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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.

Potential TDG Act Amendments:
The Newsletter will publish a special edition covering this topic should a Bill be introduced in Parliament to amend the *TDG Act, 1992*.

Editorial

Welcome to the Fall 2006 edition of the newsletter. As you will see, we have included many articles in this issue which, we hope, will provide you with helpful information on the transportation of dangerous goods program.

Our feature article on page 4 covers an update on the "Vent-and-Burn Emergency Product Removal Technique" and the latest propane tank tests which were conducted in July 2006 in Alberta. On page 9, you will find an informative article on a proposed standard being developed by the Canadian Standards Association (CSA) on UN portable tanks for the transportation of dangerous goods in Canada and the work that is being done by the standards committee. There is also an article on page 10 which updates the "Width of a Derailment" project undertaken by the Directorate to address some of the issues raised by the Canadian Transportation Safety Board investigation report following the Thamesville derailment in April 1999.

Finally, as indicated on this page, we would like to update our mailing list. If you wish to continue receiving the Newsletter, please complete the enclosed card and return it to us at your earliest convenience. Your cooperation is greatly appreciated.

As always, I invite you to send me your comments and suggestions. I look forward to hearing from our readers.

Enjoy your reading!

Renée Major

The Responsibility to Classify Class 6.2 Infectious Substances

by Ray Desjardins

Scenario: In a hospital in Saskatchewan, a doctor treats a patient who has been infected with Hepatitis B virus. The doctor draws a blood specimen from the patient and sends the sample to the hospital laboratory for packaging and subsequent shipment to a laboratory on the other side of the city for diagnostic testing. The doctor does not identify the blood specimen as being an "Infectious substance, affecting humans, Class 6.2, UN2814, Risk Group II" because the doctor is of the opinion that the personal health information of the patient cannot be disclosed.

Question: Has the doctor acted in non-compliance with the *Transportation of Dangerous Goods (TDG) Regulations*?

Response: Yes. In this scenario, the doctor knew that the patient was infected with Hepatitis B virus and was required to classify the blood specimen as "Infectious substance, affecting humans, Class 6.2, UN2814, Risk Group II" in accordance with Part 2 of the *TDG Regulations*. As such, laboratory staff could have ensured that the sample was handled and offered for transport in accordance with the *TDG Regulations*. This would have included the completion of a dangerous goods shipping document, the selection of a proper means of containment and the display of dangerous goods safety marks on the means of containment. It is not necessary that a patient's name or any personal reference to the patient be indicated for any shipment of infectious substances.

As a footnote, please be advised that changes to the classification of infectious substances will take place once Amendment No. 6 to the *TDG Regulations* is adopted. Amendment No. 6 will introduce Category A and Category B infectious substances as well as changes to shipping documents, safety marks and means of containment for infectious substances.

For more information, please visit the TDG website at: *http://www.tc.gc.ca/tdg/clear/modifications/menu.htm*.

We are updating the TDG Newsletter mailing list and would like your cooperation in doing so. If you wish to continue receiving the Newsletter, please complete the enclosed "Confirmation of Address" card and return the pre-paid, self-addressed card, at your earliest convenience.

If you would like to reduce the paper copies and replace them by an e-mail notification when the new issue is available on-line, please mark the "e-mail notification" box on the reply card.

Your cooperation is greatly appreciated. Thank you.

FEATURE

Update on Vent-and-Burn: An Emergency Product Removal Technique

by D.W. Dibble and Doug Kittle

The initial vent-and-burn propane tank test was described in the Winter 2005-2006 edition of the Transport Dangerous Goods Newsletter. As stated in that article, it was planned to conduct additional smaller tank tests in order to study such parameters as long vent times. This is an update of those tests conducted in July 2006.

As a reminder, the vent-and-burn technique being researched is for emergency product removal in highway tanker accidents. Shaped charge explosives are used to penetrate distressed highway tank trucks to relieve pressure and to allow the contents to flow out and be burned. This technique has been used on rail tank cars. It is considered to be an emergency product removal technique of last choice and is most often used to quickly lower the internal tank pressure to avoid a possible catastrophic tank failure with associated shock and projectile hazards.

In essence, the technique involves using two separate sets of shaped charge explosives placed on the highway propane tank. One charge location is at the highest point on the tank, over the vapour space. The second charge location is at the lowest point of the tank to allow the product to drain into a prepared containment area. The product flowing out of both locations of the damaged tank is ignited and burned. A time delay, to allow the internal tank pressure to be sufficiently reduced, through vapour space venting, is used between the detonation of the top and bottom charges.

The current test series used three-2000 litre propane tanks to concentrate on the performance of the propane and tank at low or atmospheric pressure at the time of the detonation of the second shaped charge.

Before any recommendation can be made on the possible endorsement of this emergency procedure, it is important to collect as much data as possible in order to determine its validity.

The following chart summarizes some test parameters:

Parameter	Test 06-1	Test 06-2	Test 06-3
Qty propane (litres)	1600	1620	1615
Initial tank pressure (kPa)	1100	1000	1000
No. and diameter holes (top)	2 – 2 cm	2 – 2 cm	1 – 2 cm
Vent time (sec)	880	760	1420
Approx. tank pressure at time bottom charge(s) detonated (kPa)	0	0	0
No. and diameter holes (bottom)	2 – 2 cm	1 – 2 cm	3 – 1 cm
Comments	Brittle shell failure caused by bottom charges – large, short duration release of propane	Brittle shell failure caused by bottom charge – large, short duration release of propane	No brittle fracture. Small holes became clogged, restricting propane flow

Each of the three tanks was instrumented with a vertical array of 7-thermocouples, installed on the top of the tank, one third the distance from a tank end, and 2-pressure transducers, one mounted at the top of the tank and the other on the side of the tank (see Figure 1).

Figure 1 – Instrumentation Installed on Propane Tank

Figure 2 – Test Site – Area Prepared for Burning Propane

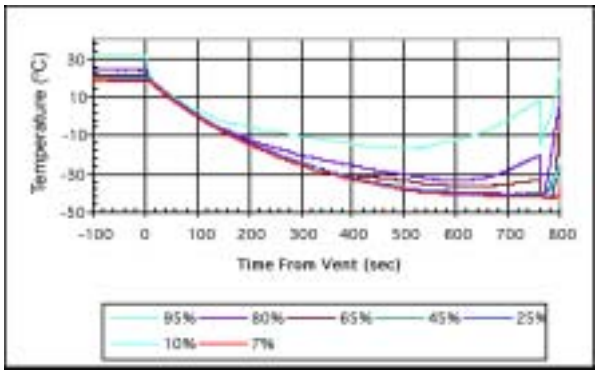


Figure 3 – Temperature Distribution over Time from Initial Vent – Test 06-2

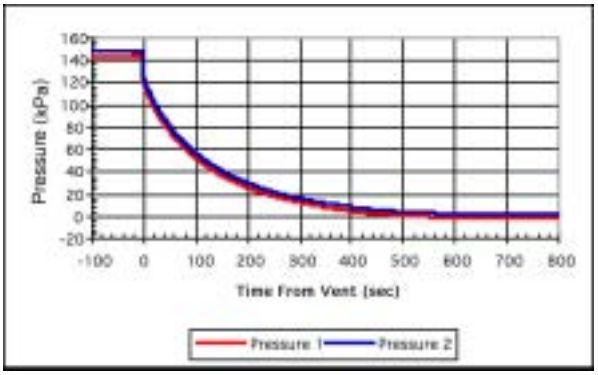


Figure 4 – Diminishing Propane Pressure in Tank – Test 06-2

In Figure 3, the rise in temperature of the higher-level thermocouples occurs when the liquid level of the propane drops below the level of the thermocouple exposing it to the vapour space that is being heated by the burning propane flare (Figures 5 and 6).

Figure 5 – Initial Vapour Flare

Figure 6 – Vapour Flare Size at Near Ambient Pressure

Figure 7 – Burning Propane from Test 06-2

Figure 8 – Brittle Fracture of Tank 06-2

Figure 9 – Burning Propane from Test 06-3

Figure 10 – Drain Holes in End of Tank 06-3

Observations

- The shaped charge explosives produced consistent hole sizes.
- The venting, propane temperatures and tank pressures in each test progressed as expected.
- Frost line appeared on tank sides as the temperature of the propane dropped, giving an indication of liquid level and confirmation that pressure was dropping.
- Decreasing height of vapour flare provided indication of reducing tank pressure.
- The bottom ends of both 06-1 and 06-2 tanks suffered brittle fractures during the detonation of the bottom charges. This resulted in the tank contents being dumped in a short period of time, leading to a large, brief duration, pool fire. It is suspected that the brittle fractures were due to the low steel temperature (-42° C) and "old" steel properties. The resulting pool fires were contained in the prepared containment area.
- The smaller holes in the bottom of tank 06-3 did not cause a brittle fracture of the tank. However, the smaller holes became clogged, restricting propane flow.

Conclusions/Recommendations

- Ignition sources for the vapour flare and liquid should be present.
- The shaped charges provided a controlled means of introducing consistent sized vent and drain holes in the tanks.
- Allowing the tank to vent down to ambient or zero gauge pressure resulted in the bottom half of the tank being near -42° C.
- Brittle fracture of the tank bottom resulted in a large, brief duration pool fire but with the tank pressure near zero gauge, there were no pressure related hazards such as shock or projectiles.
- The prepared liquid propane containment area should be large enough to hold about half the tank contents in the event of a failure of the tank bottom.

- Combustible products should be removed from the prepared containment area to prevent any fire spread from the burning propane.

The test data from the August '05 and July '06 tests will be used to develop guidelines and related training documentation for awareness training of qualified emergency responders and technical advisors to the propane gas industry across Canada.

The testing was conducted at the Orica Canada Inc facilities, Blackie, Alberta in July 2006.

This project was only possible due to the extensive degree of industry cooperation. Special thanks to Economy Carriers Ltd - ELC Group of Companies; Orica Canada Inc – Blackie, Alberta; Fire Department of Municipal District of Foothills No 31; and, Explosives Ltd. The participation of Queen's University, Department of Mechanical & Materials Engineering and CanWest Propane is also gratefully acknowledged.

Interpretation of a Regulatory Text

Singular and plural form

by Jacques Savard

The Directorate is often asked if the interpretation given of a regulatory text is the right one. Often the interpretation is based on whether the word is used in the singular or plural form in the text.

A recent example dealt with section 1.18 of the *Transportation of Dangerous Goods Regulations* (TDG), where it appears to state that a carrier may only accept one medical cylinder under the exemption for medical devices or articles. The reason given was that the text referred to "a" medical cylinder.

1.18 Medical Device or Article

These Regulations do not apply to the transport on a road vehicle, a railway vehicle or a ship on a domestic voyage of

- **(a)** a medical device, wheelchair, medical article or a medical cylinder if:
  - **(i)** the medical device is attached to or implanted in an individual or an animal,
  - **(ii)** the wheelchair or medical article is in transport and is intended for the personal use of a specific individual, or
  - **(iii)** the medical cylinder is intended for the personal use of an individual on board the road vehicle, railway vehicle or ship, is in compliance with Part 5, Means of Containment, and has a water capacity less than or equal to 5 L; or
- **(b)** a radio-pharmaceutical that has been injected in or ingested by an individual or an animal.

Such a statement cannot be upheld because it does not take into account a rule of interpretation established by the *Interpretation Act*[1] and supported by a large number of Supreme Court cases[2].

Section 33 of the *Interpretation Act* reads as follows:

33. (1) Words importing female persons include male persons and corporations and words importing male persons include female persons and corporations.

(2) Words in the singular include the plural, and words in the plural include the singular.

(3) Where a word is defined, other parts of speech and grammatical forms of the same word have corresponding meanings.

1 *R.S.C. 1985, c. I-21.*
2 *See for example:*
(1) R. vs. Strachan ***[1988] 2 S.C.R. 980****.*
(2) Information Commissioner of Canada, appellant vs. Commissioner of the Royal Canadian Mounted Police respondent, and Privacy Commissioner of Canada, intervenor ***[2003] 1 S.C.R. 66, 30****.*

The Supreme Court applied the aforementioned rule in the case of *Information Commissioner of Canada vs. the Commissioner of the Royal Canadian Mounted Police and the Privacy Commissioner of Canada*, in which the Court examined the scope of Paragraph 3(*j*) of the *Privacy Act*.

Paragraph 3(*j*) excludes from the definition of personal information any facts concerning the position of a Crown employee:

> "personal information"
>
> […] does not include:
>
> > […]
> >
> > (*j*) information about an individual who is or was an officer or employee of a government institution that relates to the position or functions of the individual
>
> […]

On behalf of the Court, Gonthier J. concluded:

> "Finally, I note that some might be tempted to view use of the word "position" in the singular in s. 3(*j*) as an indication of Parliamentary intent to limit the scope of s. 3(*j*) to the position currently held by an employee.
>
> […] I am of the opinion that this word should be understood as including the plural. […] Thus, the word "position" as it appears in s. 3(*j*) should be read as applicable to multiple positions."

In French, when the word "un/une" is used in a text, the term could be the indefinite article or the numerical adjective. In English, the modifier "a" is much easier to distinguish from the numerical "one". However, even the use of the numerical "one" in English does not necessarily limit the number of placards to only one. The reason for this is found in subsection 33(2) of the *Interpretation Act*.

Writers of legislative or regulatory texts are well aware of this situation and they are careful in avoiding any confusion by using specific terms. In French, they will use the expression "un (e) seul (e)" to bypass subsection 33(2). In English, they will use the expression "only one". In fact, they will often add more words to the text to avoid any doubt; for example an exemption such as "despite paragraph xx…".

The application of this rule of interpretation to section 1.18 of the *Transportation of Dangerous Goods Regulations* will therefore allow a person requiring the use of a medical cylinder to bring on board a vehicle more than one cylinder, providing each cylinder meets the conditions listed in section 1.18:

- the medical cylinder is intended for the personal use of a specific individual on board the vehicle;
- is in compliance with Part 5, Means of Containment; and
- has a water capacity less than or equal to 5 L.

According to subparagraph 1.18(*a*)(iii), the cylinder must be for the personal use of an individual on board the road vehicle. If a second cylinder is not required for his or her use on board, it does not meet the requirements of subparagraph (iii) and therefore does not qualify for the exemption in section 1.18.

It should, however, be noted that section 1.18 is not the only section for which an exemption could apply in this case. Section 1.15 "Exemption for Personal Use" also indicates other conditions under which cylinders, required by a person travelling, could be brought on board a vehicle. In its proposed Amendment No. 6, the Directorate is recommending that subparagraph (iii) be abolished, since it is redundant with section 1.15. Amendment No. 6 may be consulted at the following website: *http://canadagazette.gc.ca/partI/index-e.html*.

To comply with section 1.15 of the *Transportation of Dangerous Goods Regulations*, the medical cylinders must:

a) [be] transported between:

(i) a retail outlet and the residence of the purchaser;

(ii) a retail outlet and the purchaser's place of use;

(iii) the residence of the purchaser and a place of use; or

(iv) two residences.

b) [be] contained in one or more means of containment, each of which has a gross mass less than or equal to 30 kg and is designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of dangerous goods that could endanger public safety;

c) [be] not for resale or for commercial or industrial use; and

d) [be] in a quantity and concentration available to the general public at retail outlets.

In the case of a patient requiring continuous use of a medical cylinder (e.g. oxygen therapy), the "place of use" becomes a moving point which changes as the patient moves.

UN Portable Tanks for the Transportation of Dangerous Goods

by Manuel Kotchounian

Portable tanks for the transportation of dangerous goods are tanks that are equipped with service and structural equipment so that they can be loaded, unloaded, lifted and transported without removing the tanks' service or structural equipment. Portable tanks may or may not include a surrounding frame structure.

Portable tanks that are fitted within a frame of standardized dimensions are known as tank containers or intermodal tanks. Tank containers can be moved from one transportation mode to another in a cost-effective way.

In the late 1990s, the United Nations (UN) Committee of Experts on the Transport of Dangerous Goods adopted new requirements for the design, construction and use of portable tanks for the transportation of dangerous goods. These requirements, contained in the UN Recommendations for the Transport of Dangerous Goods, have been adopted by the International Maritime Organization (IMO) in their 30th Edition, and have also been or are in the process of being adopted by many countries in their domestic regulations. Portable tanks designed and manufactured pursuant to these requirements are known as "UN portable tanks".

The current *Transportation of Dangerous Goods Regulations* do not address the design, manufacture or use of UN portable tanks in Canada. Therefore, until the *Transportation of Dangerous Goods Regulations* are amended, a *Permit for Equivalent Level of Safety* must be obtained by any person wishing to design, manufacture, handle, offer for transport or transport dangerous goods in a UN portable tank in Canada. For instructions on how to apply for a permit, please see the last paragraph of this article or visit the website: *http://www.tc.gc.ca/tdg/permits/menu.htm.*

Transport Canada has approached the Canadian Standards Association (CSA) to initiate the development of a new standard on portable tanks for the transportation of dangerous goods. A Canadian Standards Association committee of experts interested in this matter was established in early 2006, and reviewed a draft of the proposed standard at its first meeting on May 30, 2006. Another meeting of this committee is scheduled for January 2007 to consider the second draft of the proposed standard. Once this standard is published, it will be proposed for adoption in the *Transportation of Dangerous Goods Regulations* in Canada.

The proposed text of the CSA standard on portable tanks, as reviewed by the committee, is based on the 14th Edition of the UN Model Regulations.

The proposed standard will address:

- The rules for design and manufacture of UN portable tanks in Canada and their approval by Canada; and
- The selection and use, inspection, test and repair, in Canada, of the following portable tanks: UN portable tanks, IM 101, IM 102, and IMO types 1, 2, 5 and 7 tanks, regardless of where they were approved and manufactured.

The proposed standard would require that each UN portable tank design approved or manufactured in Canada be reviewed and approved by a *Design Reviewer* authorized by Transport Canada. The *Design Reviewer* would have the responsibility of issuing the Design Approval Number and the Design Approval Certificate of the UN portable tank on behalf of Transport Canada.

The proposed standard would permit the handling, offering for transport or transport in Canada of UN portable tanks approved by a foreign jurisdiction and manufactured outside Canada, provided they are in accordance with the UN Recommendations and the applicable National Regulations of the country of approval and the country of manufacture.

The UN Recommendations rely on a pressure vessel code "recognized by the competent authority" for specifying many detailed design and construction requirements for the portable tank shells, which are the components that retain the dangerous goods. The code requirements form the basis for safety of a portable tank. While recognizing foreign-made and approved UN portable tanks for use in Canada, the proposed standard would restrict this recognition to tanks made in accordance with codes recognized in the standard. These are codes that are well known to result in an overall acceptable level of safety, and they include the ASME Section VIII Divisions 1 and 2 as well as major European codes. Suggestions for additional pressure vessel codes that could be considered for inclusion in the standard may be made to the CSA committee, by way of the undersigned.

It should also be noted that the draft standard does not authorize foreign-approved UN portable tanks under an "alternative arrangement" with the foreign competent authority. The use of such tanks in Canada would continue to require a *Permit for Equivalent Level of Safety* from Transport Canada.

For more information on the UN portable tanks, please do not hesitate to contact Mr. Manuel Kotchounian at 613-998-0798 or by e-mail at the following address: kotchom@tc.gc.ca.

The Width of a Derailment – An Update

by Michèle Provencher

In April 1999, a Via Rail Train traveling on the north main track of the Chatham Subdivision at Thamesville, Ontario, encountered a reversed switch and derailed, colliding with three stationary railway cars loaded with ammonium nitrate on an adjacent track.

According to the findings in the investigation report of the Transportation Safety Board "the storage of certain dangerous goods in rail cars for prolonged periods of time, adjacent to main tracks where train speed is not restricted and passenger trains also operate, created an unacceptable level of risk for persons, property and the environment".

Amongst other work, the Transport Dangerous Goods Directorate awarded a contract to Transys Research Ltd. in November 2005:

- to conduct a detailed review of train collisions and derailments in North America;
- to evaluate the risk of hitting stationary railway cars of dangerous goods on a siding next to a main line; and
- to provide recommendations to mitigate the associated risks with particular emphasis placed on the width of the derailment and train speed.

The project steering committee was initially comprised of representatives from the Railway Association of Canada, Canadian National, Canadian Pacific Railway, the Transportation Development Centre and the Transport Dangerous Goods Directorate but was expanded to include representatives from Teamsters Canada and the Rail Safety Directorate of Transport Canada.

Transys Research Ltd. completed the first part of the work. They obtained from the U.S. National Transportation Safety Board a Rail database with width measurements for derailments from 1978 to 1985. They reviewed reports from the U.S. National Transportation Safety Board and the Canadian Transportation Safety Board for the period 1992-2004. Reports prior to 1992 were also reviewed as well as other sources of information such as media pictures and relevant documents. In total, approximately 200 records of derailments, including the maximum lateral distance, were gathered in addition to the older records.

Preliminary analysis of the data shows that the maximum lateral distance from the rail track follows a similar distribution to that found using the National Transportation Safety Board data from 1978 to 1985 (10% of accidents have derailed cars at a greater lateral distance than 90 feet from the track).

A draft report is now expected by the end of this year and the project should be completed before the end of March 2007.

The results and recommendations from this project will assist in addressing part of the issues raised by the Thamesville derailment.

April 23rd, 1999, Thamesville, ON

Are We Good Citizens?

by Michèle Provencher

I am not talking about helping the elderly cross the street or lending your seat on the bus to someone who needs it more. If you do, great!

I am really talking about following laws and regulations, in particular, those regarding the Transportation of Dangerous Goods (TDG).

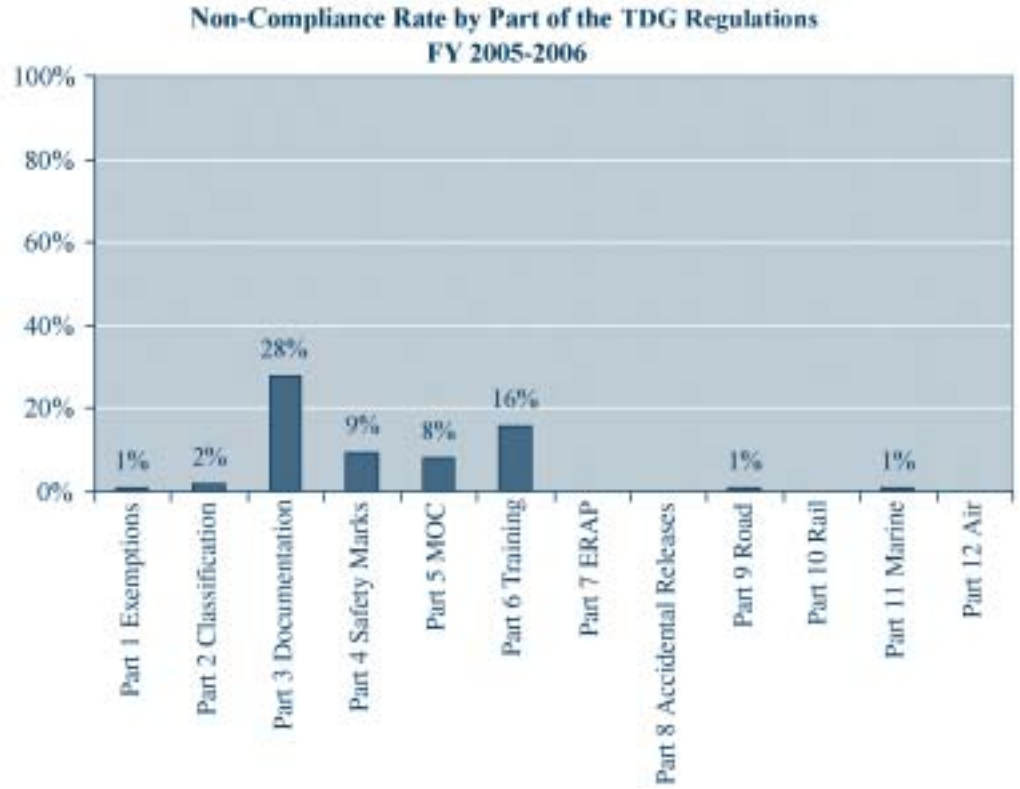
Monitoring compliance with the *TDG Regulations* is an important aspect of our program. By complying with the regulations, companies contribute to the reduction of risk in the transportation of dangerous goods. The premise being that the *Transportation of Dangerous Goods Act, 1992* and its *Regulations* provide for the necessary safeguards to enhance public safety.

In the spring of 2005, TDG inspectors were asked to visit a number of designated shipper facilities that were randomly generated to evaluate the non-compliance rate with the *TDG Regulations*. Randomization allowed for the determination of an objective measure, one that would not be tainted by the concerns of the day / referrals / or previous inspection records. It was also the beginning of a yearly exercise as TDG intends to continue measuring non-compliance through random inspections. This exercise is of course conducted with as little disruption of the regular inspection program as possible.

For fiscal year (FY) 2005-2006, an overall non-compliance of 38% ± 6%[1] was found. A total of 497 shipper facilities were addressed: 374 were inspected while 123 were found to be inactive.

Therefore, it was estimated for FY 2005-2006 that 38% of shipper facilities throughout Canada did not comply with the *TDG Regulations* (for one or more parts of the regulations).

The rate of non-compliance with the regulations, by part shows that documentation – 28%, training – 16%, safety marks – 9% and means of containments (MOC) – 8% are the areas where the most contraventions can be found:



At least one third of inspected sites are found to contravene the *TDG Regulations*, most often because of poor documentation or training. Let us not forget that in critical situations good documentation and training can make a world of difference.

Feel free to visit our website at: *www.tc.gc.ca* for the latest information on the *Transportation of Dangerous Goods Act, 1992* and its *Regulations* together with some awareness and training material.

1 *The ± 6% represents the margin of error for a 95% confidence level i.e. the non-compliance for the entire population should lie between 32% and 44%, 19 times out of 20.*

Corrigendum

Misleading Safety Marks on Railway Tank Cars

In recent years, based on differences of legal opinions, the Directorate has issued conflicting interpretations with regard to misleading safety marks on railway tank cars. The purpose of this article is to re-establish the facts based on a formal legal opinion provided by the Department of Justice.

The Issue

The regulations which apply to railways require that "commodity names" or other marks such as "not odorized" be clearly marked on the sides of railway tank cars. However, the question has been raised as to whether this constitutes a prescribed safety mark. Subsection 4.9(2) of the Regulations states that dangerous goods safety marks must be covered or removed when there are no longer dangerous goods in the means of containment. In the case of tank cars, this may cause problems, especially for repair shops.

The requirement for safety marks is not found in the Canadian regulations themselves but in section 172.330 of the American regulations! This section is incorporated by reference into the AAR Manual[1], which is itself incorporated by reference into the CGSB-43.147–2002 standard. Canada's *Transportation of Dangerous Goods Regulations* require compliance with the CGSB-43.147-2002 standard. The following diagram shows the sequence of references.

In the past, the Directorate has given a positive reply to this question and, accordingly, advised that these markings were prescribed safety marks. However, a few months ago, a new legal opinion raised some doubt, which led the Directorate to revise its position accordingly and conclude that they were not prescribed safety marks. Because the Directorate received many comments on its change of position, it decided to seek a definitive legal opinion from the Department of Justice.

The question was whether compliance with American requirements was required considering the fact that all the texts were incorporated by a sequence of references under a Canadian law relating to the transportation of dangerous goods.

Conclusion

Recently, the Department of Justice sent us its reply. Any text incorporated by reference into other texts, which are themselves incorporated by reference into a series of other texts, is deemed as much a regulatory text as the text that is incorporated by reference into the Regulations themselves.

The only restriction is that the scope of the referenced text must be within the scope of what can be made as a regulation under the *Transportation of Dangerous Goods Act, 1992*. Accordingly, topics not within the authority of the Act cannot be incorporated by reference into the regulatory text. In addition, only the text that exists at the time of incorporation of the "parent" document into the Regulations is valid. There is no incorporation "as amended from time to time" possible. For example, proposed requirements in the text which would be incorporated by reference on the subject of handsaws could not become a regulatory text because the scope of the *Transportation of Dangerous Goods Act, 1992* does not include handsaws. As a second example, if the AAR or 49 CFR changed text after the amendment to the *Transportation of Dangerous Goods Regulations* was put into force, the AAR and 49 CFR changes would not be mandatory.

To comply with the findings from the Department of Justice, the Directorate therefore revised its interpretations regarding this issue on its website. Commodity names marked on the sides of railway tank cars which are pursuant to the American regulations also constitute Canadian prescribed safety marks, and must be covered or removed when there are no longer dangerous goods in the means of containment (unless the user has been issued a Permit for Equivalent Level of Safety which exempts him/her under specific conditions.)

However, the requirement in section 172.330, paragraph (c) of the American regulations, concerning the marking of "non-odorized" or "not odorized" on tank cars that contain non-odorized liquefied petroleum gases, does not constitute a prescribed safety mark under the Canadian *Transportation of Dangerous Goods Regulations* because the paragraph in question is not, directly or through other referenced documents, incorporated in the Canadian regulations. Since it is not a prescribed safety mark, the label "non-odorized" or "not odorized" would not be misleading under the *TDG Act* or *Regulations*, whether the tank car contained liquefied petroleum gases or not.

1 *"AAR Manual of Standards and Recommended Practices – Specifications for Tank Cars M-1002", by the Association of American Railroads (AAR)*

Chemical, Biological, Radiological, and Nuclear (CBRN) Training Session

by Kathleen Corriveau

From May 9th to 11th, 2006, the Transport Dangerous Goods Directorate with the assistance of Magellan Critical Incident Specialists consultants provided a training session to industrial response teams involved in chemical, biological, radiological and nuclear incidents. The training session was held in Morrisburg, Ontario with approximately 30 participants in attendance. Observers from Health Canada, the Public Health Agency of Canada and CANUTEC were also in attendance.

Transport Canada worked with Magellan Critical Incident Specialists consultants to ensure the training met the needs of the responders. The purpose of this training was to better prepare industrial response teams who are willing to respond to dangerous goods and/or CBRN agents in the context of criminal activity or terrorism in Canada.

Topics covered during the three-day course included a review of the Chemical, Biological, Radiological, Nuclear and explosives (CBRN) agents; the basis of a CBRN and explosives Command and its integration within the National Emergency Response System; a hazard assessment including threat recognition, monitoring and detection; and the selection and use of Personal Protective Equipment, and decontamination, as well as exercises and scenarios. The participants were subsequently divided into three smaller syndicate groups. Each group spent time at each of the four rotation stations: Personal Protective Equipment, Decontamination, Monitoring and CBRN and explosives Threat Recognition.

Emergency responders may be required to attend a CBRN and explosives accident site to provide specialized assistance to local authorities and first responders. Responders from industry would only be asked to respond to products for which they would have the necessary expertise and equipment, and would only intervene after the site had been secured by the authorities, and all secondary threats had been eliminated. As such, responders may be required to provide technical advice on the character and risk associated with dangerous goods or technical information on the means of containment involved.

Assistance to first responders can also lend itself to establishing first response requirements to minimize exposure to a dangerous good, to managing the consequences of a release of a dangerous good, to provide specialized equipment and trained personnel to handle (transfer, neutralize, contain, flare, etc.) a dangerous good in order to mitigate its hazards. Although their role is expected to be similar to their role in attending dangerous goods accidents, there are differences to consider particular at a CBRN and explosives site. The practical training is intended to enhance the emergency responders' current capabilities as they pertain to CBRN and explosives incidents.

A CBRN incident will most likely require responders to work for lengthy periods of time while wearing the highest level of personal protection available. This level of personal protective equipment, often referred to as *Level A* in the "hazmat" world, consists of a vapour-tight fully encapsulating suit with a self-contained breathing apparatus. Although this provides a sufficient level of personal protection, one cannot work in this type of ensemble for prolonged periods of time. The limiting factor is the duration of the air supply from the breathing apparatus. *Level A* is also a very uncomfortable suit that provides limited mobility and visibility. There are also concerns over the suit being breached while working. An approved alternative for responders to work in a CBRN environment is the Canadian Integrated Protective Equipment. This approved ensemble is the civilian equivalent to the military garb to protect against chemical and biological threats. It consists of a variation of the Saratoga Hammer chemical/biological protective suit, a Canadian C4 gas mask and canister, chemical protective gloves and chemical protective overboots. The protective Saratoga Hammer suit, fully encapsulating and activated charcoal-lined, has been altered to be a navy blue two-piece suit for civilian use. This ensemble is the approved protective equipment for first responders in Canada, and offers an adequate level of protection for working in a contaminated CBRN site. The advantages of using this approved alternative to the *Level A* ensemble outweighs the reduction of splash protection that this suit is able to provide.

Decontamination is defined as the process by which individuals, equipment or the environment, are cleaned of CBRN materials. Prior to entering the contaminated zone or the "hot zone" where the CBRN incident has occurred, a decontamination corridor must be set-up. This provides a point of entry and exit between the cold and hot zones. Its location must be carefully considered. In general it should be upwind and upslope from the incident scene. Efforts will be made to have *decon* lines for males and females, non-ambulatory casualties and an emergency line for responders. For the purpose of this session, decontamination was limited to safely removing the

protective ensembles from the responders without contaminating those assisting them. The established protocols for *decon* of various CBRN scenarios (i.e.; radiological vs. chemical vs. biological) and the special consideration of mass casualty *decon* were also reviewed in order for the course participants to have an understanding of these, prior to attending a "multi-agency", large- scale CBRN incident. For instance, *decon* for biological agents, which is disinfection, will differ from *decon* for chemical agents, which is detoxification. An incident may require decon for multiple CBRN hazards. Regardless of the nature of the incident, an appropriate *decon* solution and method to eliminate the contamination at-hand, in a priority sequence, will be recommended given the actual CBRN incident.

Agent detection and monitoring are crucial in staging the response to a CBRN incident. Accurate detection and monitoring of the agent(s) involved will enable response personnel to establish potential evacuation and/or shelter-in-place areas, safety perimeters, and the hot/cold zones surrounding the CBRN release site. Once the threat is detected and the culprit agent is identified, monitoring methods can be employed accordingly. Some techniques can offer a confirmation that a specific agent or family of agents is present whereas other techniques can indicate the concentration of a said agent by area. Participants were encouraged to familiarize themselves with these techniques at the monitoring rotation station, which consisted of a display of various instruments for CBRN agent detection/monitoring.

The CBRN and explosives Threat Recognition station involved ten different devices consisting of either an improvised dispersal mechanism or a sabotaged standardized means of containment. These devices were created to disperse either CBRN and explosives agents or regulated dangerous goods. Participants discussed the type of threat, measures to be taken, personal protective equipment, monitoring, and decontamination, and proposed ways to remediate the situation for all "targets".

The session ended with a presentation by each group on the scenarios they were given to work on. The resolution of the CBRN and explosives incidents in the scenarios needed to reflect the applicable aspects of the course material.

The overall consensus of participants was that the training session was successful in providing valuable information to industrial emergency response teams in response to terrorist incidents involving CBRN agents. The federal government must continue to work with industry toward preparedness and response to such events.

2006 North American Inspectors Championship

by Micheline Paquette

Mr. Richard Roberts, a Commercial Vehicle Safety and Enforcement inspector with the British Columbia Ministry of Transportation, Delta, British Columbia, took top honors at the North American Inspectors Championship (NAIC) held in New Orleans, Louisiana August 14th to the 20th. Mr. Roberts won the Grand Champion Award for his combined performances in six competition elements.

Fifty-three Commercial Vehicle Safety Alliance (CVSA) certified North American Standard Level I roadside inspectors competed in the 14th annual Championship. Six inspectors represented Canada (Alberta, British Columbia, New Brunswick, Ontario, Quebec and Saskatchewan). Three inspectors represented Mexico and the United States was represented by forty-four inspectors.

Mr. Alain Riendeau, inspector for Contrôle Routier Quebec, St-Jean-sur-Richelieu, Quebec and Ms. Lorie Floyd of Wisconsin received the John Youngblood Award. This award is presented each year to the inspector who best demonstrates the qualities of congeniality, leadership, integrity, professionalism and commitment.

The NAIC is held every year and is the only event dedicated to recognizing and rewarding commercial vehicle inspector excellence. The event gives each inspector an opportunity to receive training on the latest safety information, technology, standards and inspection procedures while sharing ideas, techniques and experiences with other inspectors. NAIC recognizes roadside inspectors for job excellence, promotes uniformity and enhances the quality of commercial vehicle inspections.

Congratulations to all the participants!
More information on the championship may be found on the CVSA website at: *http://www.cvsa.org/*

The TDG Inspector Manual - A Successful Training Session

by John Hunt and Edgar Ladouceur

The goal of the *Transportation of Dangerous Goods (TDG) Act* is to promote public safety in the transportation of dangerous goods. The *Act* provides the authority to develop requirements and restrictions so that the risks associated with their transport is reduced to an acceptable level. The *Act* also recognizes there must be compliance with the regulatory requirements for the benefit of these requirements to be realized. This recognition is provided in the form of authorities to be used in achieving compliance, such as inspection authorities to promote compliance, and penalties that can be applied in the event of non-compliance.

The Transport Dangerous Goods Directorate has a team of highly trained and experienced inspectors responsible for monitoring compliance with the *TDG Act* and *Regulations*, carrying out investigations and taking enforcement action. The inspection force, distributed in five regional offices across Canada, focuses its efforts on shippers, receivers and importers of dangerous goods and federal carriers.

The primary tool used to provide inspectors with the direction and guidance needed to deliver in a safe and professional manner a compliance program that is fair, effective, efficient, consistent and transparent, is the TDG Inspector Manual. The Manual defines the powers, duties and functions of an inspector; the organization under which an inspector works; the strategy and policies to implement the compliance program; the necessary prerequisites for obtaining and maintaining inspector credentials; the means and measures put in place to respect the safety and health of an inspector; and the means by which the quality of delivery of the compliance program is assessed.

A comprehensive review of the TDG Inspector Manual was recently completed. Some existing chapters were re-written, others were added, deleted or combined, all in an effort not only to ensure that the Manual reflected new or revised government initiatives, strategies, policies and regulatory requirements, but also that it remained relevant to the TDG inspector in guiding his or her day- to-day activities.

A national Training Session for TDG Inspectors took place in October 2006 in Québec City to ensure that all TDG inspectors were thoroughly familiar with the Manual's purpose and content. Over a three-day period, sixty-nine TDG inspectors listened to managers and subject experts review, explain and answer questions on each individual chapter of the Manual.

Feedback from participants indicated that the Training Session was an overwhelming success with the recurring comment being made that the Manual would serve the inspector community well in delivering the TDG compliance program with equal force and consequence.

CANUTEC

May 1, 2006 to October 31, 2006

Number of Calls

Information	5 033
Regulatory	1 875
Technical	4 705
Other	1 307
Total	**12 920**
Emergency Calls	**395**

Source of Emergency Calls

Shipper	7
Carrier	96
Consignee	2
Fire Department	129
Police Department	21
Hazmat Contractor	4
Poison Control	9
Mutual Aid Group	0
Emergency Centre	9
Ambulance Service	3
Medical Facility	6
Laboratory	0
Government	27
Private Citizen	20
Manufacturing Facility	10
Distributor / Retail	6
End User	43
Others	3

Emergency Calls by Class of Dangerous Goods*

Class	1 - Explosives	2
Class	2 - Compressed Gas	85
Class	3 - Flammable Liquids	79
Class	4 - Flammable Solids	8
Class	5 - Oxidizers and Organic Peroxides	28
Class	6 - Poisonous and Infectious Substances	29
Class	7 - Radioactives	5
Class	8 - Corrosives	138
Class	9 - Miscellaneous	10
NR	- Non-regulated	78
Mixed Load	-	9
Unknown	-	16

* includes primary and subsidiary classes, and possibly multiple DGs per emergency.

Emergency Calls by Location

British Columbia	69
Alberta	51
Saskatchewan	17
Manitoba	13
Ontario	125
Quebec	80
New Brunswick	11
Nova Scotia	6
Prince Edward Island	0
Newfoundland and Labrador	7
Yukon	0
Northwest Territories	1
Nunavut	0
United States	14
International	1

Emergency Calls by Transport Mode

Road	100
Rail	84
Air	6
Marine	7
Pipeline	0
Non transport	198
Multimodal	0