

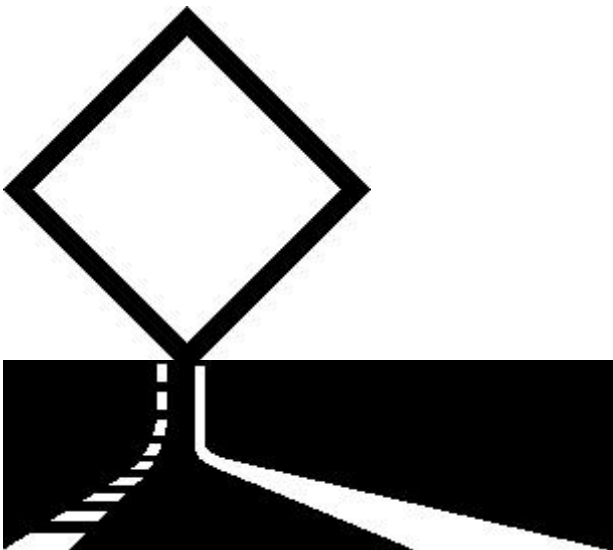
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**A Technical Publication  
from the Co-ordination  
and Information Centre**

## **Transportation of Dangerous Goods by Bulk Dealers**

November 2009

**Dangerous Goods  
And Rail Safety**



**Government  
of Alberta** ■  
Transportation

This material is meant as a guide to certain parts of the Transportation of Dangerous Goods Regulations and is not meant to be a substitute for them. It is the responsibility of handlers, offerers and transporters of dangerous goods to consult the Regulations for the exact requirements. The Coordination and Information Centre of Alberta Transportation can provide accurate information regarding the Regulations 24 hours a day.

**Co-ordination and Information Centre**

**Transportation  
Dangerous Goods and Rail Safety Branch  
Main Floor, Twin Atria Building  
4999 – 98 Avenue  
Edmonton, Alberta, T6B 2X3**

**Tel. Edmonton: (780) 422 – 9600  
Tel. Province-wide: 1 (800) 272 – 9600  
Fax: (780) 427 – 1044**

**These telephone lines are recorded to assist in responding to the emergency (natural/manmade) and/or inquiry regarding dangerous goods and to ensure that the information is accurate. Direct any questions regarding the recording to the Compliance Officer responding to your call or contact the Manager of the CIC at 780-427-8660. *Legal Authority: Dangerous Goods Transportation and Handling Act, Section 13(1).***

## **DOCUMENTATION**

### **Consignor Responsibilities**

A consignor is defined as a person in Canada who is named in the shipping document as the consignor; imports or who will import dangerous goods into Canada; or if the previous do not apply, has possession of dangerous goods immediately before they are in transport. It is the responsibility of the consignor to prepare and give a shipping document to the carrier or an electronic copy, if the carrier agrees. If the consignor is an importer of dangerous goods then he or she must make sure that the carrier has a shipping document prior to the dangerous goods being transported in Canada [Section 3.1].

### **Carrier Responsibilities**

A carrier is defined as a person who whether or not for hire or reward has possession of dangerous goods while they are in transport. A carrier must not take possession of a shipment of dangerous goods unless they have a shipping document for the dangerous goods. If the carrier accepts an electronic copy of a shipping document then they must produce a paper copy to carry with the shipment [Section 3.2].

If the dangerous goods are passed to another person, the carrier must provide a copy of the shipping document to that other person who could be another carrier or the consignee (final receiver) of the dangerous goods.

### **Location of Shipping Document**

The driver of a power unit must ensure that a copy of the shipping document is kept in a pocket mounted on the driver's door, or within the driver's reach. If the driver leaves the power unit he or she must place the document in the door pocket, on the driver's seat or on a location that is clearly visible to anyone entering the power unit through the driver's door [Section 3.7]

After unloading a shipment of dangerous goods or disconnecting a cargo unit (for example, a trailer) from a power unit, the carrier must place the shipping document in a waterproof receptacle attached to or near the means of containment containing the dangerous goods. This is necessary if the shipment is left in an unsupervised area or possession of the dangerous goods has not been transferred to another person [Section 3.10].

### **Information on the Shipping Document**

The information on a shipping document must be easy to identify, legible and printed in indelible ink. The shipping document may be prepared in English or in French [Section 3.4]. The table below describes the minimum required information that must appear on a shipping document.

A shipping document template is included at the end of this bulletin.

Shipping Document Information	When Required	Where in The Regulations
Date	Always	3.5(1)(b)
Name and address of consignor	Always	3.5(1)(a)
Description of goods in the following order		3.5(1)(c)
a. Shipping name	Always	3.5(1)(c)(i)
b. The technical name of the most dangerous substance related to the primary classification	If Provision 16 of Schedule 2 applies	3.5(1)(c)(i)(A)
c. The words "Not Odorized"	For liquefied petroleum gas that has not been odorized	3.5(1)(c)(i)(B)
d. Primary classification	Always	3.5(1)(c)(ii)
e. Compatibility group	For Class 1	3.5(1)(c)(iii)
f. Subsidiary classifications	If Any	3.5(1)(c)(iv)
g. UN number	Always	3.5(1)(c)(v)
h. Packing group (none for compressed gases)	If Any	3.5(1)(c)(vi)
The quantity in the International System of Units (SI) <sup>1,2</sup>	Always	3.5(1)(d)
Net explosives quantity	For Class 1	3.5(1)(d)
The number of containers <sup>2</sup>	For dangerous goods in small containers requiring safety labels	3.5(1)(e)
The words "24-Hour Number" followed by a telephone number where the consignor can be easily reached <sup>3</sup>	Always	3.5(1)(f)
Emergency Response Assistance Plan (ERAP) number and telephone number to activate it	If Required	3.6(1)
The control and emergency temperatures	For products in Classes 4.1 and 5.2	3.6(3)

**Note:**

1. If the quantity of dangerous goods is less than 10% of the container's maximum fill limit then the words "Residue – Last Contained" followed by the shipping name of the dangerous goods last contained in the means of containment may be used to describe the quantity. This does not apply to Class 2 gases in small containers and Class 7 radioactive substances [Section 3.5(4)].
2. A consignor can also use the telephone number of an agency that is competent to give the technical information on the shipment. For example, it is possible to use CANUTEC as a source of technical information provided that the consignor has received permission in writing from CANUTEC [Section 3.5(2)].

3. If the quantity of dangerous goods or the number of small means of containment changes during transport, the carrier must show on the shipping document or on a document attached to the shipping document the change in the quantity of dangerous goods or the number of small containers [Section 3.5(5)].
4. Radioactive materials have special documentation requirements. Dangerous goods shipped by air must be documented in a prescribed form known as "Shipper's Declaration for Dangerous Goods". For details of alternate and additional documentation requirements, consult Part 3 of the TDG Regulations or call the Coordination and Information Centre at 1-800-272-9600.

## **WASTE MANIFEST**

A waste manifest produced by Environment Canada is an accepted dangerous goods shipping document despite the requirements of Section 3.5 of the TDG Regulations. The waste manifest may be used as a dangerous document because Section 3.5(7) allows that the UN number required in the description of each of the dangerous goods may be included in the shipping document before the shipping name.

The waste manifest is used when shipping a dangerous good that is no longer usable in its original form and is intended for treatment, disposal or recycling. A waste manifest is a serialized pre-printed form which is only available through government offices. In order to obtain one please call Alberta Environment, Reclamation Policy Branch at (780) 427-0666 (for a toll free call in Alberta dial 310-0000).

## **SAFETY MARKS**

Safety marks are the placards, labels and package markings which identify dangerous goods shipments. Anyone who offers for transport, transports or imports a means of containment that contains dangerous goods must display the safety marks required by the TDG Regulations [Section 4.1].

A person must not display a safety mark on a means of containment if that safety mark is misleading as to the contents or potential danger [Section 4.2].

A person must not load or pack dangerous goods into a large means of containment unless the means of containment displays the safety marks required when loading or packing is complete [Section 4.3].

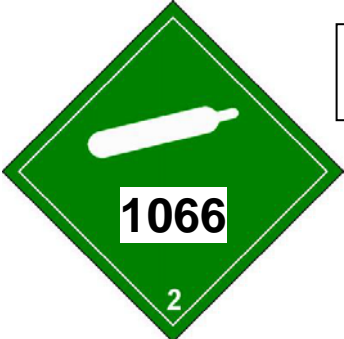
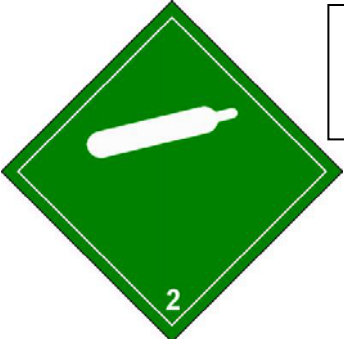
The **consignor** (shipper) must ensure that each package of dangerous goods is properly labeled and marked and that all necessary placards are provided. It is the consignor's responsibility to provide the safety marks to the carrier [Section 4.4].

The **carrier** is responsible for displaying the required safety marks on the large means of containment and ensuring that the required safety marks remain displayed on the small means of containment and the large means of containment. The carrier must also provide, display or remove the safety marks if the requirements for them change while in transport [Section 4.5].

## Small Means of Containment

A small means of containment has a capacity of 450 litres or less. A small means of containment must display the dangerous goods label(s), the shipping name, the technical name (if applicable) and the UN number of the product (Sections 4.10 to 4.12). A label must be at least 100 mm on each side. If the container is too small or it has an irregular shape, the label can be reduced in size up to a dimension of 30 mm on each side [Section 4.7(2)]. If the label is reduced in size to 30 mm, the UN number, shipping name and label may be displayed on a tag affixed to the means of containment [Sections 4.10(4) and 4.11(3)]. If the size of the label is reduced, every symbol, letter and number required on that label must be reduced proportionally.

The UN number for a dangerous goods label can be placed inside the label or next to the primary class label as shown below [Section 4.8(1)(b)]. If the UN number is inside the label the letters "UN" must be omitted.

<b>Example of Safety Marks for a Small Means of Containment</b> In this case the product is compressed nitrogen	
 <p>A green diamond-shaped label with a white cylinder symbol in the center. The number "1066" is printed in a white box at the bottom of the diamond. A small "2" is at the bottom vertex of the diamond.</p>	 <p>A green diamond-shaped label with a white cylinder symbol in the center. A small "2" is at the bottom vertex of the diamond. To the right of the label is a white rectangular box containing the text "UN 1066" above "NITROGEN, COMPRESSED".</p>
Class 2.2 safety label is green with a white cylinder symbol	

## Large Means of Containment

A large means of containment has a capacity greater than 450 litres. Placards representing the various chemical hazards are placed on all four sides of large means of containment or transport units. Placards can be used to represent both the primary and the subsidiary class of the dangerous goods in transport.

Each side of a placard must be at least 250 mm in length. Except for the DANGER placard all placards have a line running 12.5 mm inside the edge. If the large means of containment has an irregular shape or its size is too small, the placard can be reduced in size but the dimensions must never be less than 100 mm on each side [Section 4.7(3)].

A placard and UN number must be displayed for a large means of containment if the dangerous goods:



- are in a quantity or concentration for which an Emergency Response Assistance Plan is Required;
- are included in Class 7, Radioactive Materials, for which a Category III Yellow Label is required [Section 4.15(1)];
- are a liquid or a gas in direct contact with the large means of containment;
- have a total gross mass greater than 500 kg; or
- are included in Class 1.1, 1.2, 1.3 or 1.5 and are
  - (i) not subject to special provision 85 or 86 and exceed 10kg net explosive quantity, or
  - (ii) subject to special provision 85 or 86 and the number of articles exceeds 1000.

When several different dangerous goods are transported together the display of primary classification placards and UN numbers is regulated according to the table below [Section 4.15].

Table



Item	Description	Placards Required	Un Numbers Required
1.	Dangerous Goods have the same UN number and an ERAP is not required for them	Primary class placard	(a) UN number if the dangerous goods are a liquid or gas in direct contact with the large means of containment; and  (b) if not required in paragraph (a), the UN number may be displayed if the dangerous goods are in a quantity greater than 4000 kg and are offered for transport by one consignor.
2.	Dangerous goods have the same UN number and an ERAP is required for them	Primary class placard	UN Number
3.	Dangerous goods have different UN numbers and an ERAP is not required for any of them	(a) primary class placard for those Class 1 dangerous goods that meet any of the conditions in subsection (1);  (b) primary class placard for those Class 7 dangerous goods that meet any of the conditions in subsection (1); and  (c) for the remaining dangerous goods that meet any of the conditions in subsection (1), the primary class placard for each of those dangerous goods except that, if two or more different primary class placards are required, the DANGER placard may be displayed in place of those primary class placards.	None
4.	Dangerous goods have different UN numbers and an ERAP is required for at least one of them	(a) primary class placard for each of the dangerous goods for which an ERAP is required;  (b) primary class placard for those Class 1 dangerous goods that meet any of the conditions in subsection (1);  (c) primary class placard for those Class 7 dangerous goods that meet any of the conditions in subsection (1); and  (d) for the remaining dangerous goods that meet any of the conditions in subsections (1), the primary class placard for each of those dangerous goods except that, if two or more different primary class placards are required, the DANGER placard may be displayed in place of those primary placards	Un number for each of the dangerous goods for which an ERAP is required
5.	Dangerous goods have different Un numbers and an ERAP is required for each of them	Primary class placard for each of the dangerous goods	UN number for each of the dangerous goods

The UN number must be displayed in the centre of the placard or on an orange panel next to the placard without the prefix "UN". [Section 4.8(2)]. The example below shows how a placard and UN number can be displayed.

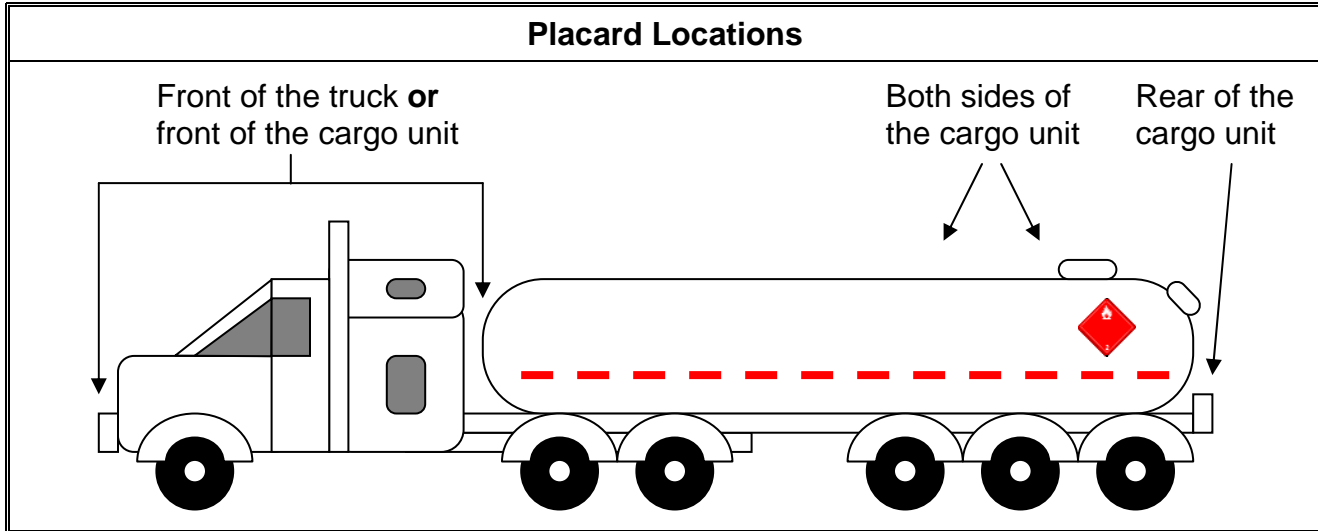
<b>Example of a Placard for a Large Means of Containment</b> GASOLINE, UN 1203, Class 3, Packing Group II	
	
Class 3 placards have a red background and a white flame symbol	

A **subsidiary class placard** must also be displayed on each side and each end of a large means of containment for dangerous goods for which an ERAP is required and that have a subsidiary classification of [Section 4.15(4)]:

- Class 1: the placard will be the same as for Classes 1.1, 1.2 and 1.3.
- Class 4.3: the placard will be the same as for Class 4.3.
- Class 6.1, in Packing Group I due to inhalation toxicity: the placard will be the same as for Class 6.1.
- Class 8, and the UN number is UN2977 or UN2978 (both these products are uranium hexafluoride radioactives): the placard will be the same as for Class 8.



<b>Example of a Subsidiary Class Placard</b> HYDROGEN FLUORIDE, ANHYDROUS, UN1052, Class 8 (6.1), Packing Group I	
	
Both Class 8 and Class 6.1 placards have white backgrounds and black symbols	

Placards must be displayed on each side and each end of a large means of containment. They may be displayed on a frame that is permanently connected to the large means of containment. The placard may also be placed at the front of a truck instead of on the leading end of a trailer unit of the truck. The placards must be visible from all four sides of a large means of containment, or moved to an appropriate position where they are visible [Section 4.15(3)].



### ORIENTATION OF LABELS AND PLACARDS

Labels and placards must be displayed “square on a point”. That is, resting on a corner rather than on a side [Section 4.7(1)]. The example below shows the proper orientation.

<b>Safety Mark Orientation</b>	
Correct	Incorrect
	

## TRAINING

Anyone who handles, offers for transport or transports dangerous goods must be adequately trained and have a valid Dangerous Goods Training Certificate or must be in the presence of and under the direct supervision of a trained person.[Section 6.1].

A person is adequately trained if the person has sound knowledge of the topics listed below that relate directly to the person's duties [Section 6.2]:

- classification of dangerous goods, shipping names, UN numbers, packing groups;
- schedules 1, 2 and 3
- shipping documentation;
- safety marks;
- certification safety marks, safety requirements and safety standards;
- emergency response assistance plan requirements;
- reporting requirements;
- safe handling and transportation practices, including characteristics of dangerous goods;
- proper use of equipment; and
- emergency measures to take in case of releases.

The employer issues a training certificate when he/she has reasonable grounds to believe that an employee possesses adequate training. A training certificate must have the following information [Section 6.3(1)]:

- the name and address of the employer,
- the name of the employee,
- the date when the training certificate expires preceded by the words "Expires on" or "Date D'expiration",
- the aspects of handling, offering for transport or transporting dangerous goods for which the employee is trained, and
- the signatures of the employer and the employee [Section 6.3(3)]

A self-employed person who has reasonable grounds to believe that he or she is adequately trained and who will perform duties to which the training relates must issue to himself or herself a training certificate [Section 6.3(2)].

The employer or self-employed person must keep a record of training and a copy of a training certificate from the date the training certificate was issued until two years after it expires [Section 6.6].

The training certificate must be immediately presented to an inspector who requests for it [Section 6.8].

### REPORTING REQUIREMENTS

In the event of an accidental release or an imminent accidental release of dangerous goods, the person who has possession of the dangerous goods must make an immediate report of the release or imminent accidental release. An immediate report is required when the quantities of dangerous goods released exceed the amounts set out in the following table [Section 8.1] or when there is an imminent accidental release. For more information on reporting requirements, request the CIC information bulletin entitled Reporting an Accidental Release of Dangerous Goods.

Class	Quantity
1	Any quantity that: a) could pose a danger to public safety or 50kg; b) is included in Class 1.1, 1.2, 1.3 or 1.5 and is (i) not subject to special provision 85 or 86 but exceeds 10kg net explosives quantity, or (ii) subject to special provision 85 or 86 and the number of articles exceeds 1000.
2	Any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more
3	200 l
4	25 kg
5.1	50 kg or 50 l
5.2	1 kg or 1 l
6.1	5 kg or 5 l
6.2	Any quantity
7	Any quantity that could pose a danger to public safety; or an emission level greater than the level established in section 20 of the <i>Packaging and Transport of Nuclear Substances Regulations</i> .
8	5 kg or 5 l
9	25 kg or 25 l

In Alberta, the report must be made to:

- the local police,
- Alberta Transportation, Dangerous Goods and Rail Safety Branch at 1-800-272-9600,
- the person's employer,
- the consignor of the dangerous goods,
- the owner, lessee or charterer of the road vehicle involved, and
- CANUTEC at (613)996-6666 when the dangerous goods are in Class 1 or Class 6.2 or there was an accidental release from a cylinder that suffered a catastrophic failure

The information that must be included in the report is:

- the shipping name or UN number of the dangerous goods,
- the quantity of dangerous goods initially loaded into the container,
- the quantity of dangerous goods released,
- a description of the condition of the container and the details of the conditions of transport when the release occurred
- a description of the circumstances that led to a catastrophic failure of a cylinder, if involved in the release,
- the location of the accidental release,
- the number of injuries or deaths, if any occurred,
- an estimate of the number of people evacuated as a result of the accidental release

A report can also include other information not required by the regulations; for example, any cleanup arrangements, involvement of other emergency response agencies like the police, fire department, Alberta Environment, etc.

After submitting an immediate report, the employer of the person who had possession of the dangerous goods at the time of the accidental release must submit a 30-day Follow-up Report. The report must be made in writing to the Dangerous Goods Directorate of Transport Canada [Section 8.3]. The 30-Day Report must have the following information:

- name, address and telephone number of the place of business of the person submitting the report,
- date, time and location of the accidental release,
- name and address of the place of business of the consignor,
- classification of the dangerous goods,
- estimate of the quantity loaded into the containers before the accidental release and the quantity of dangerous goods released,
- a description of the means of containment involved and a description of the failure or damage including how the released occurred,
- if a catastrophic failure of a cylinder occurred, the cylinder certification markings and a description of the failure,
- number of deaths and injuries resulting from the accidental release,
- an estimate of the number of people evacuated, if any, and
- if an ERAP was activated, the name of the person who responded.

## EMERGENCY RESPONSE ASSISTANCE PLAN (ERAP)

An Emergency Response Assistance Plan (ERAP) is required in instances where dangerous goods are potentially very hazardous when transported in moderate or large quantities. If a large enough amount of these dangerous goods were released, the potential for harm to people and the environment would be great. For this reason, Part 7 of the TDG Regulations requires consignors and importers of dangerous goods to register an ERAP if necessary [Section 7.1].

An ERAP is required for the following circumstances:

- A quantity of dangerous goods having the same UN number in one means of containment. If the quantity of dangerous goods exceeds the ERAP limit, an ERAP is required regardless of the size of the means of containment;
- An accumulation of dangerous goods in means of containment that each have a capacity greater than 10 percent of the ERAP limit in Column 7 of Schedule 1; and
- A quantity of one or more dangerous goods from one of the following classes that are in one or more means of containment [Section 7.1(3):
  - Class 1 Explosives
  - Class 3, Flammable Liquids with a subsidiary class of 6.1, Toxic Substances
  - Class 4, Flammable Solids
  - Class 5.2, Organic Peroxides, that are Type B or Type C
  - Class 6.1, Toxic Substances, Packing Group I

An ERAP is necessary whenever a quantity of dangerous goods that have the same UN number exceeds the ERAP limit if the dangerous goods have an index number greater than that listed in column 7 of Schedule 1 and

- (a) if a solid, have a mass that is greater than the index number when that number is expressed in kilograms;
- (b) if a liquid, have a volume that is greater than the index number when that number is expressed in litres;
- (c) if a gas, including a gas in a liquefied form,
  - (i) are contained in a means of containment that has a capacity greater than the index number when the index number is less than or equal to 100 and is expressed in litres, or
  - (ii) are contained in one or more means of containment at least one of which has a capacity greater than 100 L and the total capacity if all means of containment is greater than the index number when the index number is greater than 100 and expressed in litres [Section 7.1(4)]

In many instances dangerous goods do not require an ERAP; however, consignors and importers of dangerous goods must make sure that the quantities of dangerous goods in a consignment do not exceed the ERAP quantity limits.

If you are not sure whether a consignment of dangerous goods requires an ERAP, you may call the Coordination and Information Centre at 1-800-272-9600. You can obtain an application to register an ERAP by calling CANUTEC at (613)992-4624.

**DANGEROUS GOODS SHIPPING DOCUMENT FOR ROAD TRANSPORT**

<b>DESTINATION (City-Town)</b> Name: Address:			<b>CONSIGNOR</b> Name: Address:			
Name of Carrier	Prepaid <input type="checkbox"/>	Collect <input type="checkbox"/>	Transport Unit Number			
Point of Origin			Shipping Date		Shipper's No.	
<b>REGULATED DANGEROUS GOODS</b>			24-Hour Number: ERAP Reference _____ and Telephone Number _____			
Shipping Name	Primary Class	Subsidiary Class	UN Number	Packing Group	Quantity	Packages Requiring Labels
This is to certify that the above named articles are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the <i>Transportation of Dangerous Goods Regulations</i> .						
<b>Special Instructions</b>						
<b>NON-REGULATED GOODS</b>						
Packages	Description of Articles				Weight	
Received in apparent good order			_____ <b>Consignee Signature</b>		_____ <b>Shipper's Signature</b>	
Received in Apparent Good Order		<b>Driver's Signature</b>			<b>Driver's No.</b>	

Please note that this sample shipping document contains some information that is not required in the TDG Regulations. The additional information reflects current industry practices.