavy-duty vehicles and engines of the 2014 and subsequent model years that these companies manufactured in or imported into Canada.

The report must be signed by a person who is authorized to act on behalf of the company (see section H.2.3 for more details).

The end of model year report must be submitted no later than June 30 of the calendar year following the calendar year that corresponds to the given model year. For example, for 2014 model year vehicles, the end of model year report must be submitted no later than June 30, 2015.

### *H.2.1 Submission of the end of model year report*

According to section 50 of the Regulations, the end of model year report must be submitted electronically in the format provided by the Minister. However, the report must be submitted in writing if no electronic format is provided, or if it is impracticable to submit the report electronically in the format provided, owing to circumstances beyond the control of the person required to submit the report.

For information on the format of the end of model year reports, please contact the Regulatory Administration Section, Transportation Division of Environment Canada at:

Email: <mailto:VehicleandEngineInfo@ec.gc.ca>

Phone: 1-800-668-6767 (in Canada only)

#### *Electronic copies*

The reports are submitted to the Regulatory Administration Section, Transportation Division of Environment Canada at:

Email: [VehicleandEngineInfo@ec.gc.ca](mailto:VehicleandEngineInfo@ec.gc.ca)

#### *Paper copies*

Paper copies should be sent to:

Director  
Transportation Division  
Energy and Transportation Directorate  
Environment Canada  
351 St. Joseph Blvd.  
Gatineau, QC K1A 0H3

### *H.2.2 Information that must be contained the end of model year reports*

The end of model year report must indicate the model year for which the report is made.

The company must include in its end of model year report the applicable statements set out in subsection 48(2) of the Regulations for its vehicles and engines. It is possible that more than one statement applies.

The information needed in the end of model year report then depends on the statements that applied. The following table lists all possible statements that pertain in subsection 48(2) and provides the subsections of the Regulations in question. The table also outlines the section of this guidance document where the requested information is explained.

It is possible that other information is required; this is outlined in section H.2.2.6 of the guidance document.

Table 17 – Reporting Statements

Vehicles or Engines	Statements required [subsection 48(2) of the Regulations]		Information required	
			Subsections of the Regulations	Sections of this document
Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a “vocational vehicle”)	In respect of the fleet average CO <sub>2</sub> emission standard:	All vehicles are grouped into one or more fleets in accordance with section 18.  [see subparagraph 48(2)(a)(i)]	48(7)	H2.2.4
	In respect of the N <sub>2</sub> O and CH <sub>4</sub> emission standards, any of the adjacent statements which apply	The vehicles conform to the applicable N <sub>2</sub> O and CH <sub>4</sub> emission standards under the Regulations.  [see clause 48(2)(a)(ii)(A)]	48(3)	H2.2.1
		The vehicles are covered by an EPA certificate, sold concurrently in Canada and the U.S. and conform either to the emission standards referred to in the EPA certificate or to a N <sub>2</sub> O or CH <sub>4</sub> family emission limit, as the case may be, that is lower than the N <sub>2</sub> O or CH <sub>4</sub> emission standard applicable under the Regulations.  [see clause 48(2)(a)(ii)(B)]	48(4)	H2.2.2
		The vehicles are grouped into one or more fleets for the purpose of offsetting deficit in accordance with subsection 20(5), because they conform to a N <sub>2</sub> O or CH <sub>4</sub> family emission limit, as the case may be, that exceed the N <sub>2</sub> O or CH <sub>4</sub> emission standard applicable under the Regulations.	48(7)	H2.2.4

Vehicles or Engines	Statements required [subsection 48(2) of the Regulations]		Information required	
			Subsections of the Regulations	Sections of this document
		[see clause 48(2)(a)(ii)(C)]		
Vocational vehicles and tractors	In respect of the CO <sub>2</sub> emission standard, any of the adjacent statements which apply:	The vehicles conform to the applicable CO <sub>2</sub> emission standard under the Regulations.  [see subparagraph 48(2)(b)(i)]	48(3)	H2.2.1
		The vehicles are covered by an EPA certificate, sold concurrently in Canada and the U.S. and conform either to the emission standard referred to in the EPA certificate or to a CO <sub>2</sub> family emission limit that is lower than the CO <sub>2</sub> emission standard applicable under the Regulations.  [see subparagraph 48(2)(b)(ii)]	48(4)	H2.2.2
		The vehicles are covered by an EPA certificate, sold concurrently in Canada and the U.S., conform to a CO <sub>2</sub> family emission limit that exceeds the CO <sub>2</sub> emission standard applicable under the Regulations and are not grouped into one or more fleets pursuant to subsection 13(4) of the Regulations, which provides transitional allowances.  [see subparagraph 48(2)(b)(iii)]	48(4)	H2.2.2
		The vehicles are grouped into one or more fleets for the purpose of participation in the CO <sub>2</sub> emission credit system.  [see subparagraph 48(2)(b)(iv)]	48(7)	H2.2.4

Vehicles or Engines	Statements required [subsection 48(2) of the Regulations]		Information required	
			Subsections of the Regulations	Sections of this document
		The vehicles are exempted under the small volume company provisions set out in section 17 of the Regulations.  [see subparagraph 48(2)(b) (v)]	48(5)	H2.2.3
		In the case of vocational tractors, these conform to the emission standards applicable to vocational vehicles in accordance with section 28 of the Regulations.  [see subparagraph 48(2)(b) (vi)]	48(8)	H2.2.5
Heavy-duty engines	In respect of the CO <sub>2</sub> emission standard, any of the adjacent statements which apply:	The engines conform to the CO <sub>2</sub> emission standard applicable under the Regulations.  [see clause 48(2)(c)(i)(A)]	48(3)	H2.2.1
		The engines are covered by an EPA certificate, sold concurrently in Canada and the U.S. and conform either to the emission standard referred to in the EPA certificate or to a CO <sub>2</sub> family certification level that is lower than the CO <sub>2</sub> emission standard applicable under the Regulations.  [see clause 48(2)(c)(i)(B)]	48(4)	H2.2.2
		The engines are covered by an EPA certificate, sold concurrently in Canada and the U.S., conform to a CO <sub>2</sub> family certification level that exceeds the CO <sub>2</sub> emission standard applicable under the Regulations and are not grouped into one or more fleets pursuant to subsection 13(8), which set out when a	48(4)	H2.2.2

Vehicles or Engines	Statements required [subsection 48(2) of the Regulations]		Information required	
			Subsections of the Regulations	Sections of this document
		company may be exempted from the CO <sub>2</sub> emission credit system. [see clause 48(2)(c)(i)(C)]		
		The engines are grouped into one or more fleets for the purpose of participation in the CO <sub>2</sub> emission credit system. [see clause 48(2)(c)(i)(D)]	48(7)	H2.2.4
	In respect of the N <sub>2</sub> O and CH <sub>4</sub> emission standards, any of the adjacent statements which apply:	The engines conform to the N <sub>2</sub> O and CH <sub>4</sub> emission standards applicable under the Regulations. [see clause 48(2)(c)(ii)(A)]	48(3)	H2.2.1
		The engines are covered by an EPA certificate, sold concurrently in Canada and the U.S. and conform either to the emission standards referred to in the EPA certificate or to a N <sub>2</sub> O or CH <sub>4</sub> family emission limit, as the case may be, that is lower than the N <sub>2</sub> O or CH <sub>4</sub> emission standard applicable under the Regulations. [see clause 48(2)(c)(ii)(B)]	48(4)	H2.2.2
		The engines are grouped into one or more fleets for the purpose of offsetting a deficit in accordance with subsection 29(6) because they conform to a N <sub>2</sub> O or CH <sub>4</sub> family emission limit, as the case may be, that exceed the N <sub>2</sub> O or CH <sub>4</sub> emission standard.	48(7)	H2.2.4

Vehicles or Engines	Statements required [subsection 48(2) of the Regulations]		Information required	
			Subsections of the Regulations	Sections of this document
		[see clause 48(2)(c)(ii)(C)]		

H.2.2.1 *Information required in the end of model year report when the vehicles or engines conform to the applicable emissions standards of the Regulations and the company does not participate in the CO<sub>2</sub> emission credit system [subsection 48(3) of the Regulations]*

Subsection 48(3) applies when:

- the vehicles or engines conform to the applicable N<sub>2</sub>O, CH<sub>4</sub> or CO<sub>2</sub> emissions standards of the Regulations;
- the company does not participate in the CO<sub>2</sub> emission credit system for these vehicles or engines; and
- the vehicles or engines are not covered by an EPA certificate and/or are not sold concurrently in Canada and the U.S. (i.e. are Canada-unique Type 1 or 3).

When these conditions are met, the end of model year report must contain the following information:

- the number of heavy-duty vehicles or heavy-duty engines for each type of fleet [the fleets are referred to in subparagraphs 18(3)(a)(i) to (xiii) and (b)(i) to (vi) of the Regulations].

This information is required when the company has made the statement of clause 48(2)(a)(ii)(A), subparagraph 48(2)(b)(i) or clauses 48(2)(c)(i)(A) or (ii)(A) of the Regulations for one or more vehicles or engines, whichever apply. These statements may be made in the case of Class 2B and Class 3 heavy-duty vehicles meeting the N<sub>2</sub>O and CH<sub>4</sub> emissions standards, vocational vehicles and tractors meeting the CO<sub>2</sub> standards, and engines meeting the CO<sub>2</sub> emission standards, or N<sub>2</sub>O and CH<sub>4</sub> emissions standards.

H.2.2.2 *Information required in the end of model year report when the vehicles or engines are covered by an EPA certificate, sold concurrently, and the company does not participate in the CO<sub>2</sub> emission credit system [subsection 48(4) of the Regulations]*

Subsection 48(4) applies when:

- vehicles or engines are covered by an EPA certificate and are sold concurrently in Canada and the U.S.; and
- the company does not participate in the CO<sub>2</sub> emission credit system for these vehicles or engines which:



- have a CO<sub>2</sub> family emission limit, N<sub>2</sub>O and CH<sub>4</sub> family emission limits, or a CO<sub>2</sub> family certification level that is lower than the emission standard applicable under the Regulations; or
- conform to the applicable N<sub>2</sub>O and CH<sub>4</sub> emissions standards or CO<sub>2</sub> emission standard of the EPA (this is the case when a vehicle or engine is certified by the EPA, and the company does not use the U.S. Averaging, Banking and Trading system).

When those conditions are met, the end of model year report must contain the following information:

- the number of vehicles or engines for each fleet type [the fleets are referred to in subparagraphs 18(3)(a)(i) to (xiii) and (b)(i) to (vi) of the Regulations ];
- in the case of vehicles, the CO<sub>2</sub> family emission limit and, in the case of engines, the CO<sub>2</sub> family certification level;
- the number of vehicles for each CO<sub>2</sub> family emission limit or the number of engines for each CO<sub>2</sub> family certification level;
- the N<sub>2</sub>O or CH<sub>4</sub> family emission limit, when applicable;
- the number of vehicles or engines for each N<sub>2</sub>O or CH<sub>4</sub> family emission limit, when applicable; and
- if an end of model year report contains the statement referred to in clause 48(2)(c)(i)(C) of the Regulations, the number of heavy-duty engines sold in the United States that are grouped into the same engine family [statement in clause 48(2)(c)(i)(C) is made when a company may exempt its engines from the CO<sub>2</sub> emission credit system, as per subsection 13(8), based on the ratio of engines sold in Canada and in U.S. ]

The above information is required when the company has made the statement of clause 48(2)(a)(ii)(B), subparagraphs 48(2)(b)(ii) and (iii), clauses 48(2)(c)(i)(B) and (C) and (ii)(B) of the Regulations for one or more vehicles or engines, whichever applies. These statements may be made in the case of Class 2B and Class 3 heavy-duty vehicles for the N<sub>2</sub>O and CH<sub>4</sub> emissions standards, vocational vehicles and tractors for the CO<sub>2</sub> standards, and engines for the CO<sub>2</sub> emission standard, or N<sub>2</sub>O and CH<sub>4</sub> emissions standards.

H.2.2.3 *Information required in the end of model year report when the vehicles are exempted under the small volume company exemption [subsection 48(5) of the Regulations]*

Subsection 48(5) applies when:

- vocational vehicles or tractors not covered by an EPA certificate are exempted from the CO<sub>2</sub> emission standards set out in subsection 26(1) or 27(1) of the Regulations; or
- vocational vehicles or tractors covered by an EPA certificate are exempted from complying with subsection 13(4) of the Regulations, which requires that the company participate in the CO<sub>2</sub> emission credit system when its vehicles exceed the applicable CO<sub>2</sub> emission standard.

When either of these conditions is met, the end of model year must contain the following information:

- the number of tractors and vocational vehicles that the company manufactured or imported in 2011 for sale in Canada;
- the average number of tractors and vocational vehicles that the company manufactured or imported for sale in Canada for the three most recent consecutive model years preceding the model year of the report; and
- the number of tractors and vocational vehicles that the company manufactured or imported for sale in Canada the model year of the report.

The above information is required when the company has made the statement of subparagraph 48(2)(b)(v) of the Regulations. This statement may be made in the case of vocational vehicles or tractors for the CO<sub>2</sub> standards.

H.2.2.4 *Information required in the end of model year report when the company participates in the CO<sub>2</sub> emission credit system [subsection 48(7) of the Regulations]*

Subsection 48(7) applies when a company participates in the CO<sub>2</sub> emission credit system whether it manufactured or imported vehicles or engines exceeding the standard (and thus it is required to offset a deficit) or the company wishes to obtain CO<sub>2</sub> emission credits. Subsection 48(7) applies to vehicles or engines covered by an EPA certificate or not.

The information below is required when the company made the statement of subparagraph 48(2)(a)(i), clause 48(2)(a)(ii)(C), subparagraph 48(2)(b)(iv) and clauses 48(2)(c)(i)(D) and (ii)(C) of the Regulations for one or more vehicles or engines, whichever apply.

Of note, in the case of Class 2B and Class 3 heavy-duty vehicles, the company must provide the following information [statement of subparagraph 48(2)(a)(i) of the Regulations], as it must group its vehicles into fleets to meet a fleet average CO<sub>2</sub> emission standard.

Table 18 – Reporting Information when the Company Participates in the CO<sub>2</sub> Emission Credit System

Vehicles or engines	Information required	Corresponding provisions of the Regulations
<p>Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a “vocational vehicle”)</p>	<p>In relation to emission standards :</p> <ul style="list-style-type: none"> <li>• the N<sub>2</sub>O and CH<sub>4</sub> emission standards applicable to each fleet;</li> <li>• the fleet average CO<sub>2</sub> emission standard [corresponding to variable A in the formula set out in paragraph 35(1)(a) of the Regulations];</li> <li>• the CO<sub>2</sub> emission target value for each vehicle subconfiguration of each fleet [corresponding to variable A in the formula set out in subsection 22(1) of the Regulations];</li> <li>• the work factor for each vehicle subconfiguration [calculated in accordance with subsection 22(3) of the Regulations]; and</li> <li>• the GVWR, curb weight, GCWR, type of transmission, gear ratio, axle ratio and type of engine for each vehicle configuration.</li> </ul>	<p>48(7)(d)(i)</p>
	<p>In relation to the CO<sub>2</sub> and the N<sub>2</sub>O and CH<sub>4</sub> emissions:</p> <ul style="list-style-type: none"> <li>• the fleet average CO<sub>2</sub> emission value [corresponding to variable B in the formula set out in paragraph 35(1)(a) of the Regulations];</li> <li>• the CO<sub>2</sub> emission value for each vehicle configuration [corresponding to variable A in the formula set out in subsection 23(1) of the Regulations and taking into account subsection 23(2)]; and</li> <li>• if applicable, the N<sub>2</sub>O or CH<sub>4</sub> family emission limit [corresponding to variable B in the formula set out in subsection 20(3) of the Regulations].</li> </ul>	<p>48(7)(e)(i)</p>
	<p>If the company uses a value other than zero for variable F [referred to in the formula set out in paragraph 24(3)(b) of the Regulations], the evidence demonstrating that an alternative value determined for F is more representative for that vehicle configuration. F is used to determine the CO<sub>2</sub> emission value.</p>	<p>48(7)(g)</p>
	<p>When determining additional credits from an innovative technology with the alternative procedure set out in section 86.1869(d) of the CFR, either of the following as evidence that</p>	<p>48(7)(l) or (m)</p>

	<p>the alternative procedure is more appropriate than the five-cycle credit value:</p> <ul style="list-style-type: none"> <li>• when the vehicle is EPA-certified, the evidence of the EPA approval referred to in paragraph 41(2)(a) of the Regulations; or</li> <li>• when the vehicle is not EPA-certified, the demonstration referred to in paragraph 41(2)(b) of the Regulations.</li> </ul>	
	<p>A statement that the company elected to comply with the standards referred to in sections 20 to 23 of the Regulations applicable to Class 2B and Class 3 heavy-duty vehicles, as per the alternative standard referred to in subsection 26(6), which allows vocational vehicles and cab-complete vocational vehicles equipped with spark-ignition engines to comply with the Class 2B and Class 3 heavy-duty vehicles standards.</p>	48(7)(b)
Vocational vehicles and tractors	<p>The CO<sub>2</sub> emission standard that applies to the vehicles of each subfleet:</p> <ul style="list-style-type: none"> <li>• for vocational vehicles, this corresponds to variable A in the formula set out in paragraph 35(1)(b) of the Regulations; and</li> <li>• for tractors, this corresponds to variable A in the formula set out in paragraph 35(1)(c) of the Regulations.</li> </ul>	48(7)(d)(ii) and (iii)
	<p>The CO<sub>2</sub> family emission limit for each subfleet:</p> <ul style="list-style-type: none"> <li>• for vocational vehicles, this corresponds to variable B in the formula set out in paragraph 35(1)(b) of the Regulations; and</li> <li>• for tractors, this corresponds to variable B in the formula set out in paragraph 35(1)(c) of the Regulations.</li> </ul>	48(7)(e)(ii) and (iii)
	<p>For a tractor, when the company elected to use an alternative method to measure the tractor's drag area, either of the following as evidence that the alternative method is more representative:</p> <ul style="list-style-type: none"> <li>• when the vehicle is EPA-certified, the evidence of the EPA approval referred to in paragraph 27(6)(a) of the Regulations; or</li> <li>• when the vehicle is not EPA-certified, the demonstration referred to in paragraph 27(6)(b) of the Regulations.</li> </ul>	48(7)(h) or (i)
	<p>When the company elected to use the transitional allowances set out in paragraphs 13(4)(a) and (b) of the Regulations, the percentage of the vocational vehicles and the percentage of</p>	48(7)(w)

	the tractors that are grouped into one or more fleets for the purpose of participation in the CO <sub>2</sub> emission credit system.	
Heavy-duty engines	In relation to emission standards: <ul style="list-style-type: none"> <li>the CO<sub>2</sub> emission standard that applies to the engines of each fleet [corresponding to variable A in the formula set out in paragraph 35(1)(d) of the Regulations]; and</li> <li>the N<sub>2</sub>O and CH<sub>4</sub> emission standards that apply to the engines of each fleet.</li> </ul>	48(7)(d)(iv)
	In relation to the CO <sub>2</sub> emissions and the N <sub>2</sub> O and CH <sub>4</sub> emissions for each fleet of heavy-duty engines: <ul style="list-style-type: none"> <li>the CO<sub>2</sub> family certification level [corresponding to variable B in the formula set out in paragraph 35(1)(d) of the Regulations]; and</li> <li>if applicable, the N<sub>2</sub>O and CH<sub>4</sub> family emission limits [corresponding to variable B in the formula set out in subsection 29(4) of the Regulations].</li> </ul>	48(7)(e)(iv)
	When the company has elected to use an alternative procedure to determine the benefit obtained for an engine that includes Rankine-cycle or other bottoming cycle exhaust energy recovery system for the calculation of additional credits, either of the following as evidence that the alternative procedure is more representative: <ul style="list-style-type: none"> <li>when the engine is EPA-certified, the evidence of the EPA approval referred to in paragraph (a) of the description of A in the formula set out in subsection 40(1) of the Regulations; or</li> <li>when the vehicle is not EPA-certified, the evidence is that provided to the minister referred to in paragraph (b) of the description of A in the formula set out in subsection 40(1) of the Regulations.</li> </ul>	48(7)(j) or (k)
	If applicable, the number of CO <sub>2</sub> emission credits calculated in accordance with subsection 29(8) of the Regulations for an N <sub>2</sub> O family emission limit that is less than 0.04 g/BHP-hr.	48(7)(n)
All	An identification of all fleets and subfleets referred to in section 18 of the Regulations within the averaging set.	48(7)(c)
	The number of heavy-duty vehicles or engines in each averaging set, fleet, subfleet, vehicle configuration, engine configuration and the number of vehicles in each vehicle	48(7)(f)

	subconfiguration, as applicable.	
	The number of credits and deficits, calculated in accordance with section 35 of the Regulations for each fleet and subfleet, and the value of each variable — along with its description — used in calculating them.	48(7)(o)
Applicable heavy-duty vehicles and engines	If applicable, a statement that the company has elected to exclude from its fleets heavy-duty vehicles or heavy-duty engines that will be used in Canada solely for the purpose of exhibition, demonstration, evaluation or testing, in accordance with subsection 18(2) of the Regulations.	48(7)(a)
	In relation to additional credits for each fleet and subfleet: <ul style="list-style-type: none"> <li>the number of additional credits, calculated for electric, fuel cell, hybrid, Rankine-cycle or other bottoming cycle exhaust energy recovery-equipped vocational vehicles and tractors in accordance with section 38 of the Regulations including: the improvement factor, the emission rate A, the emission rate B, the modelling result B, along with the value and description of each parameter used in determining that result, and the values determined for variables C, D and E;</li> <li>the number of additional credits, calculated for post- or pre-transmission hybrid system in accordance with section 39 of the Regulations, and the value of each variable used in calculating them;</li> <li>the number of additional credits, calculated for engines that include a Rankine-cycle or other bottoming cycle exhaust energy recovery system in accordance with section 40 of the Regulations, and the value of each variable used in calculating them;</li> <li>the number of additional credits, calculated for the use of innovative technologies in accordance with section 41 of the Regulations, and the value of each variable used in calculating them.</li> </ul>	48(7)(p) to (s)
	An identification of every instance in each fleet or subfleet when the 1.5 credit multiplier was used for additional credits, referred to in section 37 and subsections 38(4), 39(3) and 40(2) of the Regulations.	48(7)(t)
	The number of CO <sub>2</sub> emission credits and early action credits, if any, that are used to offset a deficit incurred for the model year or to offset an outstanding deficit, and the averaging set	48(7)(u)

	and the model year for which the credits were obtained.	
	An accounting of the CO <sub>2</sub> emission credits, early action credits and deficits.	48(7)(v)

H.2.2.5 *Information required in the end of model year report when the company manufactures or imports vocational tractors [subsection 48(8) of the Regulations]*

Subsection 48(8) applies when:

- the company manufactures or imports Class 7 and Class 8 vocational tractors that conform to the emission standards applicable to vocational vehicles in accordance with section 28 of the Regulations.

When this condition is met, the end of model year report must contain the following information:

- the number of Class 7 and Class 8 vocational tractors that conform to the emission standards applicable to vocational vehicles for the model year of the report; and
- the number of Class 7 and Class 8 vocational tractors that conform to the emission standards applicable to vocational vehicles for the two previous model years.

The above information is required when the company has made the statement of subparagraph 48(2)(b)(vi) of the Regulations.

H.2.2.6 *Other information required in the end of model year report*

H.2.2.6.1 Spark-ignition engines included in a fleet of Class 2B and Class 3 heavy-duty vehicles [subsection 48(6) of the Regulations]

Subsection 48(6) applies when:

- as set out in section 25 of the Regulations, the company elects to include in a fleet of Class 2B and Class 3 heavy-duty vehicles, spark-ignition engines that are not installed in vehicles (loose engines) or that are installed in heavy-duty incomplete vehicles that are not cab-complete vehicles; and
- these engines are of the same model year, design and hardware as engines of the Class 2B and Class 3 heavy-duty vehicles that are included in the fleet.

When those conditions are met, the end of model year must contain the following information:

- the number of engines included in the fleet of Class 2B and Class 3 heavy-duty vehicles; and

- the total number of engines in that vehicle fleet — whether they are installed in vehicles or not — that are of the same model year, design and hardware.

H.2.2.6.2 Transfer of credits between companies [subsection 48(9) of the Regulations]

Subsection 48(9) requires that a statement of each CO<sub>2</sub> emission credit transfer and early action credit transfer to or from the company since the submission of the previous end of model year report be provided in the end of model year report.

The end of model year must contain the following information for each of the above mentioned credit transfers:

- the name, street address and, if different, the mailing address of the company that transferred the credits and the model year for which that company obtained these credits;
- the name, street address and, if different, the mailing address of the company that received the credits;
- the date of the transfer; and
- the number of credits transferred, expressed in megagrams of CO<sub>2</sub>.

H.2.2.6.3 Information required in the end of model year report for early action credits (section 49 of the Regulations)

To obtain early action credits, a company must provide the information detailed in Table 19 in the following reports, as the case may be:

- 2014 model year report for Class 2B and Class 3 heavy-duty vehicles, vocational vehicles, tractors or engines that are compression-ignition engines of the 2013 model year;
- 2014 model year report for electric vehicles of the 2011 to 2013 model year; and
- 2016 model year report for spark-ignition engines of model year 2015.

As well, a company must identify every instance in each fleet or subfleet, as the case may be, when the 1.5 credit multiplier was used in accordance with subsection 47(6) of the Regulations.

Table 19 – Information Required in the End of Model Year Report to Obtain Early Action Credits

Vehicles or engines	Information required for each averaging set	Corresponding provisions of the Regulations
Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a	In relation to each fleet: <ul style="list-style-type: none"> <li>• the number of credits or deficits expressed in megagrams of CO<sub>2</sub> for each fleet [as calculated in accordance with paragraph 35(1)(a) of the Regulations];</li> <li>• the N<sub>2</sub>O and CH<sub>4</sub> emission standards applicable to each fleet;</li> </ul>	49(1)(a)



<p>“vocational vehicle”)</p>	<ul style="list-style-type: none"> <li>• the fleet average CO<sub>2</sub> emission standard [corresponding to variable A in the formula set out in paragraph 35(1)(a) of the Regulations];</li> <li>• the CO<sub>2</sub> emission target value for each vehicle subconfiguration of each fleet [corresponding to variable A in the formula set out in subsection 22(1) of the Regulations];</li> <li>• the work factor for each vehicle subconfiguration [calculated in accordance with subsection 22(3) of the Regulations];</li> <li>• the GVWR, curb weight, GCWR, type of transmission, gear ratio, axle ratio and type of engine for each vehicle configuration;</li> <li>• the fleet average CO<sub>2</sub> emission value [corresponding to variable B in the formula set out in paragraph 35(1)(a) of the Regulations]</li> <li>• the CO<sub>2</sub> emission value for each vehicle configuration [corresponding to variable A in the formula set out in subsection 23(1) of the Regulations and taking into account subsection 23(2)];</li> <li>• if applicable, the N<sub>2</sub>O or CH<sub>4</sub> family emission limit [corresponding to variable B in the formula set out in subsection 20(3) of the Regulations];</li> <li>• the number of vehicles of each vehicle configuration and subconfiguration;</li> <li>• the number of vehicles in each fleet; and</li> <li>• the number of vehicles in the averaging set.</li> </ul>	
<p>Vocational vehicles and tractors</p>	<p>In relation to each fleet:</p> <ul style="list-style-type: none"> <li>• the number of credits or deficits expressed in megagrams of CO<sub>2</sub> for each fleet and subfleet [as calculated in accordance with paragraph 35(1)(b) or (c) of the Regulations, as the case may be];</li> <li>• the CO<sub>2</sub> emission standard that applies to the vehicles of each fleet or subfleet [corresponding to variable A in the formula set out in paragraph 35(1)(b) or (c) of the Regulations, as the case may be];</li> <li>• the CO<sub>2</sub> family emission limit for each fleet or subfleet [corresponding to variable B in the formula set out in paragraph 35(1)(b) or (c) of the Regulations, as the case may be]; and</li> <li>• the number of vocational vehicles and the number of tractors in each averaging set, fleet and subfleet.</li> </ul>	<p>49(1)(b) and (c)</p>

Heavy-duty engines	<p>In relation to each fleet:</p> <ul style="list-style-type: none"> <li>• the number of credits or deficits expressed in megagrams of CO<sub>2</sub> for each fleet [as calculated in accordance with paragraph 35(1)(d) of the Regulations];</li> <li>• the N<sub>2</sub>O and CH<sub>4</sub> emission standards that apply to the engines of each fleet;</li> <li>• the CO<sub>2</sub> emission standard that applies to the engines of each fleet [corresponding to variable A in the formula set out in paragraph 35(1)(d) of the Regulations];</li> <li>• the CO<sub>2</sub> deteriorated emission level value for each fleet [corresponding to variable B in the formula set out in paragraph 35(1)(d) of the Regulations]; and</li> <li>• the number of engines in each averaging set, fleet and engine configuration.</li> </ul>	49(1)(d)
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## I. IMPORTING AN ENGINE OR A VEHICLE

### I.1 Introduction to importing an engine or a vehicle

Only engines and vehicles that comply with the Regulations may be imported.

The Regulations do not require a signed declaration to the Minister prior to importation, because such a declaration is already required under the *On-Road Vehicle and Engine Emission Regulations* for heavy-duty vehicles and engines.

A declaration is required under the Regulations when importing vehicles or engines that will be used in Canada solely for purposes of exhibition, demonstration, evaluation or testing. Under section 60 of the Regulations a declaration for such purposes must be made in accordance with section 41 of the *On-Road Vehicle and Engine Emission Regulations* (see section I.6).

### I.2 Reporting or importation declaration requirements for exported engines or vehicles

There are no reporting or importation declaration requirements for engines or vehicles that are exported. Only vehicles and engines that are imported into or manufactured in and that stay in Canada need to be reported on under the Regulations and the *On-Road Vehicle and Engine Emission Regulations*. Imported engines or vehicles destined for export must be accompanied by the written statement required in subsection 5(3) (see I.3). In the event that the final destination of the engine or vehicle is not known, it must be imported to meet all the requirements of the Regulations, as if it were to stay in Canada.

### **I.3 Requirements for engines or vehicles that are exported outside Canada or that are in transit through Canada, from a place outside Canada to another place outside Canada**

Under paragraph 155(1)(b) of the Act, an engine or vehicle in transit through Canada, from a place outside Canada to another place outside Canada, does not have to comply with the requirements of the Regulations, if it is accompanied by written evidence, such as an invoice, that it will not be sold for use or be used in Canada. This requirement is also found in subsection 5(3) of the Regulations.

### **I.4 Importation of a certain number of engines or vehicles if it is unknown at the time of import if they will be exported**

In this case, since a company may use these engines and vehicles or sell them for use in Canada, it should import them as if they were to remain in Canada meaning they must be in compliance with the Regulations.

### **I.5 Vehicle imported exclusively for use by a visitor to Canada**

Under paragraph 155(1)(c) of the Act, a vehicle imported exclusively for use by a visitor to Canada or by a person passing through Canada to another country does not have to meet the requirements of the Regulations.

### **I.6 The importation of vehicles or engines into Canada for testing and evaluation purposes**

Under paragraph 155(1)(a) of the Act, vehicles or engines that are used solely for purposes of exhibition, demonstration, evaluation or testing do not need to meet the requirements of the Regulations upon importation into Canada.

However, as stated in section 41 of the *On-Road Vehicle and Engine Emission Regulations*, which is incorporated by reference in section 60 of the Regulations, prior to importation, the company must submit to the Minister the following information signed by a duly authorized company representative:

- the name, email address, phone number, street address and, if different, mailing address of the importer;
- the name of the manufacturer of the vehicle or engine;
- the expected date of the importation;
- in the case of a vehicle, the class, make, model, model year and identification number of the vehicle;
- in the case of an engine, a description of the engine;
- a statement that the vehicle or engine will be used in Canada solely for purposes of exhibition, demonstration, evaluation or testing. For greater certainty, evidence of the intended purpose will need to be provided. This could include: an invitation to exhibit or demonstrate the vehicle or engine, or a test plan or test protocol for the vehicle or engine; and

- the date on which the vehicle or engine will be removed from Canada or destroyed. For greater certainty, evidence that the vehicle or engine was removed or destroyed will need to be provided. Evidence could be: a shipping statement that it was removed or photo evidence of the engine or vehicle's destruction (note: the engine unique identification number or vehicle identification number (VIN) will need to be visible).

Note that the vehicle or engine imported into Canada to be used solely for purposes of exhibition, demonstration, evaluation or testing may only stay in Canada for a period of no longer than one year. The company must apply in writing to the Minister prior to importation if it would like to obtain an acknowledgement from the Minister specifying a different period of time that the vehicle or engine can remain in Canada.

Companies are encouraged to contact [VehicleandEngineInfo@ec.gc.ca](mailto:VehicleandEngineInfo@ec.gc.ca) if they are planning to import into Canada a vehicle or an engine solely for purposes of exhibition, demonstration, evaluation or testing.

### **I.7 Importation of vehicles or engines for personal or company use**

As per section 154 of the Act, the vehicles or engines imported for personal or company use still have to meet the emission standards and labelling requirements.

### **I.8 Other importation requirements not outlined in the Regulations**

The Canada Border Service Agency (CBSA) also has their own importation requirements that are not part of these Regulations, but that importers must be aware of. CBSA requires that the following documents be submitted when importing:

- a Canada Customs Invoice – which would include a detailed description, HS codes, vendor, exported and country of origin information; and
- a completed B3 Canada Customs Coding Form.

Permits, licenses and certificates required by other government departments and agencies can also be found at:

[www.cbsa-asfc.gc.ca/import/reflist-listeref-eng.html](http://www.cbsa-asfc.gc.ca/import/reflist-listeref-eng.html).

A step by step guide for importing commercial goods is available from the CBSA website at:

[www.cbsa-asfc.gc.ca/import/guide-eng.html](http://www.cbsa-asfc.gc.ca/import/guide-eng.html).

In addition, the *Motor Vehicle Safety Act* (MVSA), administered by Transport Canada, regulates the manufacture and importation of motor vehicles and motor vehicle equipment to reduce the risk of death, injury and damage to property and the environment. The MVSA requires that all vehicles imported into Canada be in compliance with the *Motor Vehicle Safety Regulations* and associated *Canada Motor Vehicle Safety Standards* (CMVSS). For more information with respect to the importation requirements by Transport Canada, please contact the Transport Canada Road Safety

Division by email at [RoadSafetyWebMail@tc.gc.ca](mailto:RoadSafetyWebMail@tc.gc.ca) or call toll free number at 1-800-333-0371 (Ottawa area: 613-998-8616).

## **J. OTHER OBLIGATIONS**

### **J.1 Engine installation instructions**

Under section 51 of the Regulations, a company that manufactures or imports an engine must ensure that every engine that is installed in Canada is accompanied by written instructions for installing the engine and emission control system. It is acceptable to have these instructions available on a website if the web address is provided with the engine.

Subsection 51(2) of the Regulations describes the information that must be provided as part of the instructions. The instructions must be provided in English, French or both official languages, as requested by the installer.

### **J.2 Tire maintenance and tire replacement instructions**

Under section 52 of the Regulations, a company that manufactures or imports tractors or vocational vehicles must ensure that written instructions respecting tire maintenance and replacement are provided to the first retail purchaser of every vehicle. The instructions must be provided in English, French or both official languages, as requested by the purchaser. This information may be included in the owner's manual.

### **J.3 Notice of defect**

The notice of defect provisions in section 157 of the Act and section 63 of the Regulations require companies to issue a notice of defect on becoming aware of a defect in the design, construction or functioning of a vehicle or engine that affects or is likely to affect its compliance with a prescribed standard set out in the Regulations.

The expression "on becoming aware of a defect" in subsection 157(1) of the Act could be interpreted as meaning the moment at which a defect trend has been recognized by the company. A defect trend can be established from many sources including, but not limited to: audits, emissions test results; assembly line reports; reports from users; warranty claims; or information received from government agencies. Existence of service bulletin(s) is suggestive that a trend has been established. There is no minimum threshold quantity of occurrences.

Subsection 63(1) of the Regulations incorporates by reference subsection 45(1) of the *On-Road Vehicle and Engine Emission Regulations*, which describes the information that must be provided in the notice of defect. The notice must be given to the Minister, to each person who has obtained a vehicle or engine with the defect from the company and to each current owner of a vehicle or engine with the defect.

Subsection 157(4) of the Act provides flexibility regarding issuing notice to current owners. The Minister may order that the notice be provided by publication in daily newspapers or in an alternative medium or, if the circumstances warrant, order that the current owners need not be notified. In order for this

flexibility to be examined, the notice of defect provided to the Minister may include a description of the means available to the company to contact the current owner of each affected vehicle or engine, as the case may be.

Subsection 63(3) of the Regulations identifies the CO<sub>2</sub> emission standard that applies to each prescribed class of vehicles and engines when in-use, whether they were grouped into fleets or subfleets, or were intended to conform on an individual basis or to prescribed alternative CO<sub>2</sub> emission standards.

Within 60 days after a notice of defect has been given, the company must submit to the Minister an initial report containing the information described in subsection 45(2) of the *On-Road Vehicle and Engine Emission Regulations*, which is incorporated by reference in subsection 63(2) of the Regulations. The company must also submit, within 45 days after the end of each calendar quarter, quarterly reports to the Minister containing the information described in subsection 45(3) of the *On-Road Vehicle and Engine Emission Regulations*, which is also incorporated by reference in subsection 63(2) of the Regulations.

Under subsection 157(3) of the Act, a company is not required to cause notice of defect to be given if a relevant notice has already been given in Canada by another person (e.g., the engine manufacturer) for the same defect. The company should obtain a copy of that notice of defect for its records.

#### **J.4 Obligation to provide a vehicle or engine**

Under section 159 of the Act, upon request from the Minister, a company shall make available for testing any vehicle or engine that was used in tests conducted in order to establish information submitted as evidence of conformity, or make available for testing an equivalent vehicle or engine. The Minister will defray the transportation cost and pay the rental rate set in section 61 of the Regulations, which incorporates section 43 of the *On-Road Vehicle and Engine Emission Regulations* by reference. The annual rental rate is 21% of the manufacturer's suggested retail price of the vehicle or engine, prorated on a daily basis for each day the vehicle or engine is made available.

## **K. COMPLIANCE AND ENFORCEMENT**

Manufacturers and importers are responsible for ensuring that their products comply with the Regulations and are required to submit evidence of conformity upon request.

Environment Canada administers a comprehensive program to verify compliance with its regulations. The program includes:

- authorizing and monitoring use of the national emissions mark;
- reviewing evidence of conformity;
- registering notices of defect affecting emission controls;
- inspection of test vehicles and engines and emission-related components; and

- laboratory emission tests of sample vehicles and engines that are representative of products offered for sale in Canada.

If Environment Canada determines that a vehicle or engine does not comply with the Regulations, the manufacturer or importer is subject to the provisions of the Act. In this situation, the normal course of events is to perform sufficient engineering assessment to determine if a notice of defect should be issued in accordance with section 157 of the Act.

Environment Canada will apply the Compliance and Enforcement Policy of the Act to address alleged violations. The policy sets out the range of possible responses to alleged violations: warnings, environmental protection compliance orders, ticketing, ministerial orders, injunctions, prosecution and environmental protection alternative measures (which are an alternative to a court prosecution after the laying of charges for a violation of the Act). In addition, the policy explains when Environment Canada will resort to civil suits by the Crown for recovery. A copy of this policy is available at:

<http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=5082BFBE-1>.

Alleged violations may be identified by Environment Canada's technical personnel, through information transmitted by the Canada Border Services Agency, through complaints received from the public or through inspections or investigations by CEPA enforcement officers. Inspections may also include verifications by enforcement officers at Canada's international borders.

When, following an inspection or an investigation, a CEPA enforcement officer discovers an alleged violation, the officer will choose the appropriate enforcement action based on the following criteria:

**Nature of the alleged violation:** This includes consideration of the seriousness of the harm or potential harm to the environment, the intent of the alleged violator, whether it is a repeat violation, and whether an attempt has been made to conceal information or otherwise subvert the objectives and requirements of the Act.

**Effectiveness in achieving the desired result with alleged violator:** The desired result is compliance with the Act within the shortest possible time and with no further repetition of the violation. Factors to be considered include the violator's history of compliance, willingness to cooperate with enforcement officers, and evidence of corrective actions already taken.


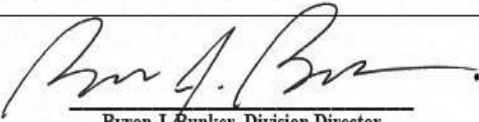
**Consistency in enforcement:** Enforcement officers will consider how similar situations have been handled in determining the measures to be taken to enforce the Act.

If you suspect a violation or a non-compliant incident under Environment Canada's jurisdiction, please contact the Enforcement Branch by email at: [environmental.enforcement@ec.gc.ca](mailto:environmental.enforcement@ec.gc.ca).

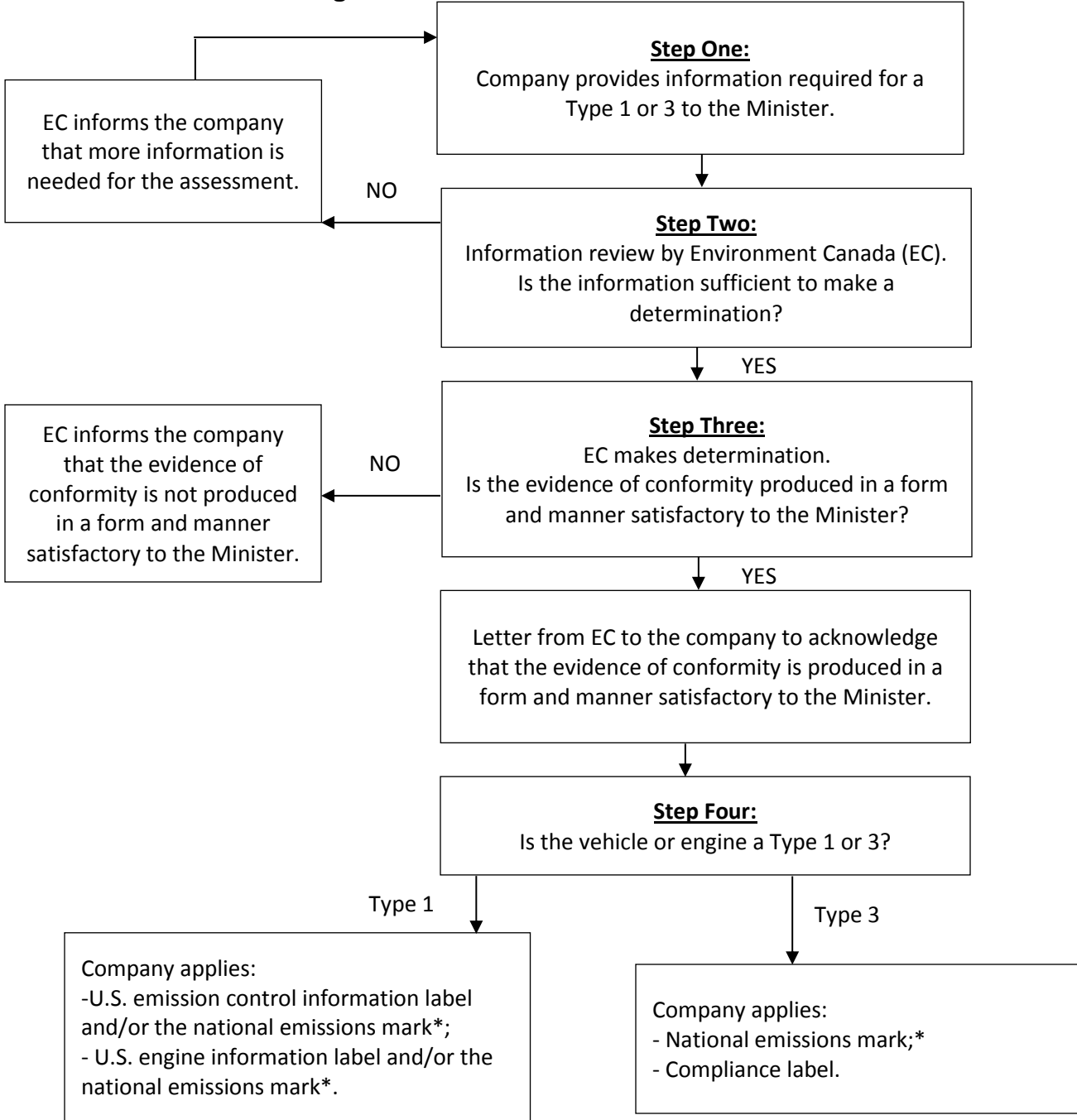
## **APPENDICES**



## Appendix I – Example of an EPA certificate

	<b>UNITED STATES ENVIRONMENTAL PROTECTION AGENCY</b> <b>2015 MODEL YEAR</b> <b>CERTIFICATE OF CONFORMITY</b> <b>WITH THE CLEAN AIR ACT OF 1990</b>	<b>OFFICE OF TRANSPORTATION AND AIR QUALITY</b> <b>ANN ARBOR, MICHIGAN 48105</b>	
<b>Certificate Issued To:</b> (U.S. Manufacturer or Importer)  <b>Certificate Number:</b>	<u>Effective Date:</u>  <u>Expiration Date:</u>	 _____ Byron J. Bunker, Division Director Compliance Division	<u>Issue Date:</u>  <u>Revision Date:</u> N/A
<b>Test Group Name:</b> <b>Evaporative/Refueling Family Name:</b> <b>Applicable Exhaust Emission Standards:</b> HDV1 (Federal HD chassis Class 2b GVW 8501-10000), LEV <b>Applicable Evaporative/Refueling Standards:</b> Federal LEV-II Evap	<b>Engine Displacement:</b> Liters <b>Exhaust Emission Test Fuel Type:</b> Tier 2 Cert Gasoline <b>Full Useful Life Miles: Exhaust Emissions:</b> 120,000 miles <b>Full Useful Life Miles: Evaporative/Refueling Emissions:</b> 120,000 miles		
<b>Models Covered:</b>			
<p>Pursuant to section 206 of the Clean Air Act (42 U.S.C.7525) and 40 CFR Parts 85, 86, 88, 1037, and 600 as applicable, this certificate of conformity is hereby issued with respect to test vehicles which have been found to conform to the requirements of the regulations on Control of Air Pollution from New Motor Vehicles and New Motor Vehicle Engines (40 CFR Parts 85, 86, 88, 1037, and 600 as applicable) and which represent the new motor vehicle models listed above by test group and evaporative/refueling emission family, more fully described in the application of the above named manufacturer. Vehicles covered by this certificate have demonstrated compliance with the applicable emission standards as more fully described in the manufacturer's application. This certificate covers the above models, which are designed to meet the applicable emission standards specified in 40 CFR Parts 85, 86, 88, 1037, and 600 as applicable at both high and low altitude as applicable.</p> <p>EPA is issuing this certificate subject to the conditions and provisions of 40 CFR 86.1848(c), and 40 CFR 1037 as applicable.</p> <p>This certificate covers only those new motor vehicles or vehicle engines which conform, in all material respects, to the design specifications that apply to those vehicles or engines described in the documentation required by 40 CFR Parts 85, 86, 88, 1037, and 600 as applicable and which are produced during the 2015 model year production period stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 85, 86, 88, 1037, and 600 as applicable. The manufacturer shall obtain the approval of the California Air Resources Board (in the form of an executive order issued by the California Air Resources Board) prior to introducing any vehicle covered by this certificate into commerce 1) in the State of California, or 2) in a State that, under the authority of Section 177 of the Clean Air Act, has adopted and placed into effect the California standards to which this test group has been certified.</p> <p>Catalyst-equipped vehicles designed to be operated on gasoline or flexible fuel are equipped with an emission control device which the Administrator has determined will be significantly impaired by the use of leaded fuel. This certificate is issued subject to the conditions specified in 40 CFR 80.24. Catalyst-equipped vehicles designed to be operated on gasoline or flexible fuel, otherwise covered by this certificate, which are driven outside the United States, Canada, Mexico, Japan, Australia, Taiwan and the Bahama Islands will be presumed to have been operated on leaded fuel resulting in deactivation of the catalysts. If these vehicles are imported or offered for importation without retrofit of the catalyst, they will be considered not to be within the coverage of this certificate unless included in a catalyst control program operated by manufacturer or a United States Government Agency and approved by the Administrator.</p> <p>In the case of completely assembled vehicles, this certificate of conformity covers only vehicles which are completely manufactured prior to January 1, 2016. Normally incompletely assembled vehicles (such as cab chassis) may be completed after this date, provided that the basic manufacturing (including installation of the emission control system) was completed prior to January 1, 2016. This certificate does not cover vehicles sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.</p>			

**Appendix II – Procedure for the submission of evidence of conformity under section 54 of the Regulations**



\* Company must be authorized to apply the national emissions mark.

## Appendix III – Examples of statement of compliance letters

### 1. Example of a statement of compliance letter for a Class 2B or Class 3 heavy-duty vehicle

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[Canadian Company Identification]

[Insert Date]

Director, Transportation Division  
Energy and Transportation Directorate  
Environment Canada  
351 St. Joseph Blvd  
Gatineau, QC K1A 0H3

Re: Submission of Evidence of Conformity pursuant to section 54 of the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* for the 20XX model year [Vehicle Model] (Test Group: [Test Group]).

Dear Director:

[Canadian Company Name] intends to import OR manufacture the 20XX model year [Vehicle Model] for the purpose of sale in Canada. The subject vehicle, a [Vehicle Class] heavy-duty vehicle, is covered OR is not covered by a certificate of conformity issued by the United States Environmental Protection Agency and will OR will not be sold concurrently in the United States.

[Canadian Company Name] attests that all its subject vehicles of this model comply with all applicable standards set out in the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* established under the *Canadian Environmental Protection Act, 1999*. [Canadian Company Name]'s evidence of such conformity, including a detailed description of the subject vehicles is attached OR has already been submitted to Environment Canada by [Vehicle Manufacturer Name].

[Canadian Company Name] also attests that the vehicles of this test group are manufactured to the same specifications as those set out in the evidence of conformity and will bear an appropriate compliance label.

[Canadian Company Name]'s estimated projected Canadian sales will be of [Number of Vehicles] vehicles for the 20XX model year [Vehicle Model].

[Canadian Company Name] requests that Environment Canada acknowledge that the evidence of conformity has been obtained and produced in a form and manner that is satisfactory to the Minister.

As the signatory of this letter, I, [Name], certify that I am authorized to act on behalf of [Canadian Company Name] concerning the 20XX model year [Vehicle Model]. Should you have any questions in regard to the information provided, please contact [Name, Position and Company Name].

Parts [as listed] of the information supplied in this package are classified as confidential.

[Signature]

[Insert Name]

[Position]

[Contact Information]

Encl.

## 2. Example of a statement of compliance letter for tractors or vocational vehicles

\_\_\_\_\_

[Canadian Company Identification]

[Insert Date]

Director, Transportation Division  
Energy and Transportation Directorate  
Environment Canada  
351 St. Joseph Blvd  
Gatineau, QC K1A 0H3

Dear Director:

Re: Submission of Evidence of Conformity pursuant to section 54 of the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* (the Regulations) for the vehicle family: [Vehicle Family].

[Canadian Company Name] intends to import OR manufacture for the purpose of sale in Canada [Model Year of Vehicle] [Make of Vehicle] vehicles mentioned in the table below. The subject vehicle(s), a [Vehicle Class] heavy-duty vehicle(s) is (are) covered OR is (are) not covered by a certificate of conformity issued by the United States Environmental Protection Agency and will OR will not be sold concurrently in the United States.

*Description of the vehicle(s) of the vehicle family*

Vehicle(s)	
Make	Model

[Canadian Company Name] attests that all its subject vehicles of this vehicle family comply with all applicable standards set out in the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* established under the *Canadian Environmental Protection Act, 1999*. [Canadian Company Name]'s evidence of such conformity, including a detailed description of the subject vehicle(s) is attached OR has already been submitted to Environment Canada by [Vehicle Manufacturer Name].

[Canadian Company Name] also attests that the vehicles of this vehicle family are manufactured to the same specifications as those set out in the evidence of conformity and will bear an appropriate compliance label.

[Canadian Company Name]'s estimated projected Canadian sale will be of [Number of Vehicles] vehicles for this vehicle family and model year.

[Canadian Company Name] requests that Environment Canada acknowledge that the evidence of conformity has been obtained and produced in a form and manner that is satisfactory to the Minister.

As the signatory of this letter, I, [Name], certify that I am authorized to act on behalf of [Canadian Company Name] concerning the vehicles of this vehicle family. Should you have any questions in regard to the information provided, please contact [Name, Position and Company Name].

Parts [as listed] of the information supplied in this package are classified as confidential.

[Signature]

[Insert Name]

[Position]

[Contact Information]

Encl.

3. Example of a statement of compliance letter for heavy-duty engines

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[Canadian Company Identification]

[Insert Date]

Director, Transportation Division  
 Energy and Transportation Directorate  
 Environment Canada  
 351 St. Joseph Blvd  
 Gatineau, QC K1A 0H3

Dear Director:

Re: Submission of Evidence of Conformity pursuant to section 54 of the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* (the Regulations) for the engine family: [Engine Family].

[Canadian Company Name] intends to import OR manufacture for the purpose of sale in Canada a [Model Year of Engine] [Make of Engine] engine(s) mentioned in the table below. The subject engine(s) is (are) covered OR is (are) not covered by a certificate of conformity issued by the United States Environmental Protection Agency and will OR will not be sold concurrently in the United States.

*Description of the engine(s) of the engine family*

Engine(s)	
Model	Gross Power

[Canadian Company Name] attests that all its subject engines of this engine family comply with all applicable standards set out in the *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* established under the *Canadian Environmental Protection Act, 1999*. [Canadian Company Name]'s evidence of such conformity, including a detailed description of the subject engine(s) is attached OR has already been submitted to Environment Canada by [Engine Manufacturer Name].

[Canadian Company Name] also attests that the engines of this engine family are manufactured to the same specifications as those set out in the evidence of conformity and will bear an appropriate compliance label.

[Canadian Company Name]'s estimated projected Canadian sale will be of [Number of engines] engines for this engine family and model year.

[Canadian Company Name] requests that Environment Canada acknowledge that the evidence of conformity has been obtained and produced in a form and manner that is satisfactory to the Minister.

As the signatory of this letter, I, [Name], certify that I am authorized to act on behalf of [Canadian Company Name] concerning the engines of this engine family. Should you have any questions in regard to the information provided, please contact [Name, Position and Company Name].

Parts [as listed] of the information supplied in this package are classified as confidential.

[Signature]

[Insert Name]

[Position]

[Contact Information]

Encl.



**Appendix IV – Technical information requirements (for Canada-unique Type 3 vehicles or engines not covered by an EPA certificate)**

Heading	Requirements	Comments
<b>Section 1 - Correspondence and Communications</b>	Company name	Company that is submitting the evidence of conformity.
	Names, phone numbers, fax numbers, email addresses of all persons authorized to be in contact with staff from the Transportation Division of Environment Canada	Identify person(s) both within and outside the company that Environment Canada may contact with regard to the submission. Please identify areas of responsibility for each person listed, if applicable.
	Carry-Over	When a company submits information for a vehicle family, test group or engine family for which an identical submission was received and acknowledged by Environment Canada the previous year, the company should notify Environment Canada that the submission is a direct carry-over to facilitate and accelerate the process.
<b>Section 2 – Vehicle Family, Test Group or Engine Family Information</b>	Vehicle Family, Test group or Engine Family	Alpha numeric code to identify the vehicle family, test group or engine family for the submission being sent.  Vehicle family, test group or engine family code should be following the code system shown in Appendix V and VI of this document for the compliance label.
	Vehicle or Engine Model Year	Identify the vehicle or engine model year. See section C.3.
	Estimated Production Period	Provide the estimated production period characterizing the vehicle or engine model year.

Heading	Requirements	Comments
	Engine Types	If applicable, provide a tabular list of all types of vehicles (e.g. vocational vehicle or tractor), model year(s), make(s) and model(s) equipped with an engine from the engine family covered by the submission.
	Vehicle or Engine Fleet	Identify the fleet of the vehicle or engine covered by the submission, as specified in subsection 18(3) of the Regulations.
	Applicable Useful Life	Identify the applicable useful life of the vehicle family or engine family [as defined in subsection 1(5) of the Regulations].
	Engine Combustion Cycle	e.g. Diesel Cycle - 4 stroke, Diesel Cycle - 2 stroke
	Engine Configuration	e.g. V8, L6
	Fuel Type	e.g. Gasoline, Ultra Low Sulfur Diesel
	Fuel System Type	e.g. Electronic Direct Injection, Mechanical Direct Injection
	Method of Aspiration	e.g. Turbo Air to Air (TAA), natural aspiration, Turbo Air to Water (TAW), Single Stage Turbo
	Turbocharger Type	If applicable (e.g. VGT, Fixed Waste Gate)
	Aftercooling	If applicable (e.g. Air to Air, Air to Water)
	Emission Control System	List all emission control systems and after treatment devices (e.g. Electronic control, Engine Modification, Smoke Puff Limiter, EGR, Passive DPF, Active DPF, NOx absorber, SCR, DOC, Catalyst, Lean NOx).

Heading	Requirements	Comments
	Emission Control System Statement 1	Provide a written statement to confirm whether the Emission Control System, during its operation or function, releases a substance that causes air pollution and that would not have been released if the system were not installed.
	Emission Control System Statement 2	Provide a written statement to confirm whether the Emission Control System, during its operation, function or malfunction, make the engine or the vehicle in which the engine is installed unsafe, or endanger persons or property near the engine or vehicle.

Heading	Requirements	Comments
	Auxiliary emission control devices (AECD) including the sensed and controlled parameters	<p>If applicable, list all auxiliary emission control devices (AECD) installed on any applicable vehicles or engines and include the sensed and controlled parameters (e.g. Turbocharger protection, EGR cooler condensation, Intake condensation protection, Engine over temperature, Engine warm-up and white smoke, Transient Smoke Protection, Fan reversal, Electronic controlled EGR device, Cold starting device, Intake air heater control, Acceleration of engine warming, Speed timer device, Load timer device, Acceleration fuel control device, Mechanical EGR controller).</p> <p>A detailed justification of each AECD which results in a reduction in effectiveness of the emission control system, and rationale why the AECD is not a defeat device.</p> <p>This information should be supplied in a form that can be easily understood by an engineer skilled in engine emissions control (e.g. not in computer language). The preferred format is a table listing AECDs (down) and sensed and controlled parameters (across).</p>
	Adjustable Parameters	<p>If applicable, list all adjustable parameters from the vehicle or engine, as well as all adjustable range and tamper resistance method for each adjustable parameter (e.g. Fuel limiter, Maximum engine speed, Low speed limiter, Rated fuel rate, Injector lash, Idle speed, Electronic control).</p> <p>Note that, as per subsection 15(3) of the Regulations, an adjustable roof fairing is not considered an adjustable parameter for the purpose of these Regulations.</p>

Heading	Requirements	Comments
	Defeat Device	Provide a written statement to confirm that none of the vehicles and engines that are covered by the submission is equipped with a defeat device.
	Maintenance Instructions	Provide Maintenance Instructions in English and in French. See sections J.1 and J.2 of this document for additional information.
<b>Section 3 - Laboratory Accreditation</b>	Accreditations of the laboratory where the testing was performed. The laboratory where the tests are carried out must be capable of certifying to Canadian or U.S. standards.	This is normally demonstrated by the laboratory having previously completed testing to support the issuance of a U.S. EPA certificate. A list of laboratories that may be used to conduct testing may be found at: <a href="http://www.epa.gov/otaq/consumer/420b13054.pdf">www.epa.gov/otaq/consumer/420b13054.pdf</a> .
	Names, phone numbers, fax numbers, email addresses of contact person at laboratory.	
<b>Section 4 - Test Results</b>	Vehicle or Engine Rated Power and Speed	Provide the rated power and speed of the test vehicle or engine.
	Vehicle identification number, engine code, make, model and/or serial number for the test vehicle or engine.	Provide the following information pertaining to the test vehicle or engine: Vehicle identification number (if applicable), engine code (if applicable), make, model and serial number.
	Displacement of test engine	Provide the engine size in cubic centimetres (cc) or litres (L).
	Applicable Test Procedure	Indicate the test procedure that was used to demonstrate compliance with the emission standards.

Heading	Requirements	Comments
	Official test results on the test vehicle or engine that represents the worst case scenario for the vehicle family, test group or engine family.	<p>Provide a comprehensive list of all test results:</p> <ul style="list-style-type: none"> <li>- Emission test results for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub>, as applicable, for heavy-duty vehicles of Class 2B and Class 3 and engines.</li> <li>- GEM results: CO<sub>2</sub> emission rates for vocational vehicle and tractors.</li> <li>- Percent leakage rate of refrigerant for heavy-duty vehicles of Class 2B and Class 3 and to tractors.</li> </ul>
	Deterioration factors (DFs) and supporting data and calculations	<p>Vehicles or engines must comply with the applicable emissions standards throughout their useful lives. Deterioration factors are applied to account for any increase in emissions over the useful life of the engine. The test vehicle or engine must comply with emissions standards after the DFs are applied. See following link for additional information:  <a href="http://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14185&amp;flag=1">http://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14185&amp;flag=1</a>.</p> <p>Data and calculations used to obtain the DFs must also be provided.</p>
	Certification Levels	Provide the certification levels comprising the official test results and DFs described above.
	Certification Fuel	Indicate the type of fuel that was used to complete the emission tests (e.g. Low Sulfur Diesel and Ultra Low Sulfur Diesel)
	Special Instructions	Identify whether any special instructions apply to test the vehicle or engine.

Heading	Requirements	Comments
<b>Section 5 – Vehicle or engine Model and Part Number Summary</b>	Provide information on all models which are included in this submission.	Provide a tabular list of all vehicle information, engine models, engine codes, engine displacements, rated power, rated speed, max torque, and max torque speed covered under this submission.
	Provide information on all emission related parts which are applicable to vehicles or engines covered in this submission.	Provide a tabular list of part numbers for the following parts, if applicable: Injection Pump, Injector, Turbo Charge, Electronic Control Module, Emission Control Systems [Specify], Smoke Puff Limiter, Sensor Assemblies [Including Descriptions], and Other [Specify]
<b>Section 6 - Projected Sales</b>	Projected Canadian sales for this vehicle family or engine family.	
<b>Section 7 - Request for Certification</b>	Include a written request that Environment Canada acknowledge that the evidence of conformity has been obtained and produced in a form and manner satisfactory to the Minister; this request must be signed by an authorized representative of the company.	<u>Note:</u> This request for acknowledgement of conformity may be incorporated by the company in its statement of compliance letter (see examples in Appendix III).
<b>Section 8 - Other Information</b>	Any additional information relevant to this submission	If applicable
<b>Section 9 - Confidential Information</b>	Contains all previously listed confidential information.	All confidential information contained in this section must be referenced by title in the appropriate section with a note to see this section 9.

Heading	Requirements	Comments
<b>Section 10 – Compliance Label</b>	A copy or reproduction of the compliance label.	Provide a copy or reproduction of the compliance label. For label requirements, refer to section H.1.12 and Appendix V and VI of this document.



## Appendix V – Compliance label for engines that are not covered by an EPA certificate

Below is a sample of a compliance label for engines that are not covered by an EPA certificate. A copy or reproduction of the compliance label must be included in the submission of evidence of conformity.

Of note, some of the information required on the compliance label under the Regulations is the same information that is needed on the Engine Information Label under the *On-Road Vehicle and Engine Emission Regulations*; therefore a unique label may combine all information required to comply with both regulations.

According to section 8 of the Regulations, the compliance label affixed to the engine must bear the following information:

- Either:
  - the bilingual statement that is provided in paragraph (8)(1)(a) and shown in the sample below – the statement need to be verbatim and, within the brackets shown in the statement, the engine’s model year must be included, or
  - the national emissions mark (NEM) and the engine’s model year;
- The name of the engine’s manufacturer;
- The engine’s date of manufacture, which may be permanently affixed, engraved or stamped on the engine instead of being set out on the label;
- The engine’s unique identification number, which may be permanently affixed, engraved or stamped on the engine instead of being set out on the label;
- The model designations;
- The engine displacement;
- The identification of the emission control system;
- The engine family or the test group, as the case may be - the test group is required instead of the engine family in the case of spark-ignition engine that is included in a fleet of Class 2B and Class 3 heavy-duty vehicles according to section 25 of the Regulations;
- The limits on the types of use for the engine to ensure that the emission standards set out in these Regulations are complied with. For example, if the engine comply only with the transient cycle, a statement as follows: “FOR VOCATIONAL VEHICLES ONLY”.
- The engine specifications and adjustments recommended by the engine’s manufacturer;
- In the case of a spark-ignition engine:
  - the valve lash,
  - the idle speed,
  - the ignition timing, and
  - the idle air-fuel mixture setting procedure and value;
- In the case of a compression-ignition engine:
  - the engine power specified by the manufacturer and expressed in horsepower (HP),

- the RPM at the specified horsepower,
- the fuel rate at the specified horsepower expressed in mm<sup>3</sup> per stroke,
- the valve lash,
- the idle speed, and
- the initial injection timing;
- In the case of a spark-ignition engine that is included in a fleet of Class 2B and Class 3 heavy-duty vehicles according to section 25 of the Regulations, one of the following statements:
  - a statement in both official languages that the engine conforms to the alternative greenhouse gas emission standards for engines of Class 2B and Class 3 heavy-duty vehicles, or
  - the statement referred to in section 1037.150(m)(4) of the CFR;
- In the case of compression-ignition engines that conform to the CO<sub>2</sub> emission standard referred to in section 1036.620 of the CFR in accordance with subsection 31(1) of the Regulations, one of the following statements:
  - a statement in both official languages that the engine conforms to the alternative CO<sub>2</sub> emission standard based on model year 2011 compression-ignition engines, or
  - the statement referred to in section 1036.620(d) of the CFR.

Sample of a compliance label for an engine not covered by an EPA certificate

Name of the engine manufacturer: Company XY, Inc.
<p>“THIS ENGINE CONFORMS TO ALL APPLICABLE STANDARDS PRESCRIBED BY THE CANADIAN HEAVY-DUTY VEHICLE AND ENGINE GREENHOUSE GAS EMISSION REGULATIONS IN EFFECT FOR MODEL YEAR [MODEL YEAR] / CE MOTEUR EST CONFORME À TOUTES LES NORMES QUI LUI SONT APPLICABLES EN VERTU DU RÈGLEMENT SUR LES ÉMISSIONS DE GAZ À EFFET DE SERRE DES VÉHICULES LOURDS ET DE LEURS MOTEURS DU CANADA EN VIGUEUR POUR L’ANNÉE DE MODÈLE [ANNÉE DE MODÈLE]”</p>
<p>DATE OF MANUFACTURE: Month/Year <i>(if not present elsewhere on the engine)</i></p> <p>UNIQUE IDENTIFICATION NUMBER OF THE ENGINE <i>(if not present elsewhere on the engine)</i></p> <p>MODEL DESIGNATION</p> <p>EMISSION CONTROL SYSTEM: ααα</p> <p>ENGINE FAMILY*: ΩΩΩΩα#####ΩΩΩ</p> <p>ENGINE DISPLACEMENT: ##.# L</p> <p>Limits on the type of use: [...]</p>

Engine Specifications and Adjustments: [...]

In the case of a spark-ignition engine :

VALVE LASH, IDLE SPEED, IGNITION TIMING AND IDLE AIR-FUEL MIXTURE SETTING PROCEDURE AND VALUE

In the case of a compression-ignition engine:

ENGINE POWER EXPRESSED IN HP, RPM AT THE SPECIFIED HP, FUEL RATE at the specified HP expressed in mm<sup>3</sup> per stroke, VALVE LASH, IDLE SPEED AND INITIAL INJECTION TIMING

Where

α : Are alpha fields

# : Are numeric fields

Ω : Are alphanumeric fields

\*Engine Family: ΩΩΩΩα####ΩΩΩ

Codes	Ω	Ω	Ω	Ω	α	#	#	#	#	Ω	Ω	Ω
Positions	1	2	3	4	5	6	7	8	9	10	11	12

*Position 1: Model Year Codes*

8- 2008	D- 2013	J - 2018	P- 2023
9- 2009	E- 2014	K- 2019	R- 2024
A- 2010	F- 2015	L- 2020	S- 2025
B- 2011	G- 2016	M- 2021	T- 2026
C- 2012	H- 2017	N- 2022	V- 2027

*Positions 2-4: Code Assigned by EPA for Each Manufacturer*

Insert the 3-character alphanumeric EPA manufacturer code assigned to the company. A company that does not have an assigned EPA manufacturer code must contact Environment Canada at [Emission-Verification@ec.gc.ca](mailto:Emission-Verification@ec.gc.ca).

*Position 5: Industry Sector Codes (formerly called “Family Type Code”)*

H – Heavy-duty engine

*Positions 6-9: Engine Displacement*

Insert the applicable engine displacement. Engine displacement units are litres (e.g. 05.7 where the decimal point counts as a digit and the leading zero is a space) or cubic inches (e.g. 0350, 0097). For large displacement engines, the displacement may be entered as XX.X (e.g. 12.1). Small engines may be entered as a .XXX (e.g. .072, 0.07, 00.7). In all cases the displacement will be read in litres if a decimal point is entered and in cubic inches if there is no decimal point.

*Positions 10-12: Sequence Characters*

Enter any combination of valid characters to provide a unique identification for the family name. At a minimum, the sequence characters, in combination with the other characters in the engine family name, must provide a unique identifier for each engine family name for a manufacturer for each model year. Further, it is recommended that numbers and letters be selected that minimize possible confusion. The sequence characters themselves could be used to represent other information such as the applicable EPA or California emission standards; however, Environment Canada will treat these as simple sequence characters with no additional meaning.

## Appendix VI – Compliance label for vehicles that are not covered by an EPA certificate

Below is a sample of a compliance label for vehicles that are not covered by an EPA certificate. A copy or reproduction of the compliance label must be included in the submission of evidence of conformity.

Of note, some of the information required on the compliance label under the Regulations is the same information that is needed for the Vehicle Emission Control Information Label under the *On-Road Vehicle and Engine Emission Regulations*, therefore a unique label may combine all information required to comply with both regulations.

According to section 9 of the Regulations, the compliance label affixed to the vehicle must bear the following information:

- Either:
  - the bilingual statement that is provided in paragraph (9)(1)(a) and shown in the sample below – the statement need to be verbatim and, within the brackets shown in the statement, the vehicle’s model year must be included, or
  - the national emissions mark (NEM) and the vehicle’s model year;
- The name of the vehicle’s manufacturer;
- The vehicle’s date of manufacture, which may be permanently affixed, engraved or stamped on the vehicle instead of being set out on the label;
- The type of vehicle, in both official languages, referred to in subparagraphs 18(3)(a)(i) to (xiii), which corresponds to its fleet;
- In the case of a vocational vehicle or a tractor, the vehicle family, or in the case of a Class 2B or Class 3 heavy-duty vehicle, the test group;
- The identification of the emission control system;
- In the case of a vocational vehicle referred to in subsection 26(3) of the Regulations, such as a vocational vehicle designed to perform work in an off-road environment, a statement, in both official languages, that the vehicle is exempted under that subsection. For example, a statement as follows: “THIS VOCATIONAL VEHICLE IS EXEMPTED UNDER SUBSECTION 26(3) OF THE HEAVY-DUTY VEHICLE AND ENGINE GREENHOUSE GAS EMISSION REGULATIONS / CE VÉHICULE SPÉCIALISÉ EST EXEMPTÉ EN VERTU DU PARAGRAPHE 26(3) DU RÈGLEMENT SUR LES ÉMISSIONS DE GAZ À EFFET DE SERRE DES VÉHICULES LOURDS ET DE LEURS MOTEURS”;
- In the case of a vocational tractor, a statement, in both official languages, that the vehicle is a vocational tractor. For example, a statement as follows: “THIS VEHICLE IS A VOCATION TRACTOR / CE VÉHICULE EST UN TRACTEUR ROUTIER SPÉCIALISÉ”;
- In the case of a vocational vehicle or a tractor that is exempted under the small volume exemption according to section 17 of the Regulations, a statement to that effect, in both official languages. For example, a statement as follows: “THIS VEHICLE IS EXEMPTED UNDER SECTION 17 OF THE HEAVY-DUTY VEHICLE AND ENGINE GREENHOUSE GAS EMISSION REGULATIONS / CE

VÉHICULE EST EXEMPTÉ EN VERTU DE L'ARTICLE 17 DU RÈGLEMENT SUR LES ÉMISSIONS DE GAZ À EFFET DE SERRE DES VÉHICULES LOURDS ET DE LEURS MOTEURS ”;

- In the case of a Class 2B or Class 3 heavy-duty vehicle:
  - the engine displacement,
  - the CO<sub>2</sub> emission value for that vehicle configuration (which correspond to variable A in the formula of subsection 23(1) of the Regulations), and
  - if applicable, the N<sub>2</sub>O and CH<sub>4</sub> family emission limits;

Sample of a compliance label for a vehicle not covered by an EPA certificate

Name of the vehicle manufacturer: Company XY, Inc.
“THIS VEHICLE CONFORMS TO ALL APPLICABLE STANDARDS PRESCRIBED BY THE CANADIAN HEAVY-DUTY VEHICLE AND ENGINE GREENHOUSE GAS EMISSION REGULATIONS IN EFFECT FOR MODEL YEAR [MODEL YEAR] / CE VÉHICULE EST CONFORME À TOUTES LES NORMES QUI LUI SONT APPLICABLES EN VERTU DU RÈGLEMENT SUR LES ÉMISSIONS DE GAZ À EFFET DE SERRE DES VÉHICULES LOURDS ET DE LEURS MOTEURS DU CANADA EN VIGUEUR POUR L'ANNÉE DE MODÈLE [ANNÉE DE MODÈLE]”
DATE OF MANUFACTURE: Month/Year <i>(if not present elsewhere on the vehicle)</i>
TYPE OF VEHICLE <i>(referred to in subparagraphs 18(3)(a)(i) to (xiii) of the Regulations)</i> , in both official languages
VEHICLE FAMILY* or TEST GROUP* ΩΩΩΩ#####ΩΩΩ
EMISSION CONTROL SYSTEM <i>(Manufacturer Designation)</i>
In the case of a Class 2B or Class 3 heavy-duty vehicle:
ENG. DISPL. <i>(engine displacement and units)</i>
CO <sub>2</sub> EMISSION VALUE <i>(for the vehicle configuration)</i>
N <sub>2</sub> O FAMILY EMISSION LIMITS
CH <sub>4</sub> FAMILY EMISSION LIMITS

Where

α : Are alpha fields

# : Are numeric fields

Ω : Are alphanumeric fields

\*Vehicle Family or Test Group: ΩΩΩΩ#####ΩΩΩ

<i>Codes</i>	Ω	Ω	Ω	Ω	Ω	#	#	#	#	Ω	Ω	Ω
<i>Positions</i>	1	2	3	4	5	6	7	8	9	10	11	12

*Position 1: Model Year Codes*

8- 2008	D- 2013	J - 2018	P- 2023
9- 2009	E- 2014	K- 2019	R- 2024
A- 2010	F- 2015	L- 2020	S- 2025
B- 2011	G- 2016	M- 2021	T- 2026
C- 2012	H- 2017	N- 2022	V- 2027

*Positions 2-4: Code Assigned by EPA for Each Manufacturer*

Insert the 3-character alphanumeric EPA manufacturer code assigned to the company. A company that does not have an assigned EPA manufacturer code must contact Environment Canada at [Emission-Verification@ec.gc.ca](mailto:Emission-Verification@ec.gc.ca).

*Position 5: Industry Sector Codes (formerly called “Family Type Code”)*

2 – Complete Heavy-Duty Highway Vehicles (>14,000 lb GVWR)

*Positions 6-9: Vehicle Type or Engine Displacement*

In the case of a Class 2B or Class 3 heavy-duty vehicle, insert the applicable engine displacement for each engine family/test group. Engine displacement units should be in liters (XX.X or .XXX). For dual or variable displacement families, enter the maximum displacement. If the displacement is given in liters, the decimal point counts as a digit.

In the case of a vocational vehicle or a tractor, indicate the vehicle type as follow:

VOCV – Vocational Vehicle

TRAC – Tractor

*Positions 10-12: Sequence Characters*

Enter any combination of valid characters to provide a unique identification for the family name or test group name. At a minimum, the sequence characters, in combination with the other characters in the must provide a unique identifier for each vehicle family or test group for a manufacturer for each model year. Further, it is recommended that numbers and letters be selected that minimize possible confusion. The sequence characters themselves could be used to represent other information such as the applicable EPA or California emission standards; however, Environment Canada will treat these as simple sequence characters with no additional meaning.



## Appendix VII – Definitions - Glossary

This glossary provides definitions and explanations of terms useful to better understand this guidance document. Some definitions are directly from the Act or the Regulations, and others for use in the guidance. Of note, not all defined terms of the Act or the Regulations are provided within this glossary.

*“Canada-unique” vehicle or engine:* A Type 1 Canada-unique vehicle or engine is a vehicle or engine specifically listed on an EPA certificate, and sold in Canada, but not in the United States. A Type 3 Canada-unique vehicle or engine is not specifically listed on an EPA certificate and not sold concurrently in Canada and the United States.

*CBSA:* the Canada Border Services Agency

*CEPA 1999 or the Act:* Canadian Environmental Protection Act, 1999

*CFR:* Title 40 of the *Code of Federal Regulations* of the United States, as amended from time to time.

*Company:* As per section 149 of the Act, a company is defined as a “person” who:

- a. is engaged in the business of manufacturing vehicles, engines or equipment in Canada;
- b. is engaged in the business of selling to other persons, for the purpose of resale by those persons, vehicles, engines or equipment obtained directly from a person described in paragraph (a) or the agent of such person; or
- c. imports any vehicle, engine or equipment into Canada for the purpose of sale (*note that this includes importing vehicles to lease*).

*Deterioration factor:* As per subsection 1(1) of the Regulations, the relationship between the emission level measured at the end of useful life or at the point where it is the highest during the useful life and the undeteriorated emission level measured at the point corresponding to a maximum of 6 437 km (4,000 miles) of operation in relation to a vehicle that has stabilized emissions and a maximum of 125 hours of operation in relation to an engine that has stabilized emissions, determined in accordance with the following sections of the CFR.

Vehicles and Engines	Sections of the CFR
Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a “vocational vehicle”)	Sections 86.1823(m) and 1037.104(d)(5) of the CFR
Vocational vehicles and tractors	Section 1037.241(c) of the CFR
Heavy-duty engines	Sections 1036.150(g) and 1036.241(c) of the CFR

*EPA*: the United States Environmental Protection Agency

*EPA certificate*: As per subsection 1(1) of the Regulations, a certificate of conformity with U.S. federal standards issued by the EPA.

*Engine family*: As per subsection 1(1) of the Regulations, the classification unit of a company’s product line of heavy-duty engines for the purposes of testing selection, determined in accordance with section 230 of part 1036 of the CFR.

*Evidence of conformity*: technical information to show compliance with the standards set out in the Regulations including, but not limited to, information describing the capabilities of the emission test facilities operated by, or on behalf of, the company to produce evidence that its vehicles and engines conform to the standards set out in the Regulations. This may include evidence that the emission test facility used on behalf of the company has produced test results used in support of a successful application to the EPA for the issuance of a certificate of conformity.

*GCWR*: As per subsection 1(1) of the Regulations, the gross combination weight rating that is specified by a manufacturer as the maximum design loaded weight of a vehicle and trailer.

*Greenhouse gas Emissions Model (GEM) or GEM computer simulation model*: As per subsection 1(1) of the Regulations, the EPA’s GEM computer simulation model referred to in section 520 of part 1037 of the CFR.

Of note, GEM was developed by the EPA as a means for determining compliance for vocational vehicles, as well as tractors. The same model is used for the Canadian Regulations. The GEM computer model is available on EPA’s Web site, where it can be downloaded at no charge, as well as a user guide, at: <http://www.epa.gov/otaq/climate/gem.htm>.

*GVWR*: As per subsection 1(1) of the Regulations, the gross vehicle weight rating that is specified by a manufacturer as the maximum design loaded weight of a vehicle.

*CO<sub>2</sub> family certification level*: As per subsection 1(1) of the Regulations, the maximum CO<sub>2</sub> emission level that is determined by a company for heavy-duty engines.

*Family emission limit*: As per subsection 1(1) of the Regulations, as the case may be:

- (a) the value corresponding to the product of 1.03 multiplied by the CO<sub>2</sub> family certification level in the case of a heavy-duty engine's CO<sub>2</sub> emissions; or
- (b) the maximum emission level determined by a company, in the case of
  - (i) a heavy-duty vehicle's CO<sub>2</sub> emissions, and,
  - (ii) a heavy-duty vehicle and heavy-duty engine's N<sub>2</sub>O or CH<sub>4</sub> emissions.

*NEM*: National Emissions Mark

*Statement of compliance letter*: an original signed letter from an authorized representative of the company that offers for sale or intends to import the subject engines or vehicles in Canada. Examples of statement of compliance letters are provided in Appendix III.

*Useful life*: As per subsection 1(5) of the Regulations, unless otherwise provided elsewhere in the Regulations, refers to the period of time or use in respect of which an emission standard applies to, as the case may be, as follow:

Vehicles or Engines	Useful life
Class 2B and Class 3 heavy-duty vehicles and cab-complete vehicles (excluding those that meet the definition of a "vocational vehicle")	11 years or 193 121 km (120,000 miles), whichever occurs first
Class 2B, Class 3, Class 4 and Class 5 vocational vehicles, heavy-duty engines that are spark-ignition engines and light heavy-duty engines that are compression-ignition engines	10 years or 177 027 km (110,000 miles), whichever occurs first

Class 6 and Class 7 vocational vehicles, Class 7 tractors and medium heavy-duty engines that are compression-ignition engines	10 years or 297 728 km (185,000 miles), whichever occurs first
Class 8 vocational vehicles and Class 8 tractors	10 years or 700 064 km (435,000 miles), whichever occurs first
Heavy heavy-duty engines that are compression-ignition engines	As set out in section 86.2 of the CFR, for emissions of oxides of nitrogen (NO <sub>x</sub> ), hydrocarbon (HC), particulate matter (PM) and carbon monoxide (CO)