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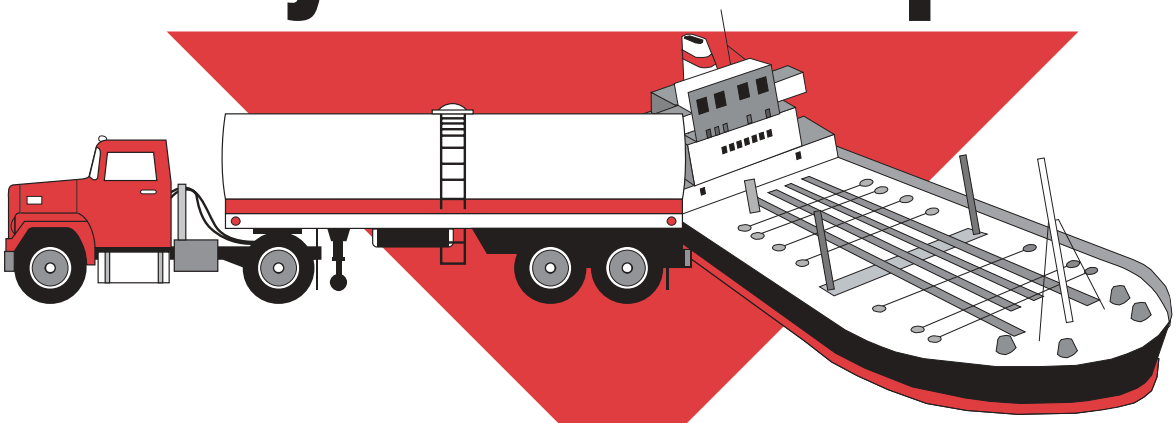
30-Day Accident Reporting



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Content

The **Dangerous Goods Newsletter** is published quarterly in both official languages by the Transport Dangerous Goods Directorate, Transport Canada, and is distributed to government and industry organizations in fields related to dangerous goods. Subscriptions are free of charge and available to anyone on request by calling (613) 998-1834. This newsletter is also available on our Web site at: **http://www.tc.gc.ca/tdg/newsletter.htm**. Please address comments and inquiries regarding additional information or publications to:

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We welcome news, comments or highlights of transportation of dangerous goods activities, announcements of meetings, conferences or workshops. The **Newsletter** carries signed articles from various sources. Such articles do not necessarily represent the views of the Directorate, nor does publishing them imply any endorsement. Material from the **Newsletter** may be used freely with customary credit.

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Editorial

Welcome to the Winter 2002-2003 Edition of this newsletter; the first issue of the year 2003.

As you know, last year was very productive with the coming into force of the clear language regulations. This year promises to bring interesting challenges as work continues on major activities in the Directorate.

I invite you to read the feature article on page 4 which covers the dangerous goods accident reporting requirements and the new 30-day follow-up report. As well, there is important information on pages 7 and 9 on slip tanks which should be read carefully. Also, you will find on page 11 an update on the Chemical, Biological, Radiological and Nuclear (CBRN) Response Program and the tasks ahead.

As always, we invite you to send us your comments and suggestions on these articles or future articles you would like to see included.

Enjoy your reading!

Renée Major

International Symposium on Protection of Dangerous Goods Tanks and Cylinders in Fire *By Doug Dibble*

A successful Symposium was held on October 22 and 23, 2002 in Ottawa. Approximately 115 delegates from Canada, the United States, Germany, France, England, Sweden and South Korea attended the two-day event.

The purpose of this symposium was to provide an international forum to present the latest information on pressure relief devices (PRD) and fire protection systems used on dangerous goods tanks ranging in size from small cylinders to rail tank cars, and to discuss new approaches to tank fire protection. Included in the sessions were presentations by Queen's University on

Dr. J.A. Read, Director General, TDG, Opening the International Symposium.

the results of research conducted for TDG, to determine how pressure relief devices function and what performance characteristics of PRDs are needed to prevent tank failure or to minimize the consequences of tank failure.

Sessions were conducted on thermal protection of tanks, fire effects on tanks and pressure relief devices. In total, 20-papers were presented by industry, government, research and university organizations from Canada, the United States, Germany, France and England. Several papers discussed the issue of cylinders and tanks with and without PRDs. The symposium concluded with a panel session, comprised of representatives from the emergency response community, North American and England regulators, and North American industry/associations. The panelists made comments on various PRD issues after which questions were addressed from the audience. The questions covered topics such as: risk assessment; operational environment; PRD testing frequency; flow capacity and maintenance; fire fighting procedures; etc.

The abstracts of all the papers are available on the Transport Canada, TDG Web site at: www.tc.gc.ca/tdg/consult/symposium/menu.htm

A CD ROM, containing the full papers and the panel session discussion, will be available early in 2003 for an as yet to be determined price. For information, contact Doug Dibble at (613) 990-5883 or e-mail: dibbled@tc.gc.ca

FEATURE

30-Day Accident Reporting: What's New?

by Susan Williams, Jonathan Rose, Kim O'Grady

The TDG Directorate has received inquiries regarding the Dangerous Occurrence Report (DOR) as a result of the new TDG Regulations. Why has the DOR form disappeared after 17 years of dangerous goods accident reporting? What reporting changes have been introduced?

The original (DOR) form found in Part IX of the former regulations has been removed and replaced with a new 30-Day Follow-up Report consisting of the following ten requirements, as specified in Part 8, paragraphs 8.3 (2) (a) to (j).

(a) the name and complete address of the place of business of the person providing the information and the telephone number, including the area code, at which that person may be contacted;

(b) the date, time and location *(address or description of the geographic location of accident site)* of the accidental release, the "dangerous goods accident" or the "dangerous goods incident" *(the latter two items are defined in the ICAO Technical Instructions)*;

Fill in the date of the accident using all four digits for the year, 01-12 for the month and 01-31 for the day.

Example: December 15, 2002 is recorded as 2002/12/15

If the actual date of the accident is not known, provide the date of discovery and print "DISCOVERED" beside it.

Write the time of the accident, using the 24-hour system

Example: 3:45 pm is recorded as 15:45

If the actual time is unknown, provide the time of discovery and print "DISCOVERED" beside it or give an approximation.

Example: Early Morning or Late Afternoon

If a postal address for the accident does not exist or is unknown, please use the following:

i) Road transport: fill in the name of the city, town or municipality and province; the highway number or street name(s)

Example: London, ON; intersection of Richmond Street and Oxford Street

If the location has no name, fill in the distance to the nearest known geographic area.

Example: 45 kilometres East of Abbottsford, British Columbia on highway #1

ii) Rail transport: fill in the name of the geographic area, the name of the rail line subdivision and mileage.

Example: Hornepayne, Ontario – RUEL subdivision, mileage 296.2

iii) Air transport: fill in the flight number giving origin/destination and where the accident was discovered.

Example: Flight 808, Paris, France – Dorval, Quebec, Discovered: Dorval terminal

iv) Marine transport: fill in the name of the waterway, the name of and distance to nearest port, or where the accident was discovered.

Example: Strait of Georgia, 10 km east of Port of Nanaimo north west bound

(c) the name and complete address of the place of business of the consignor;

(d) the classification of the dangerous goods;

Examples:
GASOLINE, 3, UN1203, II
GASOLINE, Class 3, UN1203, PG II
NITROGLYCERIN, DESENSITIZED, Class 1.1D, Subsidiary Class (6.1), UN0143, II
NITROGLYCERIN, DESENSITIZED, Class 1.1D(6.1), UN0143, Packing Group II
INFECTIOUS SUBSTANCE, AFFECTING HUMANS, 6.2, UN2814, 3
INFECTIOUS SUBSTANCE, AFFECTING HUMANS, Class 6.2, UN2814, PG 3

(e) the estimated quantity of dangerous goods released and the total quantity of dangerous goods in the means of containment before the accidental release, the "dangerous goods accident" or the "dangerous goods incident";

(f) a description of the means of containment involved based on the identification markings (new requirement) and a description of the failure or damage to the means of containment, including how the failure or damage occurred;

The identification markings required to describe the means of containment vary by type of container.

For small means of containment and intermediate bulk containers (IBC), the identification markings required to describe the means of containment include the United Nations (UN) logo and identification marks that identify the type of container, the manufacturer, country of manufacture and the design number. These two lines of information (see below) must be reported to uniquely identify the means of containment.

With very few exceptions (some non-specification mobile refueling tanks), the small means of containment and IBCs are both UN Standardized means of containment. The marking may take very different forms: Rigid metal IBC UN code lines may be permanently stamped on a metal plate, a flexible IBC may have the UN code printed on its fabric while a plastic IBC may have molded-in marks. A plastic drum or pail may have its UN code molded in, branded on or simply printed on a label affixed to the container. A metal container of the same type may be embossed, printed or bear a printed label. In the case of a container that is subject to a periodic test and inspection or reconditioning, an additional mark will indicate when and where the container was last maintained. This mark may also vary in its form.

Some examples are:

Metal drum:

- *UN 1A1/Y1.5/250/99*
- *CAN/ABC 2-9999 (embossed, printed or labeled)*
  - *may also bear a reconditioning label: CAN/ 29-abc/02/RL*

Combination package (for example, bottles in a box):

- *UN 4G/X/20.1/02*
- *CAN/ABC 2-8888 (printed or labeled)*
  - *may also bear an air eligibility logo with a pressure marked beside the logo, for example 95 kPa*

Composite IBC:

- *UN 31HA/Y/02 99 on the identification plate and on the inner bottle: CAN/ABC 4-999 02-99*
- *CAN/ABC 4-999 (on the identification plate)*
  - *may also bear a periodic inspection and test mark : R 12-02 33-999 (stamped, labeled, printed) on the identification plate and on the inner bottle: R 12-02 33-999 (branded or labeled)*

Infectious Substance Packaging:

- *UN 4G/Class 6.2/02*
- *CAN/ABC 8-99 (printed or labeled)*

In the case of cylinders or tubes, it is important that all markings stamped on the shoulder, top end, neck or collar be reported. For a composite cylinder, the markings can be found on the label attached to the side of the cylinder. Examples of markings found on the cylinders are: specification of the cylinder (example TC-3AAM), manufacturing date (2 digits for the month followed by an Inspector's mark followed by 2 digits for the year), serial number, the manufacturer's registered mark or symbol, requalification marks (similar format to the manufacturing date), water capacity, retester symbol, and any other markings found on the cylinder.

For rail tank cars, the identification markings required to describe the means of containment include the tank car's reporting marks (example TDGX), the tank car number xxxxxx, specification (example 111A100W1), built date and qualification dates, thickness, service equipment and lining or coating, if appropriate.

For highway cargo tanks and portable tanks, the identification markings required to describe the means of containment include the tank's specification mark, tank manufacturer or assembler, Transport Canada Registration Number (TCRN) or the Manufacturer's Design Identification Number (MDIN) (TCRN or MDIN are found on new tanks), certification date (date of manufacture), tank manufacturer's serial number, tank capacity by compartment, test inspection marks and the tank vehicle configuration (straight tank truck, tractor-trailer, B-train, straight tank truck with pup, etc.).

(g) for an accidental release from a cylinder that has suffered a catastrophic failure, the certification safety marks and a description of the failure *(new requirement*);

> *A catastrophic failure is a sudden complete failure of the containment. The certification safety marks would include all markings stamped on the shoulder, top end, neck or collar of a cylinder that are required by the relevant safety standard.*

(h) the number of deaths and injuries resulting from the accidental release, the "dangerous goods accident" or the "dangerous goods incident";

> *Classify the injuries as minor (those injuries requiring basic first aid treatment), moderate (those injuries requiring emergency treatment in hospital) or major (those injuries requiring hospitalization).*

(i) an estimate of the number of people evacuated from private residences, public areas or public buildings *(new requirement)*; and

> *Provide an estimate by private residences, public areas or public buildings.*

(j) if an emergency response assistance plan is activated, the name of the person who responded to the emergency in accordance with the emergency response assistance plan *(new requirement)*.

> *For reporting purposes, please provide the ERAP Number i.e. (#2-0010-030).*

Within 30 days, the employer of the person or the self-employed person who had possession of the dangerous goods at the time of the accidental release must include the ten requirements, where applicable, on a follow-up report and forward the information to the Director General, Transport Dangerous Goods Directorate. The information collected not only serves to tell us what has happened, where things have gone wrong but facilitates decision-making to improve safety.

Today, companies have the choice to use their own or other existing forms to report accidents. The former DOR may continue to be used as long as all items required by paragraphs 8.3(2) (a) to (j) are included. Please use box 17 "Comments and Additional Information" to record items not included on the former DOR form.

A new 30-Day Follow-up Report form will be introduced electronically and in hard copy in the near future. This new form will simplify and facilitate accident reporting. Persons who submit Follow-up Reports have indicated their preference for a standardized accident reporting form. A new 30-Day Follow-up Report form will also provide persons with the necessary structure needed to simplify the process.

For further information on the 30-Day Follow-up Report, please contact Jonathan Rose at (613) 990-1142.

In-Specification and In-Test

by Kevin Green

This article describes the rationale behind the requirements in CSA Standards B620-98 and B621-98 for the use of specification tanks and their periodic inspection and testing.

Why do the TDG Regulations require the use of specification tanks for dangerous goods such as gasoline and diesel fuel, and why must these tanks be periodically inspected and tested?

Under the Clear Language Regulations, diesel fuel and heating oil must be transported in containers which meet one of the prescribed safety standards, when the container is over 450L in volume. Beginning January 1, 2003, new tanks will have to be "in-specification". They will have to be manufactured to the TC 406 highway tank specification in CAN/CSA B620-98 or the UN Standard Mobile IBC specification in CAN/CGSB43.146-2002. New tanks over 3000L must be manufactured to the TC 406 specification in B620-98. Existing non-specification tanks over 450L may continue to be used until 2010 under the conditions of Specific Requirement 5(b) of B621-98. They must continue to pass the periodic inspections and tests required for TC306[(1)] tanks, and a "Non-specification Flammable Liquids Tank" plate must be attached to the tank by the registered facility performing the first such inspection and test. These periodic inspections and tests would include an annual external visual inspection and 2 psi **leak** test of the tank, piping and all associated accessories, a five year internal inspection (for tanks equipped with suitable access openings) and a 3 psi[(1)] **pressure** test of the tank piping and accessories.

What is the benefit in using a specification tank?

A specification tank provides assurance that at least a minimum standard level of safety is provided.

Tanks built to the specifications in B620-98 must be designed by registered Design Engineers who will ensure that the tanks can withstand specified normal transport and accident conditions without failure. The manufacturers must be registered with Transport Canada and must follow certain quality control provisions to ensure that materials, welding and other manufacturing processes are controlled, and that the tank is built as designed. Checks and documentation of these processes provide traceability.

Non-specification tanks are typically of unknown design and quality. They may be poorly designed, or constructed with inferior materials or with improper or inconsistent welding procedures. They are not likely to be equipped with appropriate safety features such as re-closing and surge protected venting and pressure relief devices, thermal and remote controlled self-closing valves, and accident protection devices. In short, there is no guarantee that they meet an appropriate minimum level of safety. For this reason, the use of non-specification tanks for diesel service is being phased out by 2010. During this phase-out period, the uncertainties of using non-specification tanks will be mitigated to some extent by performing the same periodic inspections and tests that are required for specification tanks. This leads us to the next question.

Why do we periodically inspect and test both specification and non-specification tanks?

We do these inspections and tests to ensure that the tank has not been damaged or has not deteriorated to the point that it is no longer safe for the transportation of dangerous goods, or may become unsafe prior to its next scheduled inspection or test. Test facilities must be registered with Transport Canada and must use qualified testers, controlled procedures, systematic checklists, and reporting.

Typical inspections and tests include external and internal visual inspections, leak tests and pressure tests. In some cases, tests in thickness and lining inspections are also performed. Registered facilities are looking for structural defects, dents, gouges, abrasions, distortion, corrosion or cracks in the tank shell, or signs of leakage from any of the gaskets or seams of the tank or its accessories. Valves, vents and other safety devices are also checked for their condition and operability.

Visual Inspection

The external visual inspection, performed annually, is the most effective method to detect larger defects such

as dents, scrapes, corrosion and significant distortion, which are likely to be visible.

On larger tanks that have openings for internal access, internal inspections are performed every five years to detect internal corrosion and cracked or broken baffles, bulkheads and damage to internal piping. Safety procedures for confined space entry must be followed for this inspection.

Pressure and Leakage Tests

Smaller cracks, leaks, and structural weaknesses are more easily detected by applying some pressure to the tank and its components. The two tests in B620 that involve the application of pressure are the pressure test, and the leakage test. In both cases the test pressure is determined based on the maximum pressure at which the tank is permitted to operate, or its Maximum Allowable Working Pressure (MAWP).

Maximum Allowable Working Pressure

On a specification tank, the MAWP stems from the design of the tank and is usually marked on the nameplate. In determining the MAWP, the pressure due to the weight (height and density) of the liquid in the tank (static head), plus the vapour pressure exerted by the product vapours at the top of the tank are considered by the designer. Additional allowances for pressure surges and product sloshing due to braking, turning, and bumps in the road are also incorporated into the design of the tank.

Diesel fuel has a very low vapour pressure but its density alone produces a static head pressure of .37 psi/ft of depth, or 2.4 psi in a tank 6.5 feet high. Gasoline produces a slightly lower static head of .32 psi/ft depth, or 2.1 psi in the same 6.5 ft high tank. The vapour pressure of gasoline however varies considerably and can easily add a further 7 psi to a sealed tank on a hot day. Fortunately, the "normal" breather vent on a specification tank will limit the additional effect of vapour pressure to 1 psi, resulting in a typical operating pressure of about 3 psi.

What is the difference between the leakage test and the pressure test described in B620-98?

Leakage Test

The leakage test is intended to ensure that the tank closures, piping, valves, and gaskets are tight, in good condition, and will not leak within the piping or to the exterior. During this test, all closures in the tank and piping must be in place and operable and tested in sequence for leakage at the normal operating pressures of the tank. Standard B620-98 specifies a leak test pressure of 80% MAWP. For most specification and non-specification tanks in diesel or fuel oil service, this would be about 2 psi.

Pressure Test

The pressure test is an over-pressure test intended to assess the structural integrity of the tank, its closures, and other product retaining accessories, at a pressure greater than it will likely experience in service. The intent is that any weaknesses or impending failure of the tank or its accessories due to internal pressure will show up during this test. If the pressure test is passed without distortion or leakage, there is assurance that the tank will continue to be safe for use at its normal working pressure until the next scheduled pressure test. For TC 406 tanks, the pressure test must be conducted at the greater of 5 psi or 1.5 times the Maximum Allowable Working Pressure marked on the tank. For a non-specification flammable liquids tank transporting diesel or fuel oil according to the requirements of B621-98, the test pressure is 3 psi[(1)]. The test pressure is gauged at the top of the tank to ensure the tank will adequately contain the product even if upset or inverted. A tank that will not survive this test without permanent deformation or leakage is not safe for transportation of dangerous goods.

For further information on the requirements for tanks to be in-specification and in-test, please consult the following standards: CAN/CSA B620-98 for manufacturing and periodic inspection and test requirements, and CAN/CSA B621-98 for the provisions for continued use of non-specification flammable liquids tanks. Copies may be purchased from CSA by calling their order desk at 1-800-463-6727 or (416) 747-4044.

[(1)] Specific Requirement 5(b) of CAN/CSA B621-98 currently requires non-specification tanks to be tested in accordance with the requirements for TC 406 tanks, which are pressure tested at 5 psi. An ALERT on Permit SH 6216, on page 9 of this newsletter, will allow non-specification tanks to be tested in accordance with the requirements for TC 306 tanks instead of the requirements for TC 406 tanks. This will allow the pressure test to be conducted at 3 psi instead of 5 psi. Transport Canada will be proposing that Specific Requirement 5(b) in the B621 be amended in like-fashion.

Two More Years for Diesel Fuel in Non-Specification Slip Tanks

Permit for Equivalent Level of Safety SH 6216 issued on December 16, 2002, grants a two-year extension, until January 1, 2005, for transport of diesel fuel[1] in non-specification slip tanks. This Permit applies to all users of slip tanks that have a capacity between 450L and 5000L. You can benefit from the Permit even if you have not specifically applied for it, by marking the Permit number "SH 6216" visibly and legibly on the tank, using characters at least 25 mm high. This is a condition of the Permit. Once the tank has been marked with the Permit number, it can continue in use for the transport of diesel fuel until January 1, 2005.

Non-specification tanks may continue in use for transportation of diesel fuel beyond January 1, 2005 and until 2010, if they are qualified to the requirements of Specific Requirement 5(b) of standard CAN/CSA-B621-98. To qualify under SR 5(b), the tank must be brought for inspection to a facility registered by Transport Canada for inspecting TC306 or TC406 tanks. The facility will perform a visual inspection as well as a leak and pressure test at 21 kPa (3psi).[2] If the results are satisfactory, the facility will attach a "non-specification flammable liquids tank" nameplate for identification. Non-specification tanks under SR 5(b) must also be periodically inspected following application of the non-specification nameplate, as if they were TC306 tanks. The periodic inspection includes an annual visual inspection and leak test at a Transport Canada registered facility. Tanks that are beyond their due date for inspection may not be refilled.

Slip tanks complying with ULC/ORD C142.13, manufactured before 2003, may be used until 2010 and they do not need the Permit number or the non-specification nameplate described above. They are, however, required to undergo periodic inspection and tests for "mobile IBC's" as prescribed under standard CAN/CGSB 43.146-2002. This includes internal and external visual inspection every 60 months. The 60-month period is counted from the date of manufacture or subsequent inspection.

Any slip tank built after January 1, 2003 must be a UN Standard mobile IBC, as prescribed by the CAN/CGSB 43.146-2002 standard, if it is to be used for the transport of flammable liquids. Users should verify that the tank meets these requirements when selecting a tank.

The summary table shown in an article published in the Summer 2002 edition of this Newsletter entitled "The Transportation of Dangerous Goods Regulations and the Transportation of Gasoline and Diesel Fuel by Portable Tanks (Slip Tanks and Off-road Tanks)" is reprinted on the following page with modifications that result from Permit SH 6216. That article remains an excellent reference regarding the transportation of flammable liquids by road. The Permit SH 6216 may be viewed on the TDG Web site at: http://www.tc.gc.ca/tdg/permits/permits.htm

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[1] *The provisions applying to Diesel Fuel UN1202 also apply to home heating oil and other flammable liquids in Packing Group III with no subsidiary classification and having a flash point over 37.8°C.*

[2] *The leak and pressure tests will be performed as if the tank is a TC306 under CAN/CSA B620-98, as authorized under Permit SH6216.*

01-31-2003

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Summary Table

Product and Capacity of Container	Prescribed Container	Alternate Container	Sunset Date on Alternate Container
DIESEL FUEL UN 1202 450L or less	Non-Specification	N/A	N/A
GASOLINE UN 1203 30L or less	Non-Specification, when the conditions for "Ltd. Qty." are met	N/A	N/A
GASOLINE UN 1203 Between 30L and 450L	Jerrican or drum to CGSB 43.150 or UN Standard IBC to CGSB 43.146	ULC/ORD C142.13, built before 2003	2010
DIESEL FUEL UN 1202 Between 450L and 3000L	UN Standard IBC to CGSB 43.146 or TC 306/406 to CSA B620	Code 31A and 31B IBC, TC 57 and ULC/ORD C142.13 built before 2003	2010 for ULC C142.13 and N/A for the rest
		Non-spec tank built before 2003 tested and marked to CSA B621 Specific Requirement 5(b)	2010
		Non-spec tank under Permit SH 6216	**2005**
DIESEL FUEL UN 1202 3000L or more	TC 306/406 to CSA B620	ULC/ORD C142.13 built before 2003	2010
		Non-spec tank built before 2003 tested and marked to CSA B621 Specific Requirement 5(b)	2010
		Non-spec tank under Permit SH 6216. (5000L maximum)	**2005**
GASOLINE UN 1203 Between 450L and 3000L	UN Standard IBC to CGSB 43.146 or TC 306/406 to CSA B620	Code 31A and 31B IBC, TC 57 and ULC/ORD C142.13, all built before 2003	2010 for ULC C142.13 and N/A for the rest
		Non-spec tank built before July 1995 tested and marked to CSA B621 Specific Req.17	2005
GASOLINE UN 1203 3000L or more	TC 306/406 to CSA B620	ULC/ORD C142.13 (5000L maximum) built before 2003 and TC 57	2010 for ULC C142.13 and N/A for the rest
		Non-spec tank built before July 1995 tested and marked to CSA B621 Specific Req. 17	2005

Chemical, Biological, Radiological, and Nuclear (CBRN) Program Update

by John A. Read and Benoit Desforges

Introduction

There are three phases to consider in relation to a potential chemical, biological, radiological or nuclear (CBRN) terrorist attack.

The first phase consists of matching vulnerabilities to threats. For example, any enclosed space is vulnerable to a release of a toxic gas such as chlorine. The important consideration is to determine how likely such a release would be for a given site. That is, is there a credible threat associated with the vulnerability?

Should there be a credible threat, the second phase would be to prevent such an attack. Prevention of an attack may involve implementation of additional physical security features, or other actions.

The third phase applies should a CBRN attack nevertheless take place. This phase, which is the subject of this article, is the response which would be needed related to the release of a chemical, biological or radioactive agent.

Let's take an example. A 200-lb. cylinder of chlorine is found leaking near a busy or important area. When the emergency call is made, as with any other major incident, the first to arrive on scene would be the Fire Department and/or the Police. An assessment of where the gas is drifting would be made and a safety perimeter would be established around the site. Should there be any reason to believe that it may be a terrorist attack (e.g., the important area is Parliament Hill, the busy area is a full stadium, or an explosive device appears to be partially hidden behind the container), special units from the local police, the Royal Canadian Mounted Police (RCMP) or even the Department of National Defense (DND) could be requested by the local authorities to investigate and search for remaining terrorist devices (explosive charges, etc.).

After any secondary terrorist devices have been eliminated, there still remains the released or releasing chemical (e.g., gas), biological agent or radiation. The question asked for this article is: "Who responds?"

Special Police units and even most Fire Departments are not equipped nor trained to respond to all possible chemical releases. Trained, equipped specialists could be needed to respond and perform the clean-up safely.

Accessibility and availability of specialized response teams anywhere in Canada is a very important aspect in response to a CBRN incident. Transport Canada is presently working on a project that would enable Canada's first responder community to rapidly put a specialized response team on site to manage the product–related aspect of a terrorist incident.

Background Information

In April 2002, funding was provided to the Transport Dangerous Goods (TDG) Directorate to put in place a CBRN Response Program which would be part of the global Federal Government initiative on counter-terrorism. During the summer of 2002, a summary of the intended CBRN Response Program, published in this Newsletter, explained the overall objectives of the initiative. The Secretariat being now fully staffed, some important steps have been achieved during the last few months. The initial goals and tasks of the CBRN Response Program were clarified and organized in order to meet the necessary project objectives.

The mandate of the CBRN Response Program is to ensure product response services following a CBRN incident. Such response would occur once all terrorist-related hazards have been eliminated. The CBRN Response Program will be based on the existing industrial Emergency Response (ER) network and infrastructure established under the Emergency Response Assistance Plan (ERAP) requirements pursuant to the TDG Act and Regulations. It is proposed to build upon this already existing infrastructure in order to provide an effective Canada-wide response capability to terrorist incidents involving CBRN agents. This would be aimed at managing the consequences of such incidents by providing timely access to specialized expertise, equipment and emergency responders.

Indeed, an excellent industrial ER network and infrastructure has been developed over the years throughout Canada. This network consists of emergency response teams with specialized knowledge and equipment that would provide assistance to local authorities and first responders at times of major transportation incidents involving all types of Dangerous Goods that require an ERAP. Since the ERAP Program covers the most dangerous substances, it is expected it would cover most terrorist attacks.

Development of the CBRN Response Program

The CBRN Response Program would be available to all levels of government. As explained above, in the event of a CBRN incident, the initial authorities would respond and secure the site. When only the dangerous goods remain to be addressed (or earlier as appropriate), the authority in charge may request to have the CBRN Response Plan activated. Once the CBRN Response Plan is activated, an emergency response team would be contacted by Transport Canada who would intervene to provide for product containment, neutralization, transfer, recovery and decontamination.

Emergency response teams would only be asked to respond to products for which they have the necessary expertise. This would cover most chemicals, biological agents and radioactive materials. Special government response teams would be expected to deal with certain CBRN warfare agents such as nerve gas.

To achieve all objectives, the development of the CBRN Response Program includes the following topics:

1) Identify the industrial products that may be attractive to terrorists.

2) Review the current emergency response teams established pursuant to the ERAP requirements of the TDG Act and Regulations to identify their response capabilities for each identified product across Canada in the following aspects:
   - Training
   - Equipment
   - Response standards

3) Develop policies and procedures:
   - Jurisdiction issues
   - Responder liability protection
   - Identification of potential target points
   - Contract and/or formal agreements
   - Elaboration of Plan activation mechanism
   - Reimbursement mechanisms

Consultations

At the present stage of the project, Transport Canada is consulting the major stakeholders who may be involved in this initiative. These are industries, emergency response contractors, other federal departments, provinces and territories. This process allows TC to provide information to these groups about the CBRN Response Program and, at the same time, invite them to participate. Also, these meetings are an opportunity to receive comments from stakeholders through a discussion on topics of concern.

Transport Canada has met with major industry and contractor teams such as the Transportation Emergency Assistance Plan (TEAP), the Liquefied Petroleum Gas Emergency Response Corporation (LPGERC) and the Canadian Emergency Response Contractors' Alliance (CERCA). Others have yet to be contacted.

On November 18, 2002, a Federal-Provincial Consultation meeting took place in Ottawa with most of the Provincial TDG Coordinators. Topics covered integration of the CBRN Response Program with provincial emergency management framework, along with specific topics such as liability protection and compensation.

On December 9, 2002, Transport Canada hosted a workshop with representatives from many emergency response teams to discuss liability protection. Additional training for response teams was also discussed, to cover the recognition and assessment of potential terrorist threats.

Other Federal Departments such as Health Canada and the Office of Critical Infrastructure Protection and Emergency Preparedness (OCIPEP) were also approached. The Directorate is in the process of working with other federal departments to integrate the CBRN Response Program into appropriate Federal

Government Emergency Plans in order to maximize the success of the response and avoid duplication of efforts. Future consultations with the Department of National Defense, the Solicitor General Canada, OCIPEP, and others will take place.

Conclusion

So far, the response from industry and contractors is quite positive. Without any doubt, this part of the CBRN Response Program development is the most important. The participation of industry and the response contractors must be voluntary and is the key to the success of the Program. In the upcoming months, Transport Canada will continue its consultation with responders, other Federal Departments and with the Emergency Management Organizations of the provinces to elaborate, define and formalize all aspects of the CBRN Response Program.

Any comments, suggestions or proposals from interested parties concerning the CBRN Response Program may be forwarded to Benoit Desforges, Remedial Measures Specialist (CBRN) at **desforb@tc.gc.ca** or Manuel Kotchounian, Remedial Measures Specialist (CBRN) at **kotchom@tc.gc.ca**.

CNSC Packaging and Transport of Nuclear Substances Regulations Amendment

by Phil Eyre

The Canadian Nuclear Safety Commission (CNSC) is amending the *Packaging and Transport of Nuclear Substances Regulations* (PTNSR) in order to align them with the International Atomic Energy Agency's (IAEA) latest *Regulations for the Safe Transport of Radioactive Material* 1996 Edition (Revised), know as TS-R-1.

The proposed changes to the regulations are designed to complement existing practices. In general, many of those involved with the packaging and transport of nuclear substances, particularly as they relate to international shipments, are already complying with the IAEA TS-R-1 requirements. The proposed amendments are mainly an update of existing references in the PTNSR to the latest edition of the *IAEA Regulations* and include the introduction of some new requirements such as for Type C packages and Low Dispersible Radioactive Materials.

An informal consultation on the proposed changes to the *Packaging and Transport of Nuclear Substances Regulations* was completed February 28, 2003 and stakeholders provided their comments on anticipated impacts, including financial implications as well as identified problems with the proposal and recommended changes.

The CNSC is currently reviewing these comments and making necessary adjustments to the proposed amendment. The next stage will be publication of the revised amendment in the Canada Gazette Part I for formal consultation. Stakeholders will be able to comment on the revised amendment proposal at that stage. Following this, the proposal will be amended as necessary for publication in the Canada Gazette Part II.

Stakeholders and interested parties are invited to regularly visit the CNSC Web site at **http://www.nuclearsafety.gc.ca** where announcements of the publication in the Canada Gazette and status of the PTNS regulation amendment will be posted from time to time, as available. Alternately, publications in the Canada Gazette are also available on the Canada Gazette Web site at **http://canadagazette.gc.ca**.

Diagnostic Specimens 2003-2004 for Air Transport

by Judith Code

Interpretation/Guidance document developed by ICAO Dangerous Goods Panel members nominated by Canada, United Kingdom and United States in collaboration with the World Health Organization.

Note: This document is only valid for the period of January 1, 2003 through December 31, 2004.

Introduction

The 2003-2004 ICAO Technical Instructions include amendments for diagnostic specimens. These amendments are taken from the 12th Edition of the UN Model Regulations. The purpose of this document is to provide information and guidance for complying with the amendments. Specifically, the document provides guidance on:

- use of the new requirements for diagnostic specimens;
- packaging and consignment procedures;
- passenger and operator provisions;
- substances included or excluded from shipment as diagnostic specimens;
- emergency response procedures.

The previous references to risk groups for determining if a substance may be transported as a diagnostic specimen have been removed (see 2;6.3.1.3.2). The 2003-2004 edition of the Technical Instructions maintains the risk group criteria for classifying infectious substances but it is anticipated that the classification criteria will be replaced in the 2005-2006 edition of the Technical Instructions when the ICAO Dangerous Goods Panel considers the infectious substances requirements that were recently adopted for the 13th revised edition of the UN Model Regulations. As a result of the 2003-2004 amendments, specimens known or suspected of containing pathogens meeting the criteria for risk groups 2 or 3 may be transported as diagnostic specimens when they are transported for diagnostic or investigational purposes. Specimens known or suspected of containing risk group 4 pathogens must be classified in Division 6.2 under UN 2814 or UN 2900, as appropriate, and transported according to the requirements for these substances.

The text below is provided to explain the impact of the amendments to the diagnostic specimens requirements in the Technical Instructions. The new requirements for diagnostic specimens are included in the 12th Edition of the UN Model Regulations and have been adopted in other modal regulations and in certain national and regional transport regulations effective January 1, 2003.

The Definition and Relevant Requirements

> 6.3.1.3.1 Diagnostic specimens are any human or animal material including, but not limited to, excreta, secreta, blood and its components, tissue and tissue fluids being transported for diagnostic or investigational purposes, but excluding live infected animals.
>
> 6.3.1.3.2 Diagnostic specimens must be assigned to UN 3373 unless the source patient or animal has or may have a serious human or animal disease which can be readily transmitted from one individual to another, directly or indirectly, and for which effective treatment and preventive measures are not usually available, in which case they must be assigned to UN 2814 or UN 2900
>
> *Note 1. - Blood which has been collected for the purpose of blood transfusion or for the preparation of blood products, and blood products and any tissues or organs intended for use in transplants are not subject to these Instructions.*
>
> *Note 2. - Assignment to UN 2814 or UN 2900 must be based on known medical history of the patient or animal, endemic local conditions, symptoms of the patient or animal, or professional judgement concerning individual circumstances of the patient or animal.*

Diagnostic specimens, including those taken from apparently healthy individuals, may contain pathogens that meet the criteria for risk groups 1, 2, 3 or 4. Pathogens are defined as micro-organisms (including bacteria, viruses, rickettsiae, parasites, fungi) and other

agents such as prions, that can cause disease in humans or animals. Pathogens are carried in blood, on the skin, in saliva or faeces. Specimens containing risk group 1 pathogens are not subject to the Technical Instructions. Specimens containing risk group 4 pathogens are not permitted for transport as diagnostic specimens. Diagnostic specimens containing risk group 2 or 3 pathogens present a lower risk in transport as compared to infectious substances containing risk group 4 pathogens or pathogens that are intentionally propagated in high concentrations such as those being transported for medical research. Effective treatments are available and the risk of the spread of infection is limited for risk group 2 or 3 pathogens. Additionally, the risk of transmission from one infected individual to another is not as great for these pathogens. Since the packaging requirements of packing instruction 650 afford a high level of safety the probability of exposure is relatively low. The probability of transmission of an infection or disease to an exposed individual from a diagnostic specimen is also relatively low. Effective and cautious emergency response procedures and employee training significantly minimize the risk of exposure and subsequent transmission of infection or disease.

Consignors, who would normally be health care professionals, must make a judgement about the presence of pathogens of risk group 4. However, such judgement is not required of risk group 2 or 3, provided the specimens are being transported for diagnostic or investigational purposes. Specimens containing pathogens of risk group 2 or 3 transported for any other purpose must be consigned as UN2814 or UN2900.

In particular the amendments:

- avoid direct reference to WHO Risk Groups, which had been developed by WHO for purposes other than transport and remove ambiguity related to the previous use of the terms "reasonably expected to contain" or "those where a relatively low probability exists" ;

- limit the application of requirements in transport to those commensurate with the actual, rather than the perceived, risk;

- require easily obtainable, suitable packaging affording a high level of safety appropriate to the degree of hazard and conditions of transport. Packing instruction 650 is appropriate for the transport of diagnostic specimens containing pathogens belonging to risk group 2 and 3; and

- allow ready consignment and provide for the universal and effective treatment of individuals in the healthcare system.

It should be noted that determining if a substance is infectious has always included subjective analysis in the absence of actual testing. The 2003-2004 amendment minimizes the subjectivity relative to determining if a substance may be transported as a diagnostic specimen. Classifying these materials based on the level of risk and applying transport requirements commensurate with that risk should ensure an adequate level of safety.

Packaging and Consignment Procedures

Packing Instruction 650 is intended to provide all the information necessary to prepare and transport safely a consignment of diagnostic specimens. Among other requirements:

- the packaging must be of good quality capable of passing a 1.2m drop test and must consist of three components:

  a primary receptacle containing the diagnostic specimen;

  a secondary packaging, and

  an outer packaging with suitable cushioning material.

Either the primary or secondary receptacle must be capable of withstanding an internal pressure producing a pressure differential of not less than 95kPa for liquids.

- the package must be marked "DIAGNOSTIC SPECIMEN". The UN number is not required to be shown.

Passenger and Operator Provisions

Diagnostic specimens are not permitted for transport in carry-on or checked baggage and must not be carried on a person. Operators must not load or transport diagnostic specimens unless they are transported as cargo in accordance with the provisions of 7;2.1 of the Technical Instructions.

Substances Excluded from Shipment as Diagnostic Specimens

***NOTE 1**: The following list is not exhaustive. Infectious substances, including those containing new or emerging pathogens, which do not appear in the following list but which meet the same criteria must not be transported as a diagnostic specimen. In addition, if there is doubt as to whether or not a pathogen falls within this category it must not be transported as a diagnostic specimen.*

***NOTE 2**: In the following table, the micro-organisms indicated in italics are bacteria, mycoplasmas, rickettsiae or fungi.*

***NOTE 3**: Cultures (laboratory stocks) are the result of a process by which pathogens are amplified or propagated in order to generate high concentrations, thereby increasing the risk of infection when exposure to them occurs. This definition refers to cultures prepared for the intentional generation of pathogens and does not include cultures intended for diagnostic and clinical purposes. Cultures prepared for the intentional generation of pathogens must not be transported as diagnostic specimens.*

***NOTE 4**: If a health authority list is available that shows other pathogens regarded as Risk Group 4 this should also be taken into account and the substances must not be transported as diagnostic specimens.*

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES FORBIDDEN AS DIAGNOSTIC SPECIMENS UNLESS OTHERWISE INDICATED	
UN Number and Proper Shipping Name	**Micro-organism**
UN 2814 Infectious substances affecting humans	*Bacillus anthracis* (cultures only) *Brucella abortus* (cultures only) *Brucella melitensis* (cultures only) *Brucella suis* (cultures only) *Burkholderia mallei* - *Pseudomonas mallei* - Glanders (cultures only) *Burkholderia pseudomallei* - *Pseudomonas pseudomallei* (cultures only) *Chlamydia psittaci* - avian strains Infectious (cultures only) *Clostridium botulinum* (cultures only) *Coccidioides immitis* (cultures only) *Coxiella burnetii* (cultures only) Crimean-Congo hemorrhagic fever virus Dengue virus (cultures only) Eastern equine encephalitis virus (cultures only) *Escherichia coli, verotoxigenic* (cultures only) Ebola virus Flexal virus *Francisella tularensis* (cultures only) Guanarito virus Hantaan virus Hantaviruses causing hantavirus pulmonary syndrome Hendra virus Hepatitis B virus (cultures only) Herpes B virus (cultures only) Human immunodeficiency virus (cultures only) Highly pathogenic avian influenza virus (cultures only)

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES FORBIDDEN AS DIAGNOSTIC SPECIMENS UNLESS OTHERWISE INDICATED	
UN Number and Proper Shipping Name	**Micro-organism**
UN 2814 Infectious substances affecting humans *(cont'd)*	Japanese Encephalitis virus (cultures only) Junin virus Kyasanur Forest disease virus Lassa virus Machupo virus Marburg virus Monkeypox virus *Mycobacterium tuberculosis* (cultures only) Nipah virus Omsk hemorrhagic fever virus Poliovirus (cultures only) Rabies virus *Rickettsia prowazekii* (cultures only) *Rickettsia rickettsii* (cultures only) Rift Valley fever virus Russian spring-summer encephalitis virus (cultures only) Sabia virus *Shigella dysenteriae type 1* (cultures only) Tick-borne encephalitis virus (cultures only) Variola virus Venezuelan equine encephalitis virus West Nile virus (cultures only) Yellow fever virus (cultures only) *Yersinia pestis* (cultures only)
UN 2900 Infectious substances affecting animals	African horse sickness virus African swine fever virus Avian paramyxovirus Type 1 - Newcastle disease virus Bluetongue virus Classical swine fever virus Foot and mouth disease virus Lumpy skin disease virus *Mycoplasma mycoides* - Contagious bovine pleuropneumonia Peste des petits ruminants virus Rinderpest virus Sheep-pox virus Goatpox virus Swine vesicular disease virus Vesicular stomatitis virus

Emergency Response Procedures

Mitigation procedures:

Isolate spill or leak area immediately in all directions.

Keep unauthorized personnel away.

Obtain identity of substance involved if possible and report the spill to the appropriate authorities.

Do not touch or walk through spilled material.

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Be particularly careful to avoid contact with broken glass or sharp objects that may cause cuts or abrasions that could significantly increase the risk of exposure.

Damaged packages containing solid CO_2 as a refrigerant may produce water or frost from condensation of air. Do not touch this liquid as it could be contaminated by the contents of the parcel.

Liquid nitrogen may be present and can cause severe burns.

Absorb spilled materials with earth, sand or other non-combustible material while avoiding direct contact.

Cover damaged package or spilled material with damp towel or rag and keep wet with liquid bleach or other disinfectant. Liquid bleach will generally effectively inactivate the released substance.

DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

First Aid:

Move exposed person(s) to a safe isolated area.

CAUTION: Exposed person(s) may be a source of contamination.

Call emergency medical services.

Remove and isolate contaminated clothing and shoes.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

For further assistance, contact the appropriate public health authority.

Ensure that medical personnel are aware of the substances involved, and take precautions to protect themselves.

CANUTEC

July 1, 2002 to December 31, 2002

Number of Calls

Technical	4,679
Regulatory	2,818
Information	5,839
Other	2,658
Total	**15,994**
Emergency Calls	**468**

Source of Emergency Calls

Fire Dept.	129
Police Dept.	36
Hazmat Contractor	4
Carrier	187
End User	38
Manufacturer	10
Government	26
Private Citizen	11
ER Centre	6
Poison Control	3
Medical	7
Others	10

Emergency Calls by Class of Dangerous Goods

Class	1	- Explosives	4
Class	2	- Compressed Gas	91
Class	3	- Flammable Liquids	136
Class	4	- Flammable Solids	12
Class	5	- Oxidizers and Organic Peroxides	33
Class	6	- Poisonous and Infectious Substances	31
Class	7	- Radioactives	5
Class	8	- Corrosives	149
Class	9	- Miscellaneous	45
NR		- Non-regulated	45
Mixed Load		-	5
Unknown		-	28

Emergency Calls by Province/Country

British Columbia	58
Alberta	50
Saskatchewan	15
Manitoba	20
Ontario	168
Quebec	94
New-Brunswick	14
Nova Scotia	18
Prince Edward Island	1
Newfoundland	4
Northwest Territories	1
Yukon	1
Nunavut	0
United States	24
International	0

Emergency Calls by Transport Mode

Road	128
Rail	128
Air	9
Marine	8
Pipeline	0
Non transport	195
Multimodal	0

Factors to Consider in the Air Transport of Infectious Substances

by Judith Code and Roger Lessard

Infectious substances are transported to, from, or within Canada by air. They originate from universities, hospitals and their affiliated institutions, as well as governmental, industrial, research, diagnostic and teaching laboratories.

The import, export and transport of infectious substances is regulated by four Canadian federal departments.

IMPORT

The Office of Laboratory Security, Health Canada, and the Biocontainment and Facility Services, Canadian Food Inspection Agency are responsible for issuing permits for the importation of human and/or animal pathogens, as delegated under the *Human Pathogens Importation Regulations* and the *Health of Animals Regulations* respectively. (See the following Web sites for specific information on the regulations.)

http://www.hc-sc.gc.ca/pphb-dgspsp/ols-bsl/index.html

http://www.inspection.gc.ca/english/lab/bioe.shtml

EXPORT

The Department of Foreign Affairs and International Trade regulates the exportation of certain micro-organisms and associated equipment that may be used for biological warfare under the *Export Permits Regulations*. (See the following Web site for specific information on the regulations.)

http://laws.justice.gc.ca/en/E-19/SOR-97-204/index.html

TRANSPORTATION

Transport Canada regulates the handling, offering for transport and transporting of all dangerous goods, including infections substances, by all modes of transport under the *Transportation of Dangerous Goods Regulations* (TDGR).

Part 12 - Air of the TDGR and by reference the *International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air* (ICAO TI's) prescribe the classification, packaging, safety marking, documentation and handling requirements for the safe air transport of infectious substances.

It is important to note that under the TDGR those who import dangerous goods into or through Canada assume the responsibilities and liabilities of the consignor. (See the following Web site for specific information on the regulations.)

http://www.tc.gc.ca/tdg/clear/menu.htm

ICAO TI's 2003/2004

The following is a list of ICAO TI's 2003/2004 amendments that will affect the handling, offering for transport, transport, and import of infectious substances starting January 1, 2003. For the complete text of the regulations, you must refer to the 2003/2004 Edition of the ICAO TI's.

A. Packaging

On January 1, 2003

- UN standard infectious substances packaging test report must be made available to the user of the packaging.
- Diagnostic specimens must be packaged in accordance with the revised Packing Instruction 650 of the ICAO TI's.

B. Safety Marking

Cryogenic Liquid Label

On January 1, 2003 each shipment containing cryogenic liquid must be labelled as shown below, and may include the words "Caution – may cause cold burn injuries if spilled or leaked".

CRYOGENIC LIQUID

Air Eligibility Mark

On January 1, 2004 each package must be marked to indicate that the consignor has determined that the packaging meets the applicable air transport requirements. The marking must be applied adjacent to the Proper Shipping Name. The marking must include the symbol consisting of an aircraft within a circle as shown below, and may include the words "Air Eligible".

C. Documentation

On January 1, 2003 in addition to the dangerous goods description for infectious substances, the following information must be included after the dangerous goods description on the dangerous goods transport document:

- the total quantity of infectious substances covered by the description (by volume or by mass as appropriate) of each item of dangerous goods bearing a different proper shipping name;
- UN number;

The sequence of the dangerous goods description may be of one of the following sequences:

Infectious substances, affecting humans (Rabies virus) 6.2 UN2814

UN2814 Infectious substances, affecting humans (Rabies virus) 6.2

For example, if Dry ice, UN1845 is used as a refrigerant

Dry ice 9 UN1845 PGIII

UN1845 Dry ice 9 PG III

Note : The Risk Group may be used instead of the technical name in parentheses.

The certification that the consignment is acceptable for air transport must be signed and dated by the shipper.

On January 1, 2003, in order to secure transmission without hindrance it is necessary to prepare all shipping documents, including the transport documents, in strict accordance with rules governing the acceptance of goods to be shipped.

The ICAO TI's do not preclude the use of electronic data processing (EDP) and electronic data interchange (EDI) transmission techniques as an aid to paper documentation.

Note: Dangerous goods used to preserve infectious substances must also comply with these provisions. In addition, this must include the applicable packing group.

For further information, please contact:

Headquarter ..... (613) 991-3988
Airline Inspection ..... (514) 633-3116
Atlantic Region ..... (506) 851-7247
Quebec Region ..... (514) 633-2838
or ..... (418) 640-2796
Ontario Region ..... (416) 952-0000
Prairie and Northern Region ..... (780) 495-5278
Pacific Region ..... (604) 666-5655

RECRUITMENT:

Transport Canada's "Civil Aviation Safety Inspector (CASI) - Dangerous Goods" is responsible for the administration and enforcement of the Transportation of Dangerous Goods legislation as it applies to transport by air.

From time to time, these Dangerous Goods Safety Inspector positions become available in one or more of Transport Canada's five (5) Regional Offices. In anticipation of staffing these vacancies, Transport Canada has developed an electronic recruitment inventory aid for pre-screening of applications for these positions. As vacancies become available, hiring managers will be able to access this inventory and identify persons who meet their specific business requirements.

Individuals who are interested in registering for this inventory, should go to Transport Canada's Regulatory/Inspection Recruitment website (**www.tc.gc.ca/jobs**) and fill out an on-line application. Once on the website, applicants should click on the "Civil Aviation" logo and then select "Dangerous Goods Safety Inspector".

For more information or if you require assistance, please contact Transport Canada's Recruitment Centre toll-free at 1-866-707-7716 or by e-mail at **recruit@tc.gc.ca**

NOTICE

ICAO TI's 2003-2004

Scope

This notice is of importance to those who handle, offer for transport, transport or import dangerous goods by air.

Transportation of Dangerous Goods Regulations

The transportation of dangerous goods by air to, from and within Canada is subject to the *Transportation of Dangerous Goods Regulations* (TDGR), which in turn adopt the *International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air* (ICAO TI's).

The 2003/2004 edition of the *ICAO TI's* introduces a number of changes which are effective January 1, 2003. Many of the changes align the *ICAO TI's* with the *UN Recommendations on the Transport of Dangerous Goods (UN Recommendations)*.

Highlights of the Amendments to the 2003/2004 Edition of the ICAO TI's

Part 1 - General

Training

New Category 9 General Cargo Acceptance Staff.

Part 2 - Classification

Class 2

New definitions for:

- Compressed gas
- Liquefied gas
- "Gas in solution" now "dissolved gas"

Aerosols containing toxic or corrosive substances, Packing Group II, are prohibited.

Gases of Division 2.3 in aerosol are prohibited.

Class 6.2

Diagnostic specimens must be assigned to UN 3373 **unless**

- source patient or animal has or may have a serious human or animal disease,
- readily transmitted, directly or indirectly, or
- effective treatment and preventative measures not available.

Diagnostic specimens are no longer subject to Risk Group classification.

Blood for transfusion, tissues or organs for transplant are no longer regulated.

Part 3 - Dangerous Goods List

ID8000, Consumer Commodity is the only remaining 'ID' entry;

Ammonium nitrate fertilizers now UN2067 or UN2071;

Forbidden Organic peroxides and Self-reactive substances are now listed;

Air bag inflators, Air bag modules and Seat belt pretensioners now classified under Division 1.4G or Class 9;

Methanesulphonyl chloride, UN3246 now forbidden on both passenger and cargo aircraft;

Eleven other substances previously forbidden on passenger aircraft are now forbidden on cargo aircraft; and

Solid desensitized explosives UN1317, UN1371 and UN3343 are removed; UN1355, UN1517, UN1571 and UN3376 are added.

Special Provisions

Lithium cells and batteries:

A8 deleted, A45 revised; new special provisions A88 and A99 added.

Life-saving vehicle air bags or seat-belts:

Revised A56;

Aerosols:

New A98;

Ammonium Nitrate Fertilizer:

New A64 and A79

Revised A90

Life-saving vehicle air bag inflators or air bag modules, or seat belt pretentioners:

Revised A115

Part 4 - Packing Instructions

General Packing Requirements

There are requirements for the use of absorbent materials in combination packagings for liquids in Classes 3, 4 and 8 and Divisions 5.1, 5.2 and 6.1.

Revisions have been made to certain Packing Instructions for Classes 1, 2, 3, 5, 6.2, 7, and 9.

Part 5 - Shipper's Responsibilities

Marking and Labelling

New Air Eligibility Marking is effective January 1, **2004**;

New Cryogenic Liquid Label

Documentation

Three possible ways to record sequence of information on the dangerous goods transport document.

'UN 1717 Acetyl chloride 3 (8) II'
'Acetyl chloride 3 (8) UN 1717 II'
'Acetyl chloride 3 UN 1717 II'

Information on the Air way bill for 'Dry Ice' and 'Excepted Packages of Radioactive Material' must appear with nature and quantity of dangerous goods.

Part 7 - Operator's Responsibilities

Inspection and Decontamination

Contaminated packages/baggage must not be carried until decontaminated

Information to the Pilot in Command

The Information to the Pilot in Command must include a signed confirmation, or some other indication from the person responsible for loading, indicating there is no evidence of damage or leakage.

The copy retained on the ground must have an indication on it or with it that the pilot-in-command has received it.

The copy (or the information on it) must be available at airports of last departure and next scheduled arrival point.

Revisions have been made to the information required on the Information to the Pilot in Command document.

Part 8 - Provisions Concerning Passengers and Crews

Consumer electronic devices (watches, cell phones, computers, cameras containing lithium/lithium ion cells/batteries) now permitted under certain conditions.

Disclaimer

The Department of Transport assumes no responsibility for the accuracy or reliability of any reproduction derived from the legal materials in this publication. The legal materials in this publication have been prepared for convenience of reference only and, except as noted above, they have no official sanction. For all purposes of interpreting and applying the law, users should consult the 2003/2004 ICAO TI's Edition.

For additional information, please contact the following:

Atlantic Region ..... (506)851-7247

Quebec Region ..... (514)633-2838
or ..... (418) 640-2796

Ontario Region ..... (416)952-0000

Prairie and Northern Region ..... (780)495-5278

Pacific Region ..... (604)666-5655

Airline Inspection ..... (514)633-3116

Or visit the Web site at:

www.tc.gc.ca/civilaviation/commerce/dangerousgoods

Canada

Exposure Data to Dangerous Goods An Overall Picture

by Michèle Provencher

Freight transportation volume grows and shrinks with the economy. It is a barometer of production. For the volume of dangerous goods transported it is more than that, it is a safety issue. The numbers presented here are gathered from different sources, mostly through Statistics Canada for the year 2000.

Air cargo represents only a small portion of the total flow of freight in Canada. A total of 0.7 million tonnes were carried by air in 2000. Domestic air cargo represented 131 000 tonnes. The main Canadian Airports from the point of view of freight transportation are: L.B. Pearson Intl. (359 533 tonnes loaded and unloaded), and Vancouver Intl. (179 045 tonnes loaded and unloaded). Unfortunately all this information is gathered without any distinction between types of commodities. A 1% figure has been quoted as the relative quantity of dangerous goods (DG) amongst all commodities transported by air. This has yet to be confirmed.

As a major trading nation, Canada relies on ocean shipping to facilitate international commerce. Inland and coastal shipping activities add to this sector of the transportation industry. Some 348.3 million tonnes of commodities flow through Canadian waters. Of this 116.8 are non-bulk. This distinction between bulk and non-bulk is particularly important to the Transport Dangerous Goods Directorate: the *Transportation of Dangerous Goods Act, 1992* does not regulate dangerous goods in bulk.

		Non-Bulk	Bulk	
No Dangerous Goods		102.5 (29.4%)	156.4 (45.0%)	259.0 (74.5%)
DG:	**Possibly**	8.8 (2.5%)	2.5 (0.7%)	11.3 (3.2%)
	Definitely	5.5 (1.6%)	72.6 (20.8%)	78.1 (22.4%)
		116.8 (33.5%)	231.5 (66.5%)	348.3 (100.0%)

Total Freight (in million tonne)

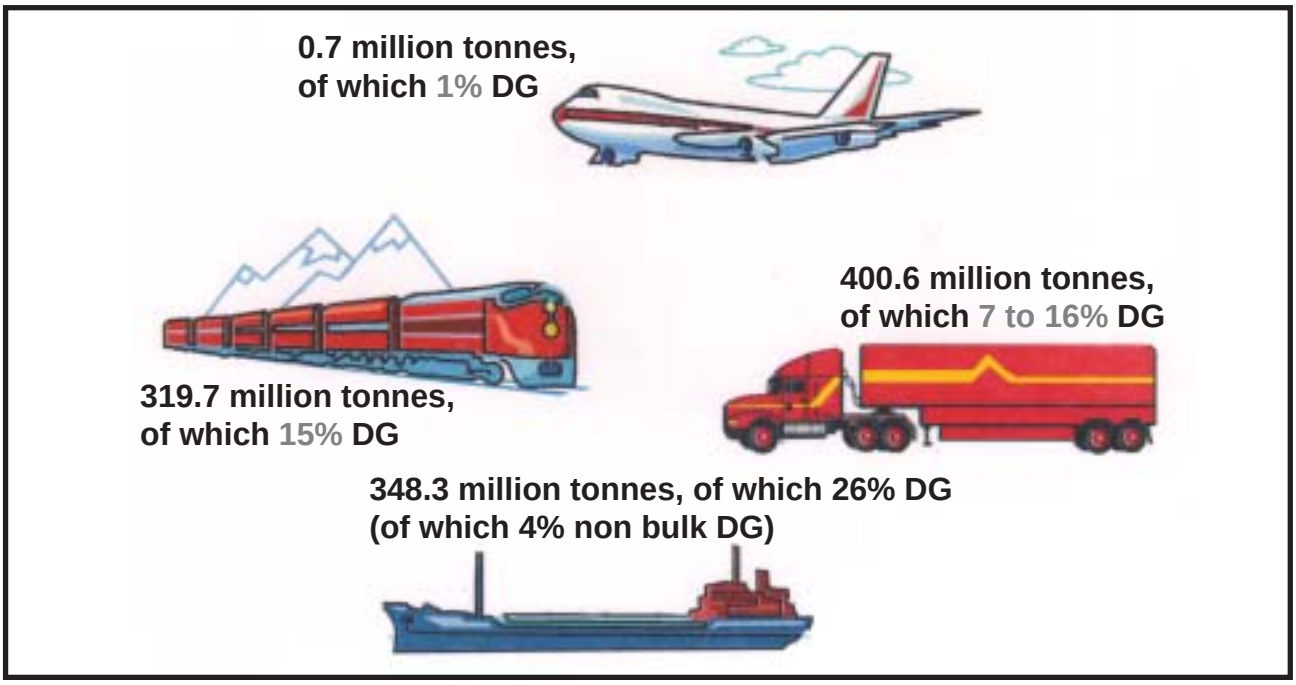
Transported in Canadian Waters

The most common dangerous goods transported by marine mode are bulk commodities such as Crude Petroleum Oil (52% of all dangerous goods), fuel oils, gasoline, sulfur and petroleum coke while the most common non-bulk dangerous good category, aviation turbine fuel, represents only 1.8% of all dangerous goods transported by ship.

Since the 1979 derailment at Mississauga, which involved the evacuation of a quarter of a million people, Canadians across the country have become acutely aware of the potential hazards in the transport of dangerous goods by rail. In 2000, 319.7 million tonnes of freight were carried on Canadian railways. From the detailed information on commodities obtained from CN and CP one finds that dangerous goods represent 15% of the cargo weight. The classes with the most tonnage are flammable liquids (4% of tonnage), gases (3%) and corrosive substances (2%). 4% of the dangerous goods tonnage transported by rail is unspecified.

Freight transportation by road is probably the most important from the point of view of volume, it is also the most difficult to grasp. A couple of surveys, the National Roadside Survey and the For-Hire Trucking Survey indicate Gasoline and Diesel Fuel as the most common dangerous goods transported by road. Indications are that around

400.6 million tonnes of freight were carried by road in 2000. Of this 7% to 16% would be dangerous goods, bringing the following overall picture of the transport of dangerous goods.



Freight Transportation and Dangerous Goods in Canada for the year 2000*

* greyed out values are less reliable

New Pamphlets Now Available

TP 9285E (Emergency Response Assistance Plans) and TP 2553E (CANUTEC) have been updated and are posted on the TDG Web site at: **http://www.tc.gc.ca/tdg/publications/menu.htm**

A limited number of printed copies of TP 2553E (CANUTEC) are available by contacting Arie Racicot at (613) 998-6539 or E-mail: **racicoa@tc.gc.ca**.

Both pamphlets are available in the French version, TP 9285F and TP 2553F.