Transportation of Soils Contaminated with Flammable Liquids

May 2018
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. Alberta EDGE (Environmental and Dangerous Goods Emergencies) of Alberta Transportation can provide accurate information regarding the Regulations 24 hours a day.

Alberta EDGE (Environmental and Dangerous Goods Emergencies)

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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 Regulatory Compliance Officer responding to your call or contact the Manager of Alberta EDGE at 780-427-8660. Legal Authority: Dangerous Goods Transportation and Handling Act, Section 13(1).
INTRODUCTION

Soil contaminated with hydrocarbons can be high flammable, and is generally classified as Class 4.1 (Flammable Solids). These substances are readily combustible, or liable to cause fire through friction during transport.

This bulletin has been produced to assist shippers and carriers transporting soils contaminated with hydrocarbons such as crude oil, gasoline and diesel to comply with the Transportation of Dangerous Goods (TDG) Regulations.

The Dangerous Goods and Rail Safety Section of Alberta Transportation is responsible for administering the Transportation of Dangerous Goods (TDG) legislation for dangerous goods transport by road or rail in Alberta. Alberta EDGE can be reached 24/7 at (780) 422-9600 or toll free at 1-800-272-9600, and is a valuable source of information on TDG Regulations.

CLASSIFICATION (PART 2)

Sections 2.20 through 2.22 of the TDG Regulations describe the requirements for a substance to be classified as Class 4.1 Flammable Solids. A common classification for hydrocarbon contaminated soil is “UN3175, SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S., Class 4.1, Packing Group II”. Special Provisions 16 and 56 apply to this classification.

**Special Provision 16:**

The technical name of the substance which poses the greatest hazard must be shown, in parentheses, on the shipping document following the shipping name [Section 3.5(1)(c)(ii)(A) of Part 3]. The technical name must also be shown, in parentheses, on a small container or on a tag following the shipping name [Section 4.11(2) and (3) of Part 4].

The technical name is not required on a small container for any of the following dangerous goods:

UN1325, UN2925, UN2926, UN3175

**Special Provision 56:**

A mixture of solids and flammable liquids may be transported under **UN3175 (Solids Containing Flammable Liquid, N.O.S.)** without the tests and criteria for including substances in Class 4.1, Flammable Solids, first being applied, if

- there is no free liquid visible at the time the mixture is loaded into a means of containment or at the time the means of containment is closed; and
- each means of containment is leakproof.
The TDG Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification) do not apply to a sealed packet or article containing less than 10 mL of dangerous goods included in Class 3, Flammable Liquids, packing group II or III, if there is no free liquid in the packet or article.

If it is not possible to follow Special Provision 56, then proper testing to determine the classification of the material must be completed.

**Determining the Classification of Fuel Contaminated Soil**

Assume you have gasoline as the contaminant in soil:

1. Is the mix flammable and more liquid than solid? (either Yes or No)
2. If **Yes**, then the product is "**UN1203, GASOLINE, Class 3, Packing Group II**".
3. If **No**, then the product is "**UN3175, SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S., Class 4.1, Packing Group II**".
4. If the product does not meet the criteria listed in Part 2 of the TDG Regulations, then it is not a regulated dangerous good.

**EXAMPLE SHIPPING NAMES**

<table>
<thead>
<tr>
<th>UN #</th>
<th>Shipping Name</th>
<th>Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3175</td>
<td>SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S. (PETROLEUM CRUDE OIL)</td>
<td>4.1</td>
<td>II</td>
</tr>
<tr>
<td>UN3175</td>
<td>SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S. (GASOLINE)</td>
<td>4.1</td>
<td>II</td>
</tr>
</tbody>
</table>

**DOCUMENTATION (PART 3)**

Documentation must accompany each consignment of dangerous goods and is supplied to the carrier by the shipper [Section 3.1]. The carrier must provide the receiver with a copy of the shipping document [Subsection 3.2(6)]. There is no single approved format for this shipping document but the information should be clearly presented to assist any emergency response persons who may need to use it. A sample shipping document is attached. According to Section 1.4 of the Transportation of Dangerous Goods Regulations, the definition of the shipping document must be in paper format, electronic format is not acceptable.

The following table describes the minimum required information, which must appear on a dangerous goods shipping document.
<table>
<thead>
<tr>
<th>Shipping Document Information</th>
<th>When Required</th>
<th>Where in The Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Always</td>
<td>3.5(1)(b)</td>
</tr>
<tr>
<td>Name and address of consignor</td>
<td>Always</td>
<td>3.5(1)(a)</td>
</tr>
<tr>
<td>Description of goods in the following order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. UN number</td>
<td>Always</td>
<td>3.5(1)(c)(i)</td>
</tr>
<tr>
<td>b. Shipping name</td>
<td>Always</td>
<td>3.5(1)(c)(ii)</td>
</tr>
<tr>
<td>c. The technical name of the most dangerous substance related to the primary classification</td>
<td>If Provision 16 of Schedule 2 applies</td>
<td>3.5(1)(c)(iii)(A)</td>
</tr>
<tr>
<td>d. The words “Not Odorized”</td>
<td>For liquefied petroleum gas that has not been odorized</td>
<td>3.5(1)(c)(iii)(B)</td>
</tr>
<tr>
<td>e. Primary classification</td>
<td>Always</td>
<td>3.5(1)(c)(iii)</td>
</tr>
<tr>
<td>f. Subsidiary classifications</td>
<td>If Any</td>
<td>3.5(1)(c)(v)</td>
</tr>
<tr>
<td>g. Packing group</td>
<td>If Any</td>
<td>3.5(1)(c)(vi)</td>
</tr>
<tr>
<td>The words ‘Toxic by inhalation’ or ‘toxic – inhalation hazard’</td>
<td>If Provision 23 of Schedule 2 applies</td>
<td>3.5(1)(c)(vii)</td>
</tr>
<tr>
<td>The quantity in the International System of Units (SI) for each shipping name</td>
<td>Always</td>
<td>3.5(1)(d)</td>
</tr>
<tr>
<td>The number of containers²</td>
<td>For dangerous goods in small containers requiring safety labels</td>
<td>3.5(1)(e)</td>
</tr>
<tr>
<td>The words “24-Hour Number” followed by a telephone number where the consignor can easily be reached³</td>
<td>Always</td>
<td>3.5(1)(f)</td>
</tr>
<tr>
<td>Consignor’s Certification⁴</td>
<td>Always</td>
<td>3.6.1</td>
</tr>
<tr>
<td>Emergency Response Assistance Plan (ERAP) number and telephone number to activate it</td>
<td>If Required</td>
<td>3.6(1)</td>
</tr>
<tr>
<td>The control and emergency temperatures</td>
<td>For products in Classes 4.1 and 5.2</td>
<td>3.6(3)</td>
</tr>
</tbody>
</table>

1. If the dangerous goods fill less than 10% of the container, then the words “Residue – Last Contained”, followed by the shipping name of the dangerous goods last contained can be used to describe the quantity [Section 3.5(4)].

2. **Multiple Deliveries**: If the quantity of dangerous goods or the number of small containers changes during transport, the carrier must show the change on the shipping document or on a document attached to the shipping document. [Section 3.5(5)].
3. The telephone number of someone who is not the consignor, but who can give technical information on the shipment, such as the Canadian Transport Emergency Centre (CANUTEC), may be used instead. To use CANUTEC’s phone number, the consignor must receive permission, in writing, from CANUTEC. A consignor who uses the telephone number of an organization or agency other than CANUTEC must ensure that the organization or agency has current, accurate information on the dangerous goods the consignor offers for transport and, if the organization or agency is located outside Canada, the telephone number must include the country code and, if required, the city code [Section 3.5(2)].

4. Consignor’s Certification: “I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks affixed or displayed on them, and are in all respects in proper condition for transport according to the Transportation of Dangerous Goods Regulations.” [Section 3.6.1]

If the shipment is going for disposal in Alberta, an Alberta Environment Recycle Docket is required. Information on where to obtain a Recycle Docket is included on page 13.

Dangerous goods shipping documents must be kept with the shipment in an accessible location such as on the seat or in a pocket within the cab. The document must be retained by the consignor and the carrier for two years. There is no requirement for the consignee to retain a copy of the document [Section 3.10].

**SAFETY MARKS (PART 4)**

Safety marks are the placards, labels and package markings which identify dangerous goods shipments. These safety marks are provided by the shipper and must be maintained in good condition during transport by the carrier.

**Labels** are diamond shaped signs measuring 100 mm on each side [Subsection 4.7(2)]. They are displayed on small dangerous goods containers (450 litres or less). The UN number and the shipping name must also be displayed [Section 4.8, Subsection 4.11(1) & Section 4.12].

**Placards** are diamond shaped signs measuring at least 250 mm [Subsection 4.7(3)]. They are displayed on large containers of dangerous goods (more than 450 litres), or vehicles which are transporting small containers of dangerous goods [Sections 4.15 & 4.16.1]. Placards must be displayed on all sides of the vehicle and/or containers [Section 4.15.3].

Section 4.16.1 of the TDG Regulations describes placarding requirements for all the dangerous goods classes.
Example of Safety Marks for a Small Container
In this case the product is UN3175

<table>
<thead>
<tr>
<th>SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.</th>
<th>UN3175 SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3175</td>
<td>3175</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Class 4.1 Symbol is Red stripes on a white background with a black flame at the top

A UN number is only required for Class 4.1 if an Emergency Response Assistance Plan (ERAP) is required to transport the load. Safety marks are left in place until the load no longer needs them. The person in control of the transport unit at the time of the change must change or remove the safety marks as needed [Subsection 4.9(1)]. The person who unloads, cleans or purges the container must cover or remove the dangerous goods safety mark when the danger is no longer present [Subsection 4.9(2)].

Example of Safety Marks for a Large Container
In this case the product is UN3175

Class 4.1 Symbol is Red stripes on a white background with a black flame at the top
TRAINING (PART 6)

Anyone who is involved in the transportation of dangerous goods must be trained or working under the direct supervision of a trained person [Section 6.1]. Section 6.2 of the TDG Regulations stipulates that training must relate to duties which the employee carries out and must include one or more of the following topics:

- the classification criteria and test methods in Part 2, Classification;
- shipping names;
- the use of Schedules 1, 2 and 3;
- the shipping document and train consist requirements in Part 3, Documentation;
- the dangerous goods safety mark requirements in Part 4, Dangerous Goods Safety Marks;
- the certification safety mark requirements, safety requirements and safety standards in Part 5, Means of Containment;
- the emergency response assistance plan requirements in Part 7, Emergency Response Assistance Plan;
- the report requirements in Part 8, Reporting Requirements;
- safe handling and transportation practices for dangerous goods, including the characteristics of the dangerous goods;
- the proper use of any equipment used to handle or transport the dangerous goods; or
  - emergency procedures for an accidental release of dangerous goods;

When the employer is satisfied that the employee is trained they can issue a Training Certificate to the employee. This certificate must include:

- Name and address of employer
- Employee’s name
- Date that the certificate expires (preceded by the words “Expires on”) and
- The aspects of transportation that the employee is trained in. [Section 6.3].

The training certificate is valid for 3 years and must be shown to an inspector on request [Subsection 6.5(b)]. A copy of this certificate should be kept on record by the employer for at least two years from the date of expiry [Section 6.6].

For more information on reporting requirements, request the Alberta EDGE Information bulletin entitled Training.

Alberta Transportation, Dangerous Goods and Rail Safety Section, Alberta EDGE, has produced an example of a training certificate, which is found below.
AN EXAMPLE OF A TRAINING CERTIFICATE

Front

CERTIFICATE OF TRAINING

Name of Employee

has completed training related to the handling/offering for transport / transporting of dangerous goods as indicated on the reverse. This training is in accordance with the requirements of the Transportation of Dangerous Goods Regulations

Name of Employer

Address

City Province

Expires on: Date of Issue: 

Employer’s Signature

Back

Class and Division

Training Received

Classification

Shipping names

Use of Schedules 1, 2 and 3

Shipping document & train consist

Safety marks requirements

Certification safety marks requirements, Safety requirements and safety standards

Emergency Response Assistance Plan Requirements

Accidental release reporting requirements

Safe handling and transportation practices

Proper equipment use

Emergency action requirements

Air transport

Marine transport

Employee’s Signature
The person in possession of dangerous goods at the time of a release or anticipated release must make a verbal Emergency Report to the local authorities as soon as possible. An Emergency Report is required when the quantity of dangerous goods that was or may have been released exceeds the amount set out in the following table [Section 8.2] or for any potential release of dangerous goods. For more information on reporting requirements, request the Alberta EDGE information bulletin entitled Emergency, Release or Anticipated Release Report Requirements.

<table>
<thead>
<tr>
<th>Class</th>
<th>Packing Group or Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>II</td>
<td>Any quantity</td>
</tr>
<tr>
<td>2</td>
<td>Not Applicable</td>
<td>Any quantity</td>
</tr>
<tr>
<td>3, 4, 5, 6.1 or 8</td>
<td>I or II</td>
<td>Any quantity</td>
</tr>
<tr>
<td>3, 4, 5, 6.1 or 8</td>
<td>III</td>
<td>30 L or 30 kg</td>
</tr>
<tr>
<td>6.2</td>
<td>A or B</td>
<td>Any quantity</td>
</tr>
<tr>
<td>7</td>
<td>Not Applicable</td>
<td>A level of ionizing radiation greater than the level established in Section 39 of the “Packing and Transport of Nuclear Substances Regulations, 2015”</td>
</tr>
<tr>
<td>6.1</td>
<td></td>
<td>5 kg or 5 L</td>
</tr>
<tr>
<td>6.2</td>
<td></td>
<td>Any quantity</td>
</tr>
<tr>
<td>9</td>
<td>II or III or without packing group</td>
<td>30 L or 30 kg</td>
</tr>
</tbody>
</table>

A local authority is any organization which may be responsible for emergency response at the location of the release or anticipated release. In Alberta, these include:

- the local police or RCMP, and
- Alberta EDGE
The person making the Emergency Report must also make a verbal Release or Anticipated Release Report as per Section 8.4 to CANUTEC (1-888-226-8832 or 613-996-6666) if:

- a fatality occurred;
- there were injuries caused by exposure to the dangerous goods which required medical treatment by a health care provider;
- an evacuation occurred or people sheltered in place;
- a loading or unloading facility, road, main rail line or main waterway was closed;
- the container became damaged enough to compromise its integrity; or
- the centre sill or stub sill of a tank car was broken or there is a crack in the metal equal to or greater than 15 cm (6 in.)

If a report is required to CANUTEC, the person must also report the incident to the consignor of the dangerous goods.

The information that must be included in the Emergency or Release or Anticipated Release Report is:

- the name and contact information of the person making the report;
- the date, time and location of the event;
- the mode of transport used (including a description of the container);
- the shipping name or UN number of the dangerous goods;
- the quantity of dangerous goods initially in the container;
- the quantity of dangerous goods released (if applicable);
- the type of incident leading to the event (for example: collision, roll-over, derailment, overfill, fire, explosion or load-shift);
- the name and geographic location of any road, main railway or main waterway that was closed (if applicable);
- the number of people evacuated or sheltered in place (if applicable); and
- the number of fatalities or injures (if applicable).

A report can also include other information not required by the regulations (for example, any cleanup arrangements, or involvement of other emergency response agencies like the police, fire department, Alberta Environment and Parks or the Alberta Energy Regulator).

After submitting a verbal Release or Anticipated Release report to CANUTEC, the person or employer of the person who made the report must submit a written 30-day follow-up report to the Dangerous Goods Directorate of Transport Canada [Section 8.8]. The 30-Day Follow-up Report must include the following information:

- name and contact information of the person submitting the report;
- date, time and location of the event;
- names and contact information of the consignor, carrier and consignee;
- the mode of transport;
- classification of the dangerous goods;
- quantity of dangerous goods in the container before the event occurred;
the quantity of dangerous goods released (if applicable)
a description of the container involved and a description of the failure or damage including how the event occurred;
information about the conditions leading to the event;
information on any fire or explosion (if applicable);
the name and location of any facility that was closed, and the duration of the closure;
the name and location of any road, main railway line or main waterway that was closed, and the duration of the closure
number of deaths and injuries (if applicable);
an estimate of the number of people evacuated, if any; and
the ERAP reference number (if applicable);
the date the initial verbal report was made; and
an estimate of the financial loss as a result of the release/anticipated release and any associated, emergency response or remediation.

A 30 day report must be kept for two years after the day which it was made. The report must be available to an inspector within 15 days after a written request is received.

For more information on reporting requirements, request the Alberta EDGE Information bulletin entitled **Emergency Release or Anticipated Release Report Requirements.**
## Dangerous Goods Shipping Document for Road Transport

### CONSIGNOR
- **Name:**
- **Address:**

### DESTINATION (City-Town)
- **Name:**
- **Address:**

### Name of Carrier
- **Prepaid**
- **Collect**
- **Transport Unit Number**

### Point of Origin

### Shipping Date

### Shipper’s No.

### REGULATED DANGEROUS GOODS

<table>
<thead>
<tr>
<th>UN Number</th>
<th>Shipping Name</th>
<th>Primary Class</th>
<th>Subsidiary Class</th>
<th>Packing Group</th>
<th>Quantity</th>
<th>Packages Requiring Labels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### 24-Hour Number: ____________________

### ERAP Reference: ____________________ and Telephone Number: ____________________

### Consignor’s Certification

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the Transportation of Dangerous Goods Regulations.

**Name of Consignor: ____________________

### Special Instructions

### NON-REGULATED GOODS

<table>
<thead>
<tr>
<th>Packages</th>
<th>Description of Articles</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Received in apparent good order**

**C**onsignee’s Signature

**S**hipper’s Signature

**Received in Apparent Good Order**

**Driver’s Signature**

**Driver’s No.**

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