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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 Spring 2006 edition of the newsletter. Once again, we have included many interesting articles that, we hope, will provide you with valuable information on the transportation of dangerous goods program.

Our feature article on page 4 is the accident summary report for 2005; a yearly overview of the dangerous goods accident reporting requirements and the "30-day follow-up report". There is also an article on page 7 regarding the means of containment identification markings which must be provided when these reports are completed. Please read these articles carefully for more information.

You will also find other topics of interest including an article on page 12 on how to choose an emergency response contractor; an article on page 15 on the manufacture and use of UN compressed gas cylinders and the question of whether they will become universal; and an article on page 17 on how to determine if an emergency response assistance plan is required for new UN Numbers not yet included in Schedule 1.

Finally, on page 18, we have included the publication of an "ALERT" notice to provide guidance to emergency responders when responding to incidents involving ethanol and gasoline fuel mixtures.

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*

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## Emergency Response Guidebook 2008 - Request for Comments

*by Michel Cloutier*

No, this is not an error in the year identification! As a matter of fact, work has already begun on the revision of the existing ERG2004 and we are soliciting your comments for its update and future distribution which is scheduled for 2008.

The 2004 Emergency Response Guidebook (ERG2004) was developed jointly by Transport Canada (TC), the U.S. Department of Transportation (DOT), the Secretariat of Transport and Communications of Mexico (SCT) and

with the collaboration of CIQUIME (Centro de Información Química para Emergencias of Argentina), for use by fire fighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving dangerous goods. The ERG presently exists in 18 different languages and is used in many countries throughout the world.

The ERG2008 will be the fourth edition of this collaborative publication and will incorporate dangerous goods lists from the 15<sup>th</sup> edition of the United Nations Recommendations for the Transport of Dangerous Goods as well as from other international and national regulations.

We continuously strive to improve the quality of the ERG in order to provide the best and safest recommendations to the emergency responders for their own safety as well as for the safety of the public. Your assistance in this matter is therefore greatly appreciated.

You may wish to familiarize yourself with the database version of the ERG2004 which is available for free download at this address: <http://www.tc.gc.ca/canutec/en/guide/ERG0/ergo.htm>

You may also wish to review the training package developed by CANUTEC on the use and functionality of the ERG that is available free of charge at the following address: [http://www.tc.gc.ca/canutec/en/guide/ERG0/Training\\_ppt.htm](http://www.tc.gc.ca/canutec/en/guide/ERG0/Training_ppt.htm)

The above sources of information may assist you in generating comments and suggestions towards this revision process.

The following topics, among others, are of particular interest and importance:

- inconsistency between the response guidance of the ERG and other sources of technical information;
- error in the assignment of identification numbers to the names of materials;
- error in the assignment of a response guide to the identification number or name of material;
- error in the recommendations of response guides;
- improvement of explanatory text sections of the ERG;
- improvement of placards and silhouettes sections of the ERG;
- improvement of the glossary content;
- explanatory material in the ERG on how to use the ERG.

Please send your comments and any supporting documentation to:

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# FEATURE

## Accident Summary Report 2005

*by Susan Williams, Jonathan Rose and Kim O'Grady*

A "30-Day Follow-up Report" must be completed when the quantity of dangerous goods released in an accident exceeds the amount listed in the table contained in Part 8 of the *Transportation of Dangerous Goods Regulations*.

For 2005, the Transport Dangerous Goods (TDG) Directorate estimates a total of six hundred and forty-five (645) accident reports will be collected. This is slightly higher than the actual number of reports collected for 2004. As of March 2006, four hundred and thirty (430) "30-Day Follow-up Reports" were submitted for accidents which occurred in 2005. Almost 73% (315) of these accident reports are reportable under section 8.3 of the Regulations. This was consistent with the data collected in 2004. The remaining 27% (115) represent "30-Day Follow-up Reports" filed as voluntary accident reports as they fall outside the accident reporting requirements in the Regulations.

An additional two hundred and fifteen (215) accidents were identified from TDG Inspector and Remedial Measures Specialist reports, newspaper clippings and other sources. Of this number, one hundred and four (104) reportable accidents are still outstanding. The remaining one hundred and eleven (111) non-reportable accidents were added to the accident database for analysis purposes. The TDG Directorate only pursues the collection of outstanding "30-Day Follow-up Reports", with the assistance of regional inspectors who conduct follow-up investigations. Letters requesting the filing of outstanding reports are sent to companies who had charge, management or control of the dangerous goods at the time of the accidental release.

Accident reports provide the Directorate with valuable information on what took place, how the accident occurred, its severity, and what response measures were taken to mitigate the event. Therefore, we encourage you to complete your "30-Day Follow-up Report" as soon as possible following an accident. The Directorate also encourages you to continue to provide voluntary accident reports because those accidents that involve minor releases may be an indicator of a much larger event. Accidents where there were no releases of product but represent an imminent threat because the means of containment suffered damage are also of great interest to us. Information from these events assists us in understanding how a means of containment performed during an accident.

When completing the "30-Day Follow-up Report", please remember you are required to provide the means of containment specification, as required under paragraph 8.3(2)(f) of the *TDG Regulations*. For more information on this, please refer to the article "Have You Included the Means of Containment Identification Markings (Specifications) with Your 30-Day Follow-up (Accident) Report?" on page 7 of this newsletter.

For more information on how to complete your report, please contact Jonathan Rose at (613) 990-1142, or by e-mail: [rosej@tc.gc.ca](mailto:rosej@tc.gc.ca).

Below is a short selection of accidents for 2005. Every effort was made to vary this sample of accidents, as much as possible, by choosing different provinces/territories, classes of dangerous goods, modes of transport and means of containment, as well as taking into account the accident severity.

You will note that in 2005, the directorate received the first accident reported from Nunavut since it was established as a Territory on April 1, 1999. Accidents occurring in this area prior to April 1999 were grouped as part of the Northwest Territories.

The accident severity level is based on the following 10 questions:

### The severity level is based on the following 10 questions:

1. Was there a compressed gas or explosive involved?
2. Was there a fire or explosion at the scene?
3. Was there a dangerous goods release?
4. Was there a death, serious or multiple injuries?
5. Was there an evacuation or a road closure?
6. Was the accident reported in the press?
7. Were TC personnel at the accident scene?
8. Was site cleanup required?
9. Was property/equipment damage greater than 65 000 \$?
10. Was there mechanical failure of the vehicle?

A point is assigned for each positive response to each of these questions. The sum of the points for the accidents is shown under “Severity Ranking” to represent the accident severity level. Although rare, a zero severity ranking can be assigned to an accident, indicating no positive responses to any of the questions.

09/03/2005

**Severity Ranking 0**

Iqaluit, Nunavut

Radioactive Material Type A Package

During unloading operations from an aircraft cargo hold, a container containing a capsule of Radioactive Material, **Type A Package**, Special Form, came apart. The capsule then fell to the floor of the cargo hold. There was no release of product, no injuries and no damage to the capsule. The aircraft was cordoned off and emergency response personnel were dispatched to the site to check for radioactive leaks. The shipment was then moved from the cargo hold for further disposition. The authorities cleared the aircraft for return to service.

25/01/2005

**Severity Ranking 2**

Cobble Hill, British Columbia

Explosives Blasting Type B and Detonator Assemblies

During transport, a truck transporting **Bags (UN5H4/Y26.0/S/04)** of explosives blasting type B and **Boxes (UN4G/Y15/S/04,USA+AV1144)** of detonator assemblies, non-electric, experienced a wheel failure. The driver was able to safely pull the vehicle onto the shoulder of the road. There was no release of product and no injuries. Carrier emergency response personnel were on site to check the containers for leaks and damages and to transfer the shipment into another truck. The **Emergency Response Assistance Plan was activated** during the incident.

25/01/2005

**Severity Ranking 2**

Clairmont, Alberta

Formic Acid Solution and Organic Peroxide Type F Liquid

During temporary storage in a chemical van, three of four plastic bulk **Tote Tanks (UN31H1)**, one containing formic acid solution, one containing organic peroxide, type F liquid and one containing flammable liquid, n.o.s. melted after a chemical reaction which generated intense heat occurred releasing 3 000 litres of all products combined. Some of the product leaked out of the van onto the ground. There were no injuries. Emergency response personnel were on site to apply foam and water to the van and totes which neutralized the reaction. The spill was then contained and cleaned up. The early morning temperatures were near zero so the truck heater was on high temperature. During the day, outside temperature increased significantly causing the ambient temperature inside the truck to exceed 30 degrees.

22/12/2005

**Severity Ranking 3**

Scarth, Manitoba

Diesel Fuel and Gasoline

During transport in freezing rain, a compartmentalized **Tank Truck (TC 406)** containing diesel fuel and gasoline went off the road and flipped twice. The tank became separated from the cab and two compartments containing diesel fuel ruptured releasing 9 628 litres of product. The driver sustained minor injuries and was transported to the hospital. Emergency response personnel were on site to contain and clean up the spill, to transfer the remaining product into another tank truck and remove the damaged unit from the accident scene.

14/04/2005

**Severity Ranking 3**

Pointe Claire, Quebec

Helium

During loading operations into a truck, using a two-wheeled handcart, a 152-kilogram **Cylinder (TC 4L)** known as a “Dewar containing helium” fell off the cart releasing 123 kilograms of helium from the valve. There were no injuries. Emergency Response personnel were on site to secure the valve, which stopped the leak.

28/04/2005

**Severity Ranking 3**Gander, Newfoundland  
Sodium Hydroxide

During transport, while rounding a highway curve, a tractor with a **Tank Trailer (MC307)** containing sodium hydroxide solution overturned, skidded down the road and collided with an oncoming vehicle. The unit then went off the road into a ditch releasing 683 litres of product. The driver and two occupants of the other vehicle sustained injuries and were transported to hospital. Emergency response personnel were on site and closed the highway while they contained, neutralized and cleaned up the spilled product, transferred the remaining product into another tank trailer and righted and removed the overturned unit from the ditch.

23/02/2005

**Severity Ranking 4**Lockhart Lake, Northwest Territories  
Acetylene

One of 30 residue **Cylinders (TC3EM)** last containing acetylene, transported in cages on a truck that was parked in a parking lot leaked a small amount of product from a partially open valve. The product ignited causing the cylinder to explode, blowing off the back walls and roof of the truck. There were no injuries. Shipper emergency response personnel were on site to check the remaining cylinders for leaks and damages, transfer the remainder of the shipment into another truck, and clean up the debris from the explosion.

12/05/2005

**Severity Ranking 4**Sheho, Saskatchewan  
Anhydrous Ammonia

During a farm field application, a **Nurse Tank (Non-Specification ASME)** containing anhydrous ammonia experienced a hitch failure while being towed by a farm vehicle. The breakaway coupler owned by the producer failed, causing the hose to stretch and break releasing 2 730 litres of product. There were no injuries. Emergency and Shipper emergency response personnel were on site to investigate the cause of the incident and to remove the nurse tank from the property for inspection and repair.

15/11/2005

**Severity Ranking 4**Moncton, New Brunswick  
Liquefied Petroleum Gas

During a rail yard inspection, a **Rail Tank Car GATX009363 (112J340W)** containing liquefied petroleum gas was discovered leaking a small amount of product from a defective liquid education valve. There were no injuries. Emergency response personnel were on site to transfer the product into another tank car. The tank car was then depressurized and moved to a repair facility. The **Emergency Response Assistance Plan was activated** during this accident.

13/12/2005

**Severity Ranking 5**Grande Prairie, Alberta  
Petroleum Crude Oil

During transport, a **Tank Truck and Pup (TC 407)** containing petroleum crude oil experienced a tire blow out. The unit went off the road and overturned in a ditch with the pup tank rupturing, releasing 20 000 litres of product. The driver, who was initially pinned in the cab of the tractor, was transported to hospital with injuries. Emergency response personnel were on site to contain and clean up the spill, to transfer the remaining product into another tank trailer and to upright and remove the overturned unit from the ditch.

29/01/2005

**Severity Ranking 5**Kerwood, Ontario  
Sulphuric Acid

During transit, a train derailed 17 rail cars including one rail tank car **Rail Tank Car GATX006115 (DOT111A100W)** containing sulphuric acid, which sustained damage releasing 70 000 litres of product. There were no injuries. Emergency response personnel were on site to contain and clean up the spilled product, transfer the remaining product into another rail tank car and clean up the damaged tank car on site.

12/10/2005

**Severity Ranking 5**

Montréal, Quebec

Sodium Hydrosulphite

During transport on a highway on-ramp, a tractor-trailer transporting 12 **Intermediate Bulk Containers (UN11A)** containing sodium hydrosulphite overturned, three of which sustained damage releasing a small amount of product into the trailer resulting in a chemical reaction and fire. There were no injuries. Emergency response personnel were on site and closed the highway while they removed the containers from the trailer and placed them, one at a time, into a large container filled with water where they were opened allowing the product to be released and neutralized on contact with the water. The **Emergency Response Assistance Plan was activated** during the incident.

06/03/2005

**Severity Ranking 5**

Dartmouth, Nova Scotia

Propane

Just after loading from a plant bulk storage tank containing propane into a **Tank Truck (MC 331)**, the unit drove away from the loading rack with the transfer hose still attached. The open end of the disconnected hose landed 9 metres away beside a second **Tank Truck (MC331)** of propane with its engine running. There was a release of 500 litres of liquid propane from the hose, which ignited, burning the cab of the second truck and scorching its tank. There were no injuries. Emergency response personnel were on site to extinguish the fire and secure both tank trucks.

## Have You Included the Means of Containment Identification Markings (Specifications) with Your “30-Day Follow-up (Accident) Report”?

*by Susan Williams, Jonathan Rose and Kim O’Grady*

The TDG accident reporting requirements place emphasis on acquiring the means of containment identification markings (specifications). The person responsible for completing the “30-Day Follow-up Report” must provide identification markings on the means of containment involved in the accident in accordance with paragraph 8.3(2)(f) of the *TDG Regulations*.

This specific reporting requirement is in keeping with the Directorate’s focus on ensuring that the appropriate means of containment is used to transport dangerous goods. The “30-Day Accident Reporting: What’s New?” feature article published in the TDG Newsletter Winter 2002-2003 Edition, explained in detail the identification marking information that is required.

This information helps to develop, maintain and improve the national standards that govern the manufacture, use, test or re-qualification of the means of containment. Specific problems are identified and lessons are learned about the performance of the means of containment under accident conditions. For example, accident reports supported recent improvements to hose inspection, test and marking requirements for loading or off-loading a highway tank. In many cases, the means of containment performed above and beyond the minimum levels found in the standard.

The specification markings document the life history of the means of containment. The identification markings that describe the means of containment change for each type of container.

The reporting of means of containment identification markings continues to improve. Unfortunately, the Directorate receives many reports which contain incomplete identification marking information on the means of containment. The table on the next page provides examples to demonstrate the difference between the incomplete information that is received and the identification marking information that is required. Notice that some of the examples are unique to the mode of transport.

Every day more companies include containment identification markings on the “30-Day Follow-up Reports”. The Directorate continues to assist persons completing these reports with respect to the reporting requirements including the identification marking information on the means of containment.

We encourage persons responsible for completing the “30-Day Follow-up Report” to review the “30-Day Accident Reporting: What’s New?” feature article published in the TDG Newsletter Winter 2002-2003 Edition. We appreciate the cooperation provided to improve the collection of accident information that is necessary to build safe means of containment.

**Note:** The TDG Newsletter Winter 2002-2003 Edition can be found at the following address: [www.tc.gc.ca/tdg/newsletter/menu.htm](http://www.tc.gc.ca/tdg/newsletter/menu.htm).

## MEANS OF CONTAINMENT

## IDENTIFICATION MARKINGS

## RAIL TANK CAR

Tank Car Reporting Mark  
 Tank Car Number  
 Specification  
 Built Date (mm/yyyy)  
 Tank Qualification Date (mm/yyyy)  
 Service Equipment Qualification Date (mm/yyyy)  
 Volume Capacity (gal)  
 Volume Capacity (L)  
 Load Limit (lb)  
 Load Limit (kg)  
 Tare Weight (lb)  
 Tare Weight (kg)  
 Safety Markings  
 DOT Exemption Number or DOT Special Permit Number  
 TC Permit for Equivalent Level of Safety Number

## INCOMPLETE

TDGX  
 123456

05/2005

## COMPLETE

TDGX  
 123456  
 112J340W  
 03/2003  
 05/2005  
 04/2004  
 20 930  
 79 250  
 202 200  
 91 700  
 60 800  
 27 600  
 INHALATION HAZARD  
 DOTE Number or DOT SP Number  
 SR- Number

## CYLINDER

Specification Designation (followed by service pressure (in bar))  
 Manufacture Date (mm/inspector's mark/yy)  
 Manufacturer's Serial Number  
 Manufacturer's Registered Mark or Symbol  
 Requalification Marks (mm/requalifier's mark/yy)  
 Water Capacity (L)  
 Other Markings (where applicable)  
 - Service Temperature Degrees Celsius  
 - Tare Weight (kg)  
 - Mass (kg)  
 - Rejection Elastic Expansion (mm)  
 - Dip Tube Length (mm)  
 \* - does not apply to this type of cylinder

## INCOMPLETE

TC-4BAM

## COMPLETE

TC-4BAM17  
 081A0196 or 04'symbol'98  
 123245  
 M1234  
 08 AB1 06 or 04 'symbol' 08  
 450  
 ST 100 C  
 20  
 15  
 \*  
 4

## TOTE TANK

Specification  
 Serial Number  
 Module Number  
 Gross Weight (lb)  
 Gross Weight (Kg)  
 Volume Capacity (gal)  
 Volume Capacity (L)  
 Tare Weight (lb)  
 Tare Weight (Kg)  
 Original Test Date  
 Material  
 Minimum Material Thickness  
 Retest Date

## INCOMPLETE

UN31A

## COMPLETE

UN31A/Y/03/03/CAN/4.267/11973/28090  
 1403679  
 5134098  
 6 180  
 2 809  
 295  
 1 340  
 580  
 263  
 03/03  
 304 STAINLESS STEEL  
 10 GAUGE 3.2 MILLIMETRES  
 R 09/05 33-19

## HIGHWAY TANK TRUCK &amp; PUP

Tank Specification Mark  
 Tank Manufacturer or Assembler  
 TCRN or MDIN Number\* (found on new tanks since August 2002)  
 Certification Date (Manufacturer Date)  
 Tank Manufacturer Serial Number  
 Tank Capacity by Compartment  
 Test/Inspection Marks (date, test, facility)  
 Tank Vehicle Configuration  
 \* TCRN = Transport Canada Registration Number and  
 MDIN = Manufacturer's Design Identification Number

## MAIN TRAILER INCOMPLETE

TC 306

## MAIN TRAILER COMPLETE

TC-306-AL CRUDE  
 ABC Engineered Products  
 12345 (MDIN)  
 1997  
 03/1997  
 2AEAPRBNZ000123  
 27 000  
 17 000/10 000 LITRES (2 compartments)  
 Visual/Leak  
 03/06VK762  
 Straight truck

## PUP TRAILER INCOMPLETE

407

## PUP TRAILER COMPLETE

TC-407  
 Speciality Tanks Ltd  
 Z-03-762-14-06 (TCRN)  
 01/2000  
 3DEFTHZ000324  
 16 000 LITRES  
 08/05PVIK762  
 Trailer

## An Invitation to Test a Web Application for “30-Day Follow-up Report”

A “30-Day Follow-up Report” must be completed when the quantity of dangerous goods released exceeds the amount listed in the table contained in Part 8 of the *Transportation of Dangerous Goods Regulations*. In response to requests by companies, and to help facilitate reporting, the Directorate has been developing a web application to enable interested companies to file the “30-Day Follow-up Report” online.

At present, several local Ottawa companies were selected to help evaluate and improve an early version of the web application. The Directorate now seeks interested parties that would like to take part in a limited trial of the online application. Should you or your company be interested, please contact Jonathan Rose by e-mail at: [rosej@tc.gc.ca](mailto:rosej@tc.gc.ca) or by telephone at: 613 990-1142.

All comments and suggested improvements would be documented and considered in future versions of the web application.

## Incident Response Workshop – February 8, 2006

*by Fred Scaffidi*

### Introduction



Transport Canada, the Canadian Chemical Producers' Association (CCPA) and other industry trade associations hosted an Incident Response Workshop at the Marriott Hotel in Ottawa on February 8, 2006. The theme of the workshop was Collaboration - Cooperation - Coordination - Communication. Its purpose was to examine the roles, responsibilities and capabilities of the various response organizations at major transportation incidents involving dangerous goods.

Responses to major transportation incidents involving dangerous goods occur in an environment that is both complex and dynamic. Many public and private sector organizations attend the scene of an incident, each having its own mandate, authorities and priorities. Past experiences have shown that successful responses are grounded in good collaboration, cooperation, coordination and communication amongst all responders (the so-called “C-4”).

The response to a number of major incidents in recent years have led to discussions between Transport Canada and several industry associations regarding the benefit of meeting outside the context of an actual incident to foster the C-4.

The workshop included:

- Bringing together representatives from the public and private sector to discuss respective roles, responsibilities and capabilities;
- Identifying outstanding issues and possible follow-up actions.

## Attendance



Eighty delegates attended the workshop. These included representatives from the first response community (fire, police), federal and provincial/territorial governments and industry associations. Representatives from each organization gave presentations, followed by an opportunity for questions from the audience. Some of the highlights are presented below.

## Federal Government Community



Mr. Edgar Ladouceur, Transport Dangerous Goods Directorate, addressing the participants.

Presentations were made by representatives of Transport Canada (Transport Dangerous Goods, Rail Safety, Civil Aviation and Marine Safety Directorates); Transportation Safety Board; Environment Canada; Natural Resources Canada and the Canadian Nuclear Safety Commission. In general, the federal role at accident sites is to ensure that safe, timely and effective actions are taken for the protection of life, health, property and the environment. This is done using the legislative tools available to each organization while respecting jurisdictional authorities that exist in different federal departments and the various levels of government. As highlighted during the workshop, the question of managing or coordinating the response to an incident is a complex one that experience has shown may only be answered as an incident progresses. In fact, many participants expressed the opinion that successful responses to major incidents rested more on the unification of efforts and resources built around information sharing and consensus building than on the unilateral action of a single organization.

## Provincial Government Community



Mr. Terry Wallace, Government of Alberta, addressing the participants.

The emphasis was placed on provincial notifications of incidents with a number of provinces highlighting their notification requirements and the action taken once notification is made. Each province has its own internal process for dealing with dangerous goods incidents and is often capable of dispatching inspectors to the scene on short notice. For example, the province of Alberta can dispatch investigators/inspectors to the scene, supervise remediation and conduct an environmental compliance review. The provincial contacts must never be left out of the loop during an incident.

Of interest is that the province of Quebec has recently strengthened their *Civil Protection Act* to allow for better coordination of provincial government resources during emergencies.

## First Response Community



The Police and Fire Services are often the first response organizations to arrive at an accident scene. Fire Departments are trained to deal with hazardous materials according to the National Fire Protection Association Standards. Technician level personnel are primarily available in larger urban centres although these can be made available to rural areas, if needed. As important as it is to know what fire departments can do, it is also important to know that they are not there to clean up spills nor to accept responsibility for obtaining resources (e.g. contractors) to perform tasks on site. One of the key messages that came out of the Fire and Police presentations was their need for training and response aids in the dangerous goods area.

The coroner presentation highlighted the potential conflicts that can arise at an incident scene. For example, a request from the coroner that deceased persons not be moved (for evidentiary purposes) at an incident scene may conflict with the activities of the incident responders who may have to disturb the bodies in order to effect remedial measures. The coroner presentation also highlighted something called the “CSI Effect” in which laboratory results are expected in minutes (as seen on television!) when in fact such results may take days or weeks. Public perception is often not the responder’s reality.

## Industry Community



Mr. Terry Litchfield, Canadian Chemical Producers' Association, addressing the participants as moderator of the workshop.

Presentations were made by representatives of the following organizations: Canadian Chemical Producers' Association; Canadian Fertilizer Institute; Liquefied Petroleum Gas Emergency Response Corporation; Canadian Association of Chemical Distributors; Compressed Gas Producer/Praxair; Canadian Petroleum Products Institute; Canadian Association of Petroleum Producers; Canadian Emergency Response Contractors Alliance; Railway Association of Canada; and the Canadian Trucking Alliance/Ontario Trucking Association.

In general, the presentations highlighted the state of preparedness of the industry and the assets that can be brought to the scene of an incident. Industry expertise, personnel and equipment are vital to the resolution of an incident. The presentations illustrated the overall theme that industry assumes its responsibilities in the transportation of dangerous goods and is putting significant resources towards the goal of preventing and, when required, mitigating unplanned releases. Through the industry association mechanism, resources from one company may be used to assist another company when needed. This increases the scope and effectiveness of response for the benefit of everyone.

Building on the discussions and recommendations made during the workshop, the following initiatives are being examined:

- Pocket size flash cards for first responders – this was suggested as a tool to quickly evaluate a situation.
- Newsletter article regarding the C-4 Workshop - written and published in the TDG Newsletter and posted on the Transport Canada public website to increase awareness.
- Video development – it was suggested that a training video should be produced highlighting the issues surrounding emergency response activities at major incidents involving dangerous goods.
- First responder pamphlet – the purpose of this pamphlet is to provide an additional tool for first responders so that they can quickly assess a situation in terms of available safety marks, shipping documents, requirement for an Emergency Response Assistance Plan, etc.
- The TDG Congress III to be held in the fall 2007 will have a session on incident response that will be dedicated to response and interactions of responders at dangerous goods incidents.

The overall consensus of participants was that the workshop achieved its goals. Many thanks to all who made this event a success and we look forward to seeing many of you at the TDG Congress III which will be held in Ottawa at the Marriott Hotel on October 15<sup>th</sup> and 16<sup>th</sup>, 2007. If you have any questions or comments, please contact Mr. Edgar Ladouceur by e-mail at: [ladouce@tc.gc.ca](mailto:ladouce@tc.gc.ca) or by telephone at: 613 998-6540 or Mr. Fred Scaffidi by e-mail at: [scaffif@tc.gc.ca](mailto:scaffif@tc.gc.ca) or by telephone at: 613 991-9394.

# How Do You Choose an Emergency Response Contractor?

*by Ève Poirier*

Many dangerous goods require an emergency response assistance plan before they can be transported. Some companies do not have enough resources, and rely instead on the services of an emergency response contractor to meet the requirements in Part 7 - Emergency Response Assistance Plan - of the *Transportation of Dangerous Goods Regulations*.

How do you choose the right emergency response contractor? It's not so different than if you were buying a car! You begin by identifying your needs.

First of all, what are the dangerous goods identified in your emergency response assistance plan? What containers will be used to transport them? What equipment is needed to respond to an accident involving these dangerous goods? What is the appropriate training required?

Once you have identified your needs, you may begin shopping! To be sure your contractor is effective and efficient, you will need to verify a number of things.

Is the available equipment appropriate for the dangerous goods identified in your initial emergency response assistance plan if a response is necessary? Does your contractor periodically check and/or maintain the equipment? Does your contractor keep records of these verifications?

Training! Does each team member have extensive training on the hazardous material? Is each member properly trained in all remedial measures that can be taken at an accident scene (i.e. air sampling, container damage assessment, plugging, transfer, neutralization, etc.)? Is there a training plan? Is the training well documented?

And the exercises? How often are they conducted? What type are they? Table top exercises? Simulations? Who participates? Are these exercises documented?

The items on your checklist will vary depending on your initial requirements. After checking the items on your list, you will be able to assess the response capability of each contractor who offers his/her services. It is important to document these assessments so you can determine the

response capability of third parties identified in your emergency response assistance plan.

Whatever your reasons for hiring a contractor, you are responsible for properly implementing your emergency response assistance plan and any remedial measures at the site of an accident.

Additional information can be found on the website of the Canadian Emergency Response Contractors' Alliance (CERCA) at the following address: <http://www.ccpa.ca/Issues/Transportation/CERCA.asp>.

————— **Happy shopping!** —————

# The Width of a Derailment – Why is it of Interest?

*by Michèle Provencher*

On April 23rd 1999, a Via Rail train traveling eastward on the north main track of the Canadian National Chatham Subdivision at Thamesville, Ontario, encountered a reversed switch, crossed over to the south main track and derailed. The derailed train collided with three stationary railway cars on an adjacent track, all of which were loaded with ammonium nitrate.

According to the findings in the Transportation Safety Board of Canada's investigation report “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”.

Indeed, this derailment highlighted four important factors:

- the time stationary dangerous goods railway cars stay in a given location,
- the proximity of these stationary dangerous goods railway cars to the main track,
- the train speed as it could impact on the width of the derailment and the likelihood of hitting railway cars, and
- the population at risk (in this case, the passengers from the passenger train, however it could have been those that live or work close by).

The Transport Dangerous Goods (TDG) Directorate and industry continue to view dangerous goods, especially

those that are time sensitive, as shipments to be expedited. Previously, the Canadian Transport Commission regulated this activity. Today, industry has long standing practices in place through the Railway Association of Canada circular DG-1.

The circular DG-1, entitled “*Recommended Practice for the Safe Handling of Cars Loaded with Dangerous Goods Delayed in Transit on Railway Property*”, was updated on June 30, 2005 following recommendations by the working group established by the TDG General Policy Advisory Council<sup>1</sup>. The circular requires dangerous goods such as temperature controlled substances of class 4.1 or 5.2 to be moved as expeditiously as possible. Also included in the circular are distances from holding tracks to residences and places of assembly as well as the separation distance between a holding track and the main

line (15 metres for class 1, 2, 3, 6 and 7 dangerous goods and 8 metres for class 4, 5, 8 and 9).

In November 2005, a contract was awarded to Transys Research Ltd. to conduct a detailed review of train collisions and derailments in North America, evaluate the risk of hitting stationary railway cars of dangerous goods on a siding next to a main line, and provide recommendations to mitigate the associated risks with particular emphasis placed on the width of the derailment and train speed. A project steering committee comprised of representatives from the Railway Association of Canada, Canadian National, Canadian Pacific Railway, the Transportation Development Centre and the Transport Dangerous Goods Directorate is overseeing the project. It is expected to be completed by the end of 2006.



2 December 1997  
Laggan Subdivision, BC



23 April 1999, Thamesville, ON



21 February 2003, Belleville, ON



6 January 2005, Graniteville, SC



3 August 2005, Lake Wabamun, AB

<sup>1</sup> The TDG General Policy Advisory Council's role is to advise the Minister of Transport, Infrastructure and Communities on various issues related to the transportation of dangerous goods. The Council has 25 members. The current member positions are drawn from specific sectors or organizations with an interest in the safe transportation of dangerous goods.

# Partnering with our CN Customers

by Jean Ouellette

First introduced in 1992, CN's Safe Handling Awards (SHA) are presented each year to CN customers that load 100 or more tank cars with dangerous goods on its North American network and meet established standards, according to the total number of regulated shipments for all facilities. The purpose of the SHA program is to recognize customers for their outstanding achievements.

To determine eligibility, CN monitors non-accident releases (NAR's) for both loaded and residue tank cars carrying dangerous goods. Non-accident release, or NAR, is an industry term, which designates a tank car that has been found leaking, although it has not been involved in an accident. Our customers and our employees work together to meet the day-to-day challenges of maintaining a safe operation. The CN Safe Handling Awards reward

customers for thoroughness and care in handling dangerous goods. They work hard to make safety their priority, which is a goal we share.

The Safe Handling Awards are an integral part of CN's Responsible Care® program, an ongoing performance improvement initiative in the areas of Health and Safety, Environment, Security and Transportation Community Awareness and Emergency Response (*TRANSCaer*) in which CN is a very active partner, both in Canada with the Canadian Chemical Producers' Association and the U.S. American Chemistry Council.

CN Safe Handling Awards are determined based on the combined aggregate numbers of dangerous goods cars shipped by each company and who meet the thresholds identified below. All CN customers who ship a minimum of 100 loaded tank cars in a calendar year are automatically included in the program. CN monitors NAR's (loads & residues) on cars carrying dangerous goods to determine eligibility. NAR's are "assigned" to shippers as per shipping documents. Customers must not exceed the indicated maximum NAR's shown in the table below to qualify for a Safe Handling Award.

Number of loaded tank cars shipped	Gold Award NAR's	Silver Award NAR's	Bronze Award NAR's
100 - 4 999	0	Not Applicable	Not Applicable
5 000 - 9 999	0	1	Not Applicable
10,000 +	0	1	2

## CN has awarded its coveted 2005 Safe Handling Awards to the following 93 dangerous goods shippers in Canada and the United States.

A N Resources Inc.	LYONDELL CHEMICAL COMPANY
Afton Chemical Corporation	Mitsubishi Gas Chemical America, Inc.
Agrium Inc.	Moose Jaw Asphalt Inc.
Air Liquide Canada	Multichem Inc.
Air Liquide USA llc	Murphy Oil Corporation
Air Products and Chemicals, Inc.	Nalco Chemicals
Airgas Carbonic	NGL Supply Co. Ltd.
Ameropan Oil Corporation	NORFALCO SALES INC.
Ashland, Inc.	NOVA Chemicals
Border Chemical Company Limited	Osmose, Inc.
BP Products North America	PETRESA
Brenntag Canada Inc.	PETROMONT SOC EN COMMANDITE
Canada Colors and Chemicals Limited	Pine Lake Corn Processors LLC
Canadian Enetrprise Gas Products Ltd	Pioneer
Canexus Chemicals Canada L.P.	Plains Marketing Canada L.P.
Chemtura Corporation	Pope & Talbot Ltd, Mackenzie Pulp Operations
Citgo Petroleum Corporation	PotashCorp.
Crosstex Energy Services	PPG Industries, Inc.
Cyro Industries	PRAXAIR
Cytec Industries, Inc.	PREMCOR USA
Dynea USA Inc.	Provident Energy Trust
EKA CHEMICALS	Quadra Energy Trading Ltd.

Elbow River Marketing Lp	Reagent Chemical & Research, Inc.
Epco Cabon Dioxide Products Inc.	Rhodia Inc.
Federated Coop Ltd	ROYSTER CLARK NITROGEN
GE Petrochemicals	SemStream L.P.
Georgia-Pacific Resins, Inc.	Shell Oil Company
Gibson Energy Ltd.	Simplot Canada Limited
Hexion Specialty Chemicals, Inc.	Southern Chemical Corporation
Honeywell International, Inc.	Statoil ASA
Hydrite Chemical Company	Stepan Company
IMTT Saint Rose Terminal	Sun Chemical Corporation
Ineos Fluor Americas Llc	Sunoco, Inc.
INTERNATIONAL CHEMICAL CO	Targa Midstream Services
INTERNATIONAL COMMODITIES EXPORT CO	TEMBEC Inc - Chetwynd / Three Nations Ventures
Invista (Canada) Company	Terminaux Canadiens Canterm Inc
Irving Oil Limited	TERRA INDUSTRIES, Inc.
JLM Chemicals	Texpar Energy Llc
Kemiron	The Dow Chemical Company
Keyera Energy	The International Group, Inc.
Kinder Morgan Liquid Terminals Llc	Tidal Energy Marketing Inc.
Kinetic Resources (LPG)	Ultramar LTD
KOCH NITROGEN COMPANY	United Bio Energy LLC
Koppers, Inc.	VFT Canada Inc
LANXESS	Williams Olefins, L.L.C.
LBC Baton Rouge LLC Sunshine Terminal	WRR ENVIRONMENTAL SERVICES CO INC.
Lucite International, Inc.	

## UN Compressed Gas Cylinders: Will They Be Universal?

*by Zenon Lewycky*

The rupture of a compressed gas cylinder can cause grave or fatal injury to persons and damage to property. Most developed countries, including Canada, have enacted strict regulations governing the design, manufacture and use of compressed gas cylinders. In good part due to the requirements of these regulations, compressed gas cylinders used in Canada are very safe and robust, and failures are exceedingly rare.

Most countries currently require that cylinders used within their respective jurisdictions be manufactured and approved under their own domestic regulations. Most countries do not permit the use of cylinders approved by any foreign authority. This is the case in the United States where, with few exceptions, only DOT cylinders are authorized; this is the case in Canada where for cylinders manufactured since 1993 only TC cylinders are authorized; and this is the case in Europe where cylinders must be authorized under an individual country's domestic rules for use in that country, or must be approved under the EU's Transportable Pressure Equipment Directive for use within the EU and bear the "π" mark.

The current framework allows each individual country to regulate the safety of compressed gas cylinders to a level and in a manner it deems appropriate, and to effectively enforce these requirements on cylinders used within its borders. However this approach complicates the burden on anyone wishing to transport compressed gas from one country to another, or to use a cylinder in more than one country, since approval for the cylinder is required from each country where it would be used. (Thus many TC cylinders used in Canada also carry the DOT approval so that they may also be used in the United States).

The UN Recommendations on the Transport of Dangerous Goods serve as a model regulation to facilitate harmonization of regulatory requirements among countries so as to promote safety without undue hindrance to international trade. The Transport Canada *TDG Regulations* are closely harmonized in most respects with the UN Recommendations. The UN Recommendations on the Transport of Dangerous Goods were first published in 1956 but it was not until their twelfth edition in 2000 that recommendations on the transportation of compressed gases in cylinders were included. By the year 2000, small packagings, Intermediate Bulk Containers (IBC's) and portable tanks, manufactured to specifications in the UN Recommendations and identified by the UN symbol, were in common use and had gained worldwide acceptance for dangerous goods transport by regulatory authorities. In the case of these UN packagings, the regulatory authorities in the countries of use accept as sufficient the regulatory approval granted to the packaging by the country of its manufacture.

Why were the UN Recommendations on cylinders so late in coming? The technical requirements for UN cylinder manufacture are relatively prescriptive and detailed. It took many years of effort for agreement to be reached on internationally harmonized cylinder manufacturing requirements and for the first ISO cylinder manufacturing Standards to be published. The recommendations on UN cylinder manufacture are based on ISO Standards.

But harmonization of technical requirements is only part of what is required for a UN cylinder to be “universal”. Wide acceptance of a cylinder requires that countries of use must accept as sufficient the certification of a cylinder by the country of manufacture or other country. Some regulatory authorities express reservations about accepting a certification granted by a foreign country for a container whose failure could cause severe consequences. It is true that cylinder manufacture is now taking place in developing countries where oversight may not be to western standards. The participants in the UN committees developing the text for the Recommendations on cylinders tried to foster the necessary confidence by including provisions in the UN Recommendations for a system for conformity assessment and approval. In the end, however, it remains up to each country to decide, when adopting the UN Recommendations on cylinders into their domestic regulations, whether their own approval is required on UN cylinders used within their jurisdiction or whether they would accept the approval of the country of cylinder manufacture or other.

So where do things stand now? We are not aware of any UN marked cylinders being manufactured today. In addition, we are not aware of any country that has domestic regulations on gas cylinders where certification of a cylinder to UN requirements by a foreign country of manufacture is sufficient to qualify the cylinder for use.

In the United States, the DOT published a Notice of Proposed Rulemaking HM 220E on March 9, 2005 which proposed the adoption of UN cylinders for use in the United States. This NPRM proposed that the US DOT must approve each manufacturer of UN cylinders for use in the United States. It also proposed that each UN cylinder used in the United States bear the U.S. country of approval mark. The comment period for HM 220E closed on September 6, 2005 and no further notices have appeared so far from the DOT on this issue.

In Canada, Transport Canada led a working group under the CSA B339 Committee to draft text for new Standards for the manufacture of UN cylinders and for the use of UN cylinders in Canada. This work is now well advanced but, so far, most participants have preferred to wait for firmer indication of how the approvals for UN cylinders will be implemented in other countries, notably in the United States, prior to finalizing the Canadian requirements. The U.S. policy on recognition of UN cylinder approvals is likely to be mirrored in Canada.

## ICAO TI's 2005-2006

The 2005/2006 edition of the ICAO Technical Instructions and its Addenda (Doc 9284-AN/905 dated March 18, 2005 and June 30, 2005) reflect amendments made to the Infectious Substances requirements published in the 13th revised edition of the UN Model Regulations and certain requirements in the 14th revised edition. These requirements were developed in coordination with experts from the World Health Organization (WHO) and other technical experts in the field of transport, packaging and health. For more information please consult the following website: <http://www.tc.gc.ca/CivilAviation/commerce/DangerousGoods/guidance.htm>

## Packing Instructions

The packing instructions in the International Civil Aviation Organization's (ICAO) *Technical Instructions for the Safe Transport of Dangerous Goods by Air* have been the subject of an extensive review by ICAO's Dangerous Goods Panel (DGP) which has resulted in proposed revisions to their design and content. Packing instructions for Classes 3, 4, 5, 8 and 9 and Division 6.1 were the subject of this review; the remaining packing instructions are already aligned with those in the United Nations Recommendations on the Transport of Dangerous Goods.

Accordingly, the Dangerous Goods Panel is initiating public consultation prior to considering the inclusion of the revised instructions in the 2009-2010 edition of the Technical Instructions (TIs). Users of the TIs (shippers, regulators, carriers, trainers, etc.) are encouraged to review the proposed packing instructions presented in the Consultative Document and to provide feedback by completing the survey before **March 22, 2007**. Please visit the following website for more information: <http://www.icao.int/anb/FLS/DangerousGoods/PackingInstructionsMain.cfm>

# New UN Numbers and Emergency Response Assistance Plans (ERAPs)

by John A. Read and Réjean Simard

The requirement for an emergency response assistance plan (ERAP) is set out in section 7 of the *Transportation of Dangerous Goods Act, 1992*. To determine if this requirement applies to specific dangerous goods, Schedule 1 of the regulations must be consulted. If there is an index number in column 7 of Schedule 1 associated with the dangerous goods, that is the quantity limit above which the dangerous goods must have an ERAP. If there is no index number in column 7, an ERAP is not required.

However, as new shipping names are added to the UN Recommendations every two years, it is likely there will always be at least a few new shipping names (numbers) that are not yet in Schedule 1 of the Regulations.

Since these new shipping names(numbers) can be used on a shipping document in Canada, how does a person determine if an ERAP is required if the new shipping name (number) is not yet in Schedule 1?

In this case, that is for each new shipping name (number) that does not exist in the *TDG Regulations*, the classification under the existing Regulations must be determined (usually a simple task) and, using the shipping name (number) from the current regulations, a person would check in Schedule 1 to see if an ERAP is required. If so, then the new shipping name (number) would also require an ERAP.

To simplify this, you will find on the right a list of UN numbers for those currently existing new shipping names (numbers) that require an ERAP, and the column 7 index number for each one. Caution: This list covers the 14<sup>th</sup> edition of the UN Recommendations.

This interpretation of how to proceed when dealing with new UN shipping names (numbers) that are not yet in Schedule 1 will be formalized in the Regulations (Amendment No. 6) in a new subsection 7.1(7) below:

(7) Any substance that would require an emergency response assistance plan when a classification is determined in accordance with Part 2, Classification, requires an emergency response assistance plan when a classification from the ICAO Technical Instructions, the IMDG Code or the UN Recommendations, is used as permitted in section 1.10 of Part 1.

Questions concerning ERAPs may be directed to Réjean Simard, 613 991-9396, [simarrj@tc.gc.ca](mailto:simarrj@tc.gc.ca) or to Edgar Ladouceur, 613 998-6540, [ladouce@tc.gc.ca](mailto:ladouce@tc.gc.ca).

## NEW UN NUMBERS AND PACKING GROUPS REQUIRING AN ERAP WITH THEIR ERAP INDEX

UN NUMBER AND PACKING GROUP	ERAP INDEX
UN3361, PG II	1 000
UN3362, PG II	1 000
UN3364, PG I	75
UN3365, PG I	75
UN3366, PG I	75
UN3367, PG I	75
UN3368, PG I	75
UN3369, PG I	75
UN3370, PG I	75
UN3375, PG II	1 000
UN3376, PG I	75
UN3380, PG I	75
UN3381, PG I	1 000
UN3382, PG I	1 000
UN3383, PG I	1 000
UN3384, PG I	1 000
UN3385, PG I	1 000
UN3386, PG I	1 000
UN3387, PG I	1 000
UN3388, PG I	1 000
UN3389, PG I	1 000
UN3390, PG I	1 000
UN3391, PG I	1 000
UN3392, PG I	1 000
UN3393, PG I	1 000
UN3394, PG I	1 000
UN3395, PG I	1 000
UN3396, PG I, II	1 000
UN3397, PG I, II	1 000
UN3398, PG I, II	1 000
UN3399, PG I, II	1 000
UN3401, PG I	1 000
UN3402, PG I	1 000
UN3403, PG I	1 000
UN3404, PG I	1 000
UN3413, PG I, II	1 000
UN3414, PG I, II	1 000
UN3421, PG II	1 000
UN3433, PG I	1 000
UN3439, PG I	1 000
UN3440, PG I	1 000
UN3448, PG I, II	1 000
UN3449, PG I	1 000
UN3450, PG I	1 000
UN3461, PG I	1 000
UN3462, PG I	1 000
UN3464, PG I	1 000
UN3465, PG I	1 000
UN3466, PG I	1 000
UN3467, PG I	1 000
UN3468	1 000
UN3471, PG II	1 000



# ALERT

## Responding To Alcohol And Petroleum Product Mixtures Incidents

Transport Canada and the Pipeline and Hazardous Materials Safety Administration (PHMSA) of the United States Department of Transportation are currently evaluating the need for changes to shipping descriptions for alcohol/gasoline fuel mixtures to ensure that these mixtures are readily identifiable and refer emergency responders to guidance specifying use of alcohol-resistant foam. In the interim, Transport Canada and PHMSA recommend the use of alcohol-resistant foam to fight fires involving fuel mixtures known to contain or potentially contain alcohol such as ethanol and gasoline fuel mixtures.

During the past few years, various mixtures of petroleum products with alcohols have become increasingly available. These mixtures can include non-polar (water-immiscible) flammable organic solvents such as toluene, xylenes, gasoline as well as others mixed with various alcohols that are polar (water-miscible).

When dealing with mixtures that contain a high percentage of alcohol (example ethanol) and a low percentage (maximum 5%) of petroleum products (example gasoline), the following shipping name is to be used:

ALCOHOLS, N.O.S., Class 3, UN1987, (mixture of alcohol with a petroleum product content **up to** 5%). The Emergency Response Guide 2004 (ERG2004) refers this material to Guide 127 where firefighting recommendations refer appropriately to the use of alcohol-resistant foam. <http://www.tc.gc.ca/canutec/erggmul/guidepage.aspx?guide=127>

When dealing with mixtures that contain a high percentage of alcohol and **more than** 5% of petroleum products or when dealing with mixtures that contain a high percentage of petroleum products with a low percentage of alcohols, the following shipping name is to be used:

FLAMMABLE LIQUIDS, N.O.S., Class 3, UN1993. The ERG2004 refers this material to Guide 128 where firefighting recommendations refer to the use of regular foam. This recommendation is appropriate for flammable petroleum liquids and for mixtures of petroleum products containing less than 10% alcohol. However, for mixtures that contain more than 10% alcohols, regular foam will be ineffective as a firefighting media.

It is for this reason that, while revising the ERG2000 information for the preparation of the ERG2004, Guide 128 was modified to include a special precaution when handling fires involving mixtures of petroleum products with alcohols containing more than 10% alcohols as follows: <http://www.tc.gc.ca/canutec/erggmul/guidepage.aspx?guide=128>

**CAUTION: For mixtures containing a high percentage of an alcohol or polar solvent, alcohol-resistant foam may be more effective.**

Summary of recommended ERG Guide:

Concentration of Alcohols	Concentration of Petroleum Products	Shipping Name	UN Number	ERG2004 Guide Number	Special Firefighting Precaution
High (95 to 100%)	Low (0 to 5%)	ALCOHOLS, N.O.S.	1987	127	Alcohol-resistant foam is recommended.
High (less than 95%)	Low (but more than 5%)	FLAMMABLE LIQUIDS, N.O.S.	1993	128	CAUTION alcohol-resistant foam may be more effective.
Low (less than 10%)	High (90 to 100%)	FLAMMABLE LIQUIDS, N.O.S.	1993	128	Use regular foam or alcohol-resistant foam.
Low (but more than 10%)	High (less than 90%)	FLAMMABLE LIQUIDS, N.O.S.	1993	128	CAUTION alcohol-resistant foam may be more effective.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) of the United States Department of Transportation has recently issued a SAFETY ALERT concerning the response to incidents that involve ethanol and gasoline fuel mixtures. This Alert focuses on E85, the most common of these fuels (85% ethanol and 15% gasoline). As described above, the shipping name for this mixture is FLAMMABLE LIQUIDS, N.O.S., (ethanol, gasoline) UN1993. The ERG2004 refers this material to Guide 128 and since this mixture contains more than 10% ALCOHOLS, it is therefore recommended that emergency responders **apply** the **CAUTIONARY** phrase shown under the EMERGENCY RESPONSE – FIRE section and use alcohol-resistant foam when dealing with fires involving E85. An alternative, as indicated on the US DOT Safety Alert is to utilize the ERG Guide 127 where the use of alcohol resistant foam is recommended for all cases. ([http://hazmat.dot.gov/E-85\\_042606.pdf](http://hazmat.dot.gov/E-85_042606.pdf))

For more information on E85, please consult the following publication entitled “Handbook for Handling, Storing, and Dispensing E85” published by the United States Department of Energy. The document may be consulted at the following website: [http://www.e85fuel.com/pdf/e85\\_technical\\_booklet.pdf](http://www.e85fuel.com/pdf/e85_technical_booklet.pdf).

The following presents a summary of properties of E85 Fuel Ethanol and is shown as Table 1 in the above-noted publication:

**Table 1. Properties of Fuel Table 1. Properties of Fuel Ethanol**

<b>Property</b>	<b>Comment</b>
<b>Vapor density</b>	Ethanol vapor, like gasoline vapor, is denser than air and tends to settle in low areas. However, ethanol vapor disperses rapidly.
<b>Solubility in water</b>	Fuel ethanol will mix with water, but at high enough concentrations of water, the ethanol will separate from the gasoline.
<b>Energy content</b>	For identical volumes, ethanol contains less energy than gasoline. On an energy basis, 1.0 gallon of E85 is equivalent to 0.72 gallons of gasoline.
<b>Flame visibility</b>	A fuel ethanol flame is less bright than a gasoline flame but is easily visible in daylight.
<b>Specific gravity</b>	Pure ethanol and ethanol blends are heavier than gasoline.
<b>Conductivity</b>	Ethanol and ethanol blends conduct electricity. Gasoline, by contrast, is an electrical insulator.
<b>Stoichiometric fuel-to-air ratio</b>	E85 needs more fuel per pound of air than gasoline; therefore, E85 cannot be used in a conventional vehicle.
<b>Toxicity</b>	Ethanol is less toxic than gasoline or methanol. Carcinogenic compounds are not present in pure ethanol; however, because gasoline is used in the blend, E85 is considered to be potentially carcinogenic.
<b>Flammability</b>	At low temperature (32°F), E85 vapor is more flammable than gasoline vapor. However at normal temperatures, E85 vapor is less flammable than gasoline, because of the higher autoignition temperature of E85.

# Non-Compliant Luxfer Composite Gas Cylinders

by Pascal Verville

Transport Canada has been informed by Luxfer Gas Cylinders (Luxfer) that certain carbon fibre reinforced gas cylinders manufactured at their Riverside, California facility were not manufactured and tested in accordance with the applicable regulatory requirements.

The subject cylinders were designed for use in self-contained breathing apparatus (SCBA) or for use in paintball guns (markers). They are marked "TC-SU 5134" but were not subjected to the autofrettage process and were not hydrostatically tested as specified in the Permit. According to Luxfer, the affected cylinders are marked with initial test dates ranging from May through September 2005.

To remedy the non-conformities, Luxfer has developed a plan for retrieving and retesting the affected cylinders. Written notices have been distributed by Luxfer to the known cylinder owners and users. Moreover, Luxfer has posted news releases and detailed cylinder identification, serial numbers and recovery information on their website database ([www.luxfercylinders.com/ctest](http://www.luxfercylinders.com/ctest)).

Any cylinder marked "TC-SU 5134" and bearing a serial number "matching" one found on Luxfer's above-mentioned website database is not in compliance with the terms of the Permit and must be taken out of service until the remedial measures specified by Luxfer are taken. Luxfer should be contacted at 951 341-5293 to make suitable arrangements.

Number of Calls		<h2>CANUTEC</h2> <p>November 1, 2005 to April 30, 2006</p>	Emergency Calls by Location	
Technical	4 400		<h3>Emergency Calls by Class of Dangerous Goods*</h3> <p>Class 1 - Explosives 10</p> <p>Class 2 - Compressed Gas 70</p> <p>Class 3 - Flammable Liquids 84</p> <p>Class 4 - Flammable Solids 11</p> <p>Class 5 - Oxidizers and Organic Peroxides 20</p> <p>Class 6 - Poisonous and Infectious Substances 22</p> <p>Class 7 - Radioactives 3</p> <p>Class 8 - Corrosives 118</p> <p>Class 9 - Miscellaneous 6</p> <p>NR - Non-regulated 48</p> <p>Mixed Load - 5</p> <p>Unknown - 7</p> <p>* includes primary and subsidiary classes, and possibly multiple DGs per emergency.</p>	British Columbia
Regulatory	1 968	Alberta		42
Information	5 153	Saskatchewan		4
Other	3 224	Manitoba		12
<b>Total</b>	<b>14 745</b>	Ontario		106
<b>Emergency Calls</b>	<b>316</b>	Quebec		81
		New Brunswick		6
		Nova Scotia		6
		Prince Edward Island		0
		Newfoundland and Labrador		3
		Northwest Territories	1	
		Yukon	1	
		Nunavut	1	
		United States	6	
		International	0	
Source of Emergency Calls			Emergency Calls by Transport Mode	
Shipper	6		Road	76
Fire Department	91		Rail	67
Police Department	23		Air	4
Hazmat Contractor	5		Marine	5
Consignee	1		Pipeline	0
Carrier	72		Non transport	163
End User	35		Multimodal	1
Manufacturing Facility	10			
Government	23			
Private Citizen	17			
Laboratory	2			
Emergency Centre	5			
Mutual Aid Group	2			
Ambulance Service	2			
Poison Control	6			
Distributor/Retail	4			
Medical Facility	8			
Others	4			