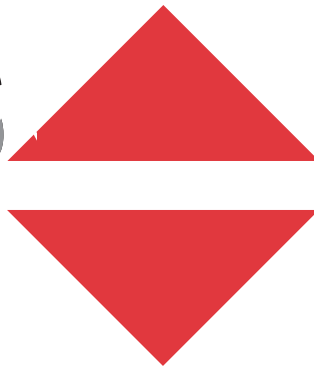




# Dangerous Goods



# Newsletter

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Canada 



Transport  
Canada  
**Safety and Security**  
Dangerous  
Goods

Transports  
Canada  
**Sécurité et sûreté**  
Marchandises  
dangereuses



Agreement Number 1529021

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# Content

• Editorial .....	3	the Compliance and Response Branch of the Transport Dangerous Goods Directorate .....	8
• New TDG Web Site Address .....	3		
<b>Feature</b>			
• To What Should the Regulations Apply? .....	4	• Emergency Response Guide 2000 .....	9
• How Soon is Soon? .....	5	• CANUTEC Statistics .....	10
• Emergency Response Assistance Plan and the Transition to the Clear Language Regulations .....	6	• Accident Summary Report .....	11
• Reminder - Application for Equivalent Level of Safety Permits .....	7	• Cooperative Research Agreement .....	13
• Edgar Ladouceur - The New Director of		• Upcoming Events in TDG .....	13
		• <b>ALERT</b> - Highway Tanks and Portable Tanks for Propane and Liquefied Petroleum Gases (LPG) Transport Under CSA Standard B622-98 .....	14
		• <b>ALERT</b> - Aluminum Cylinders .....	15



The **Dangerous Goods Newsletter** is published quarterly in both official languages by the Transport Dangerous Goods Directorate, Transport Canada, and is distributed to government and industry organizations in the dangerous goods related fields. Subscriptions are free of charge and available to anyone on request by calling (613) 990-1151. This newsletter is also available on our web site at: [http://www.tc.gc.ca/tdg/info/news\\_e.htm](http://www.tc.gc.ca/tdg/info/news_e.htm). Please address inquiries regarding additional information, publication and/or comments to:

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We welcome news, comments or highlights on 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

A new millenium...already here after so many months of anticipation and preparation.

This edition of the newsletter is the first issue of the year 2000; the year we hope to finalize the TDG Regulations in clear language. For more information on the clear language amendments, please refer to an article entitled "How Soon is Soon?" on page 5 of this newsletter.

You should note that our web site has a new address and that we have made improvements to the layout of the site. We have also added two new features and have included a page on the emergency response assistance plans.

You will also be pleased to know that the Emergency Response Guide 2000 is now available for distribution in English, French and Spanish. Please read the article on page 9 to know exactly how to obtain your copy.

Finally, you may recall that in our last issue we indicated that we hoped to reduce the number of copies of this newsletter to one copy per subscriber. We have reviewed the mailing list accordingly and have made the necessary changes. If you must continue to receive multiple copies, please let us know by calling (613) 990-1157 or send an E-Mail to: [majorr@tc.gc.ca](mailto:majorr@tc.gc.ca).

Enjoy your reading and Happy new millennium!

*Renée Major*

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## New TDG Web Site Address

*by Ray Clark*

There have been significant changes to the TDG web site.

First of all, our web address is now: <http://www.tc.gc.ca/tdg/en/menu.htm>. Please update your bookmarks!

We have made improvements to the layout of the site and presentation of our wealth of regulatory and awareness information. Hopefully it is easier to navigate and to find the information you have come to expect from our site. We welcome any comments you may have on this new look and feel.

Two new features of our re-vamped web site of which

we are particularly proud are the dynamic listings of Transport Canada registered marks for **cylinder requalifiers** (<http://www.tc.gc.ca/tdg/en/containers/cylinder/requalifier.asp>) and of **intermediate bulk containers (IBCs) leak test facilities** ([http://www.tc.gc.ca/tdg/en/containers/ibc\\_leak/ibcleak.asp](http://www.tc.gc.ca/tdg/en/containers/ibc_leak/ibcleak.asp)).

The first dynamic database allows users to search by various cylinder requalifier types or by province, city, facility name, or registered mark. The cylinder data is updated on a weekly basis and includes data on requalifier marks that are currently registered, as well as those that are expired.

The IBC leak test facilities database can be searched by company name, province or city. The leak test data is also updated on a weekly basis and only includes data for facilities that hold a current, valid certificate of registration.

Three searchable databases are now on the TDG site: cylinder requalifiers and IBC leak test facilities (both new features), and registered highway, portable and intermodal tanks information which has been available since last winter. Other TDG databases will be available on our web site in the future.

We also have a new **emergency response assistance plans (ERAPs)** page containing a wealth of information on the registration process of ERAPs.

Please don't forget that the TDG Newsletter is also available in pdf format (i.e. Adobe Acrobat Reader) for easy viewing from our web site ([http://www.tc.gc.ca/tdg/info/news\\_e.htm](http://www.tc.gc.ca/tdg/info/news_e.htm)).

Please direct any questions/comments concerning the cylinder requalifier data to Amy Park (613) 990-1137 or [parka@tc.gc.ca](mailto:parka@tc.gc.ca).

Please direct any questions/comments concerning the IBC leak test data to Dave Westman (613) 990-1169 or [westmad@tc.gc.ca](mailto:westmad@tc.gc.ca).

Please direct any questions/comments concerning the TDG web site to Ray Clark (613) 998-0509 or [clarkrw@tc.gc.ca](mailto:clarkrw@tc.gc.ca).

Your source for TDG information is only a click away!

**[http://www.tc.gc.ca/tdg/en/  
menu.htm](http://www.tc.gc.ca/tdg/en/menu.htm)**

# FEATURE

## To What Should the Regulations Apply?

by John A. Read

It has been proposed that the TDG regulations should only be concerned with events which could arise during normal conditions of transport. In particular, they should not attempt to ensure that packages be able to survive accident situations.

The argument to support this proposes that once the regulations are good enough to ensure packages will survive normal conditions of transport, the next application of regulatory authority should be devoted to modal safety to ensure there would only be normal conditions of transport. That is, if the threat to safety comes from modal accidents, then the way to correct this is by regulating the modal traffic rather than 'cranking up' the packaging standards in compensation.

To review this proposal, consider the following comparison of two chemicals.

Characteristics	Substance A	Substance B
Relative Density	1.3266	0.96
Vapour Pressure	400 mm Hg	348 mm Hg
Melting Point	-97 °C	-80 °C
Boiling Point	39.8 °C	39 °C

These characteristics are important during normal conditions of transport. They are similar for the two chemicals, with the main difference being that the first is about 30% heavier than the second.

If we were to stop our considerations here we might conclude that due to its density, Substance A would need a sturdier tank than Substance B in order for neither to be accidentally released under normal conditions of transport.

If we select packaging only to protect from normal conditions of transport, is it reasonable to propose that

if such a package encountered abnormal conditions it would fail? Further, could we assume that the failure rate for such packages would be the same, given that abnormal conditions would occur at random for all packages?

More importantly, if we consider accidents, other characteristics would have to be considered. Consider the flammability of our two substances.

Characteristics	Substance A	Substance B
Lower Explosive Limit	12%	5.3%
Upper Explosive Limit	19%	26%

Substance A has an explosive range of 7 percentage points whereas Substance B has an explosive range three times as large at 21.7 percentage points. Would we be comfortable knowing that if we package only for normal conditions of transport that there would be releases of these and that the number of releases would be the same for each?

Consider the following additional information.

Characteristics	Substance A	Substance B
LC <sub>50</sub>	11,600 ppm	17 ppm
LD <sub>50</sub>	3,000 mg/kg	71 mg/kg

In the table:

ppm stands for parts per million by volume of the substance in air,

mg/kg means milligrams of substance per kilogram of body weight of the test animal,

LC<sub>50</sub> means that concentration of the substance in air which, under the test conditions, results in

the death of 50% of the test animals (lethal concentration 50%) and,

LD<sub>50</sub> means that quantity or dose which, under the test conditions, results in the death of 50% of the test animals (lethal dose 50%).

Observe that the smaller the number, the less of the substance is required to cause harm.

Substance B requires a concentration of only 1/600ths of the concentration of Substance A to provide the same effects in the tests. Would we be comfortable knowing that if we package only for normal conditions of transport that there would be releases of these and that the number of releases would be the same for each?

Substance A is Dichloromethane and Substance B is Methyl Isocyanate.

The proposal that we go beyond normal conditions of transport is already well accepted under, for example, the UN concept of packing groups, the IAEA system of packaging based on radiation, and the selection of railway tank cars in North America. Phrases such as ‘minor accidents’, ‘credible accidents’, ‘severe accidents’ or ‘any accident’ are used in selecting the level of protection required, which is based not only on conditions of transport but on the characteristics of the substance which might be released. For example, dichloromethane falls into PG III (the least severe in the UN system) whereas methyl isocyanate falls into PG I (the most severe in the UN system).

In sum, regulations must take into account what will happen, not just what one desires to have happen, and the potential effects of a release. To regulate by considering substances or articles only during normal conditions of transport would be a serious deficiency and would lead to a very weak public safety program.

## How Soon is Soon?

by Linda Hume

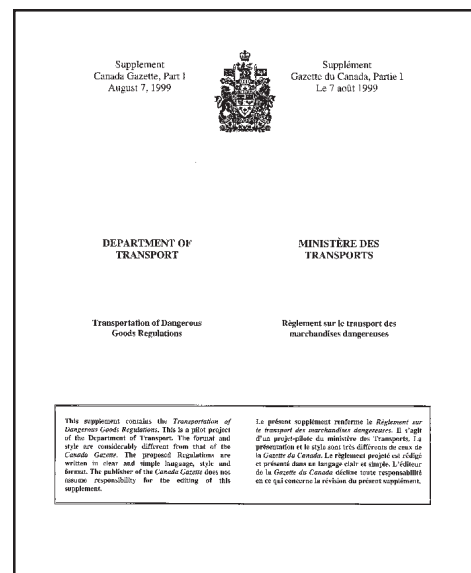
The question everyone is asking now is: “When will clear language be published in Part II of the *Canada Gazette*”.

The comment period ended in early November and, while there were some optimistic guesses as to when clear language would be finalized, the truth is that the process of reviewing comments, making the necessary changes, conducting some consultation, and drafting the final text for legal and departmental approval will take several months.

Presently, we are reviewing the comments and we are placing them in a database so that we can easily retrieve any comments on any area of the Gazette I text. We will use this database to produce a document that will explain, first of all, the changes that we make to the Gazette I text and, secondly, the rationale for accepting or not accepting comments.

We will use the Transport Dangerous Goods Website to keep everyone who has access to the internet up-to-date with our progress and we will also report developments in the next issue of this newsletter.

So ... stay tuned. Hopefully by the time the next issue of the Newsletter is published, we will have completed our review of the comments and we will have a much better idea of how soon “soon” is.





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# Emergency Response Assistance Plan and the Transition to the Clear Language Regulations

by Réjean Simard and Donna McLean

Transport Canada has an active program to register, review, evaluate and approve Emergency Response Assistance Plans (ERAPs), as stipulated in Section 7 of the *Transportation of Dangerous Goods Act*.

There are currently 515 active ERAPs filed with the Director General. These ERAPs allow 959 organizations to handle, offer for transport, transport, or import dangerous goods currently listed in Schedule XII of the TDG Regulations. Examples of these organizations include manufacturers of chemicals, manufacturers and distributors of explosives, gas producers, railway companies, road carriers, emergency response contractors, federal and provincial departments, hospitals and mines.

The review and approval process is usually done in two phases; the registration and interim approval and the review of the ERAP by the Remedial Measures Specialist.

The first phase begins with the receipt, in Transport Canada, of an ERAP summary which is forwarded to the regional Remedial Measures Specialist for a preliminary review of the plan. The Remedial Measures Specialist contacts the applicant to confirm the details, verifies the alerting mechanisms and ensures that the applicant understands the purpose of the response plan. If there are no reasons to believe that the ERAP cannot be implemented, the ERAP summary is registered and an interim approval is issued on the strength of the summary information, in accordance with subsection 7(3) of the TDG Act. This process will remain the same in the proposed Clear Language Regulations. There are currently 112 active ERAPs with interim approval.

The second phase is the detailed review of the

ERAP itself by the Remedial Measures Specialist; the designated dangerous goods inspector who has the authority to access and examine the Plan and any documents, equipment and training relevant to it. The Remedial Measures Specialist reviews all documents on file and contacts the plan custodian to conduct detailed on-site reviews of the ERAP. This review may necessitate requests for changes and/or improvements to the plan. The indefinite approval may be withheld until the Remedial Measures Specialist is satisfied that appropriate actions have been taken to correct any observed deficiencies. In the event that the requested changes have not been made, the interim approval and registration of the ERAP may be revoked, which may result in an organization's inability to conduct its business any longer by preventing it to handle, offer for transport, transport or import Schedule XII dangerous goods. There are currently 403 active ERAPs approved indefinitely.

Depending on the inspector's availability and operations of the applicants, a full review may take place before the ERAP summary is registered and an indefinite approval may be issued without the intermediate step of an interim approval.

The ERAP requirements appear in Part 7 of the proposed Clear Language Regulations. Part 7 sets the minimum essential information required in an ERAP summary. This information has been expanded from the current TDG regulations, however, it is not different from what was requested by the RMSs in their initial review of a summary before registration and the issuance of an interim approval. Therefore, ERAP summaries that currently have an interim approval will retain their interim approval when the Clear Language Regulations come into

force. In the event that an individual summary needs changes, the RMS will inform the custodian of the ERAP summary in the course of his normal routine inspection and verification program and will provide reasonable time for the custodian to submit amendments. It is expected that the changes to the regulations will make the registration process more efficient and will allow for a better response time to any potential applicants.

Part 7 of the Clear Languages Regulations will now cover the contents of an ERAP. It will include the information contained in an ERAP summary; potential accident assessments including the various accident scenarios, potential consequences and remedial actions that should be taken as a result of these accident scenarios; description of the actions that may be taken by the applicant or by contractual resources he/she selected and any formal agreements or contracts with a third party for the provision of response services. This information was not previously required in the TDG Regulations, however over the years of reviewing ERAPs, the RMSs have continually included these items in their review and

considered them before recommending indefinite approval of the ERAPs. The Clear Language Regulations are only formalizing the procedures that were previously informally applied.

The Chief, Response Operations and the regional RMSs held a workshop in May 1999 to review the content of some ERAPs that were indefinitely approved and compared them to the proposed Clear Language Regulations. Their conclusions and recommendations at the time were that all ERAPs that received indefinite approval before the Clear Language Regulations should retain their indefinite approval, provided their content and circumstances have not changed.

These are just some of the changes to the TDG Regulations being proposed in the Clear Language amendment for ERAP requirements. These requirements may be modified following our review of comments received on the Gazette 1 text.

Regional Remedial Measures Specialists will assist and guide applicants through the ERAP registration process. The Regional Measures Specialists are :

<b>Peter Arthur</b>	<b>Ontario Region</b>	<b>(416) 973-2989</b>
<b>Barry Heath</b>	<b>Prairie and Northern Region</b>	<b>(306) 975-5889</b>
<b>Doug Kittle</b>	<b>Pacific Region</b>	<b>(604) 666-8771</b>
<b>Alain Lévesque</b>	<b>Québec Region</b>	<b>(514) 283-6917</b>
<b>Réjean Simard</b>	<b>Atlantic Region</b>	<b>(902) 426-1221</b>

## **Reminder - Applications for Equivalent Level of Safety Permits**

Applications for Equivalent Level of Safety Permits should be sent directly to the Transport Dangerous Goods Directorate in Ottawa. It will prevent unnecessary delays and allow us to provide you with a better service.

Please send your application to :

Marc Prévost  
Chief, Permits and Approvals  
Regulatory Affairs  
Transport Dangerous Goods Directorate  
330 Sparks Street, 9<sup>th</sup> Floor, Place de Ville, Tower C  
Ottawa, Ontario  
K1A 0N5  
by fax: (613) 993-5925  
by E-mail: [prevosm@tc.gc.ca](mailto:prevosm@tc.gc.ca)

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# Edgar Ladouceur

## The New Director of the Compliance and Response Branch of the Transport Dangerous Goods Directorate

by Renée Major

On behalf of all TDG employees, I would like to congratulate Mr. Edgar Ladouceur on his recent appointment as Director, Compliance and Response Branch, Transport Dangerous Goods Directorate.

Mr. Ladouceur holds a Bachelor of Science degree from the University of Waterloo and during his career in the federal public service, has acquired extensive experience in the area of transportation, enforcement, environmental assessment and applied research.

Mr. Ladouceur commenced his employment in 1971 with the newly created Department of Environment. For the next seven years, he worked as a Research Officer at the Wastewater Technology Centre in Burlington, Ontario where he carried out field research in arsenic reduction and cyanide destruction.

In 1978, Mr. Ladouceur joined the Department of Indian and Northern Affairs and moved to Yellowknife, Northwest Territories where he enforced environmental legislation related to offshore oil and gas drilling and arctic mining. In 1983, he moved to the field of environmental impact assessment becoming Regional Manager of the Office of Environment and Conservation in 1985.

In 1986, Mr. Ladouceur moved to Ottawa to join Transport Canada's Transport Dangerous Goods Directorate as Chief, Response Operations. In this



position, he directed a team responsible for the operation of a Canada-wide system of emergency planning and response to transportation accidents involving dangerous goods. This also entailed acting as the contact point for the Directorate for all major transportation emergencies.

Prior to his recent appointment, Mr. Ladouceur was performing the duties of Director, Safety Programs in the Railway Safety Directorate on an interim basis. He contributed significantly to the development of policies and regulations flowing from amendments to the *Railway Safety Act*. He was also responsible for the Directorate's major partnership initiative — Direction 2006 — which is aimed at significantly reducing deaths and injuries resulting from rail crossing and trespassing incidents.



# Emergency Response Guide 2000

by Michel Cloutier

The Emergency Response Guide 2000 (ERG2000) is the result of an International collaborative effort among Canada, the United States and Mexico. Initiated under NAFTA, this project intends to improve hazards communication among the three countries by harmonizing emergency response recommendations to transportation incidents.

The ERG2000 is the second edition of this important publication which will be published in January 2000 and will be available in English, French and Spanish. Accordingly, efforts were directed at consolidating the different dangerous goods/hazardous materials listings in order to cover shipping names used domestically as well as internationally. The ERG2000 list of materials includes shipping names from the *United Nations 6<sup>th</sup> to the 11<sup>th</sup> Recommendations for the Transport of Dangerous Goods*, respective Transport of Dangerous Goods Regulations from Canada, the United States and Mexico, and other international shipping descriptions from the International Civil Aviation Organization (ICAO) and the International Maritime Dangerous Goods (IMDG) Code.

The second edition contains a new user's guide and two complete listings of chemical entries indexed in

both alphabetical and numerical order. These entries are further cross-referenced to 62 emergency response recommendations guidepages clearly identified by a three-digit guide number and a descriptive hazard group title. The guide is further supplemented by the Table of Initial Isolation and Protective Action distances for materials which are toxic by inhalation and a list of materials which generate toxic gases when in contact with water. These water-reactive materials are now listed in the table with their recommended isolation distances. This table also lists chemical warfare agents with accompanying isolation distances and a separate section provides awareness information on the criminal/terrorist use of these materials. This new edition also includes tank truck and tank car silhouettes as an additional means of identifying the potential presence of dangerous goods.

In Canada, the ERG2000 will be distributed to Fire Departments and Highway Police Departments through Federal/Provincial/Territorial Dangerous Goods Committee members. For the above-noted organizations, please see the list of contacts below.

Province	Contacts	E-Mail:
British Columbia	Dale Dickson	dale.dickson@icbc.com
Alberta	Shaun Hammond	shammond@tu.gov.ab.ca
Saskatchewan	Bob Billington	bob.billington.hi0@govmail.gov.sk.ca
Manitoba	Gary Trask	gtrask@env.gov.mb.ca
Ontario	Dave Allen	dave.allen@mot.gov.on.ca
Québec	Guylaine David	gdavid@mtq.gouv.qc.ca
New Brunswick	Jamie Morrison	dmv022@gov.nb.ca
Nova Scotia	Don Evans	evansdj@gov.ns.ca
Prince Edward Island	Wilfred MacDonald	wjmacdonald@gov.pe.ca

Province	Contacts	E-Mail:
Newfoundland	Kim Durdle	durdlek@mail.gov.nf.ca
Nunavut	Tom Watts	twatts@gov.nu.ca
Yukon	John Warkentin	john.warkentin@gov.yk.ca
Northwest Territories	Bill Warren	bill_warren@gov.nt.ca

For all other organizations, the ERG2000 must be purchased. The following companies and government department have informed Transport Canada that they are distributing the new emergency response guide:

- International Compliance Center Ltd.:  
1-800-554-6181
- J.J. Keller and Associates Inc.:  
1-800-327-6868
- Danatec: 1-800-465-3366
- Canadian Government Publishing:  
telephone: 1-800-635-7943 or (819) 956-4800  
fax: (819) 994-1498  
E-Mail: publications@pwgsc.gc.ca  
Web site: <http://publications.pwgsc.gc.ca>



Michel Cloutier (T.C., Chief, CANUTEC and Chuck Doucette (U.S. DOT, Chief, Publications and Distribution Services) with final ERG2000 during press inspection.



<p><b>Number of Calls</b></p> <table> <tr><td>Technical</td><td>3,526</td></tr> <tr><td>Regulatory</td><td>1,451</td></tr> <tr><td>Information</td><td>3,810</td></tr> <tr><td>Other</td><td>3,254</td></tr> <tr><td><b>Total</b></td><td><b>12,041</b></td></tr> <tr><td><b>Emergency Calls</b></td><td><b>287</b></td></tr> </table>	Technical	3,526	Regulatory	1,451	Information	3,810	Other	3,254	<b>Total</b>	<b>12,041</b>	<b>Emergency Calls</b>	<b>287</b>	<p><b>CANUTEC</b> <b>CANUTEC</b></p> <p>September 1, 1999 to December 31, 1999</p>	<p><b>Emergency Calls by Province/Country</b></p> <table> <tr><td>British Columbia</td><td>17</td></tr> <tr><td>Alberta</td><td>34</td></tr> <tr><td>Saskatchewan</td><td>9</td></tr> <tr><td>Manitoba</td><td>7</td></tr> <tr><td>Ontario</td><td>107</td></tr> <tr><td>Quebec</td><td>79</td></tr> <tr><td>New-Brunswick</td><td>8</td></tr> <tr><td>Nova Scotia</td><td>10</td></tr> <tr><td>Prince Edward Island</td><td>0</td></tr> <tr><td>Newfoundland</td><td>0</td></tr> <tr><td>Northwest Territories</td><td>1</td></tr> <tr><td>Yukon</td><td>1</td></tr> <tr><td>United States</td><td>14</td></tr> <tr><td>International</td><td>0</td></tr> </table>	British Columbia	17	Alberta	34	Saskatchewan	9	Manitoba	7	Ontario	107	Quebec	79	New-Brunswick	8	Nova Scotia	10	Prince Edward Island	0	Newfoundland	0	Northwest Territories	1	Yukon	1	United States	14	International	0																						
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# Accident Summary Report

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As of October, 231 Dangerous Occurrence Reports (DORs) have been submitted in 1999. Almost 88% of these reports were classified as reportable under the reporting threshold described in section 9.14 of the Transportation of Dangerous Goods Regulations. The remaining 12% represents DORs which were filed as voluntary accident reports falling outside these accident reporting threshold requirements. Although by definition these voluntary accident reports are non reportable, they still provide valuable information. Often it is the near miss where the means of containment overturned without sustaining any damage and release of product or when emergency personnel provided immediate response to avoid a more severe accident scenario that produces an indication of program performance. As highlighted in the article on page 4 of this Newsletter "To What Should the Regulations Apply?", information on abnormal as well as normal conditions of transport is important.

An additional 64 reportable accidents between January and March were identified from Canutec, Remedial Measures Specialists (RMS) reports, newspaper clippings, etc. The final annual figures will also include both accidents identified from the above sources for the remaining months April to December 1999 and reports received for accidents during November and December until January 31, 2000 allowing for the 30 days reporting grace period. These efforts must be pursued to more realistically reflect transport of dangerous goods accident levels across the country and inevitably help estimate the actual number of reportable dangerous goods accidents.

The accident reporting compliance levels of section 9.14 indicate that there are still some dangerous occurrence reports outstanding. Presently, letters

requesting these outstanding dangerous occurrence reports have been sent to companies believed to be responsible for the dangerous goods consignment at the time of an accident. Any outstanding 30 day reports for 1999 will be pursued with the assistance of the Transport Dangerous Goods inspectors in the regional offices. By the company responsible filing a DOR, the directorate receives the information necessary to make the best possible decisions regarding proposed standards and regulations. As a result, the actual number of DORs identified for 1999 will most likely approach 450, representing a slight increase from last year.

The proposed clear language amendments to the TDG Regulations are significant for 30 day accident reporting. For the first time, two additional pieces of information will be included in the Dangerous Goods Accident Information System (DGAIS). The means of containment specification and the ability to monitor Emergency Response Assistance Plan activation should be available shortly as a result of changes to Part 8, section 8.3. The acquisition of this information will assist in the specific identification of any existing problems with various means of containment. Knowing the frequency of ERAP activation and emergency response personnel attending the accident scene will prove useful to evaluate overall effectiveness and likely confirm the initial plan validation conducted by RMS Inspectors.

For your information, below is a very short selection of these accidents for 1999. 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.

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 injury?
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 in the last column of the table

to represent the accident severity level. For more information, please contact Jonathan Rose at (613) 990-1142, e-mail:rosej@tc.gc.ca

Date	Location	Substance	Incident Details	Accident Severity Level
01/13/99	Mayne Island, British Columbia	Trimethylchlorosilane, Poisonous Liquids, Dimethyldichlorosilane and Phosphorus Tribromide.	During transport, a cargo airplane transporting a box containing four small packages of products listed on the left crashed and burned destroying the box and the entire contents of the shipment, which was less than one litre for all products combined. The two pilots suffered fatal injuries. Emergency response personnel were on the scene to extinguish the fire and secure the area before conducting an investigation.	4
02/10/99	Lethbridge, Alberta	Sulphur, Molten	During rail yard operations, the insulation area of a residue rail tank car last containing molten sulphur caught on fire. There was no release of product and no injuries. Rail emergency response personnel and a Fire Department were at the scene to extinguish the fire.	1
02/16/99	Prince Albert, Saskatchewan	Polychlorinated biphenyl	During transport, a transformer fell out of a truck and ruptured releasing approximately thirty-six litres of PCB contaminated oil. There were no injuries. An Environment Canada officer was on the scene to monitor the containment and clean up operations.	2
02/16/99	Fort Liard, Northwest Territories	Hydrochloric Acid	During transport, a tractor tank trailer containing hydrochloric acid solution ran off the road and overturned releasing two hundred and fifty litres of product. The vehicle fuel tank ruptured releasing a small quantity of diesel fuel. There were no injuries. Company response personnel were on the scene to clean up the spill and upright the tank trailer.	2
04/23/99	Thamesville, Ontario	Ammonium Nitrate	During temporary storage on a rail siding, three covered rail hopper cars were struck by a passenger train releasing the entire two hundred and seventy four thousand kilogram shipment of ammonium nitrate. Two employees on the passenger train suffered fatal injuries and one hundred passengers were sent to hospital with moderate injuries. Emergency response personnel were on the scene to care for the injured, contain and clean up the spill. An investigation is being conducted to determine the cause of the accident.	7
05/01/99	Foxwarren, Manitoba	Anhydrous Ammonia	During a farm field application, a nurse tank trailer towed by a farm vehicle released four hundred and fifty five litres of anhydrous ammonia from a hose which broke as a result of a hitch failure. There were no injuries. Emergency response personnel on the scene secured the leak and repaired the damaged hose.	4
05/19/99	Dawson City, Yukon	Diesel Fuel	During temporary storage at an airport terminal, a tank trailer released three hundred litres of diesel fuel from a hose transfer system that had been left open. There were no injuries. Emergency response personnel were on the scene to contain and clean up the spill.	2
07/09/99	Prince William, New Brunswick	Explosive Blasting Type E	During transport, an explosive blending truck containing explosives blasting type E, ammonium nitrate and sodium nitrate ran off the road and overturned releasing five hundred kilograms of the explosives. The driver suffered minor injuries and was treated on the scene. RMS, Police, Fire Department and company emergency response personnel on the scene closed the highway and evacuated the immediate area to contain and clean up the spill before transferring the remaining product.	5
07/17/99	Halifax, Nova Scotia	Uranium Hexafluoride, fissile	During handling operations at the harbour facility, a container of uranium hexafluoride, fissile was dented on top by a second transport container. Police, Fire Department, Environment Canada and Atomic Energy Control Board shut down the harbour facility area and checked the dented container for radioactive readings. There was no release of product and shipment was allowed to continue to destination.	1
08/25/99	St. John's, Newfoundland	Printing Ink, flammable	During unloading operations from a cargo aircraft, a carton containing printing ink, flammable was discovered damaged and leaking one litre of product which had soaked into the carton. Two employees handling the carton who suffered eye irritation and itching were taken to the hospital for observation. Fire Department personnel were on the scene to remove the damaged carton from the shipment for proper disposal.	2



Date	Location	Substance	Incident Details	Accident Severity Level
10/12/99	Cagogan, Alberta	Petroleum Crude Oil	During transport, a tractor tank trailer and pup ran off the road and overturned releasing six thousand seven hundred litres of petroleum crude oil after swerving to avoid a deer. The driver was injured and taken to hospital. Police and Fire Department personnel on the scene closed the highway while the spill was contained and cleaned up.	3
10/21/99	Dorval, Quebec	Batteries	During unloading operations from a truck, two metal lockers containing 40 batteries were involved in a fire. The immediate area was evacuated as a precautionary measure. There were no injuries. Fire department personnel were at the scene to extinguish the fire and disconnect the battery wires. The consignment was then returned to the consignee for further evaluation.	3

## Cooperative Research Agreement by D.W. Dibble

On May 14, 1999, Ms. Jolene M. Molitoris, Federal Railroad Administrator, U.S. Department of Transportation and Mr. Ron Jackson, Assistant Deputy Minister, Safety and Security, Transport Canada, signed a cooperative agreement for a joint research program on low temperature impact effects on rail tank cars.

The objectives of the project are:

- To determine susceptibility of tank car steels to impact induced failure, particularly under low temperature conditions;
- To determine the low temperature characteristics, e.g., reaction force capacity of draft gear that are typically used on tank cars;
- To determine the effect of increasing the actual capacity of the draft gear;
- To gain an understanding of the impact phenomena in order that regulation/specification requirements

to reduce the incidence of tank car failure due to impacts may be developed.

Safety is the number one priority for both the Federal Railroad Administration and Transport Canada (Transport Dangerous Goods). This Cooperative Research Program addresses several areas directly related to the safe transportation of dangerous goods or hazardous materials in railroad tank cars. This is the first time that such a co-funded agreement has been developed between these two organizations.

A contract was recently awarded by Public Works and Government Services Canada to Southwest Research Institute, in San Antonio, Texas. The National Research Council of Canada, Centre for Surface Transportation Technology, is a major subcontractor in this research effort.

## Upcoming Events in TDG...

### March 13-15, 2000

Ad hoc UN/SCETDG Working Group on Lithium batteries.

### March 27-28, 2000

Federal-Provincial/Territorial TDG Task Force meeting on the proposed changes to the Gazette 1 version of the Clear Language Regulations.

### March 29-30, 2000

Minister's Advisory Council meeting on the proposed changes to the Gazette 1 version of the Clear Language Regulations.



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# ALERT



## Highway Tanks and Portable Tanks for Propane and Liquefied Petroleum Gases (LPG) Transport Under CSA Standard B622-98

The CSA standard B622-98 entitled “Selection and Use of Highway Tanks, Multi-unit Tank Car Tanks and Portable Tanks for the Transportation of Dangerous Goods, Class 2” will be brought into effect by the Clear Language amendments to the Transportation of Dangerous Goods (TDG) Regulations and will include the following important changes:

- large containers (tanks) used for the transport of propane and LPG by road will have to meet TC 331, TC 51, TC 106A or TC 110A specifications or the equivalent CTC, DOT or MC specifications prescribed in CSA B622-98;
- large containers (tanks) not certified to one of the specifications prescribed in CSA B622-98 will no longer be permitted in propane or LPG service when Clear Language Regulations become mandatory; and
- storage tanks will not be authorized by Transport Canada for transportation if they contain propane or LPG in an amount greater than 5% of the tank capacity.

### Can a non-specification highway tank/portable tank be certified to meet the specification requirements?

It may be possible to certify a tank to a specification prescribed in CSA B622-98 if the tank is a certified pressure vessel and the original design of the tank meets the requirements of the TC 331 or TC51 specification, and

- the tank is certified by the original manufacturer; or
- if the original manufacturer is no longer in business,
  - the manufacturer’s data reports or other manufacturing information is available; and
  - the certification is done by another TC 331 or TC 51 tank manufacturer registered with Transport Canada.

The manufacturing requirements for TC 331 and TC 51 tanks used for propane and LPG are detailed in CSA standard B620-98 entitled “Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods”. The selection and use requirements for highway and portable tanks are detailed in CSA B622-98. These standards may be purchased from the Canadian Standards Association, 1-800-463-6727.

**If you need more information, please contact Kevin Green, Senior Specialist, Tanks at (613) 998-5270.**

00-01-31



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# ALERT



## Aluminum Cylinders

Gas cylinders conforming to the requirements of the Canadian *Transportation of Dangerous Goods Regulations*, including cylinders made of aluminum, are very safe. Millions of cylinders are in use in Canada, and failures of any kind are extremely rare.

On April 19, 1999, the first known rupture of an aluminum cylinder in Canada occurred in Campbell River, British Columbia. The SCUBA cylinder failed while being refilled, rupturing into three pieces. Markings on the seamless aluminum cylinder indicated that it was manufactured in 1974, in accordance with United States Department of Transportation special permit DOT-SP 6498, and had a service pressure of 3000 psi (206 bar).

Analysis showed that the cylinder failed due to pre-existing cracks in the neck and shoulder areas.

The cylinder was manufactured from aluminum alloy 6351. Studies have indicated that cylinders manufactured with this alloy may develop cracks in the neck and shoulder areas.<sup>1</sup>

This 6351 alloy was used in the manufacture of cylinders for use in North America until July 1990. The alloy was used for seamless aluminum cylinders and for liners of composite cylinders. The cylinders were manufactured in accordance with CTC (Canadian Transport Commission) and DOT (United States Department of Transportation) specifications, special permits, and exemptions. (For details regarding a particular cylinder, the cylinder manufacturer or distributor should be contacted.)

The *Transportation of Dangerous Goods Regulations* require that cylinders be requalified periodically.<sup>2</sup> Typically, seamless aluminum cylinders must be requalified at least every 5 years, and composite cylinders must be requalified at least every 3 years. Requalification includes a hydrostatic test, as well as external and internal visual inspections, and must be done at a Transport Canada registered facility.

The importance of the internal visual inspection in maintaining the safety of cylinders must be emphasised. Cracks, such as those which led to the Campbell River failure, can be detected with a careful and proper visual inspection of the cylinder neck and shoulder areas, at the time of requalification. A fine line running through the threads, parallel to the longitudinal axis of the neck, or one or more lines radiating outward on the machined top face of the cylinder neck is indicative of cracking. Any fold in the internal shoulder area, where the uneven surface has a peak or depression which is sharp or deep, may be a starting point for a crack. **Any cylinder with a crack or fold must be condemned and must not be returned to service.**

<sup>1</sup> The mechanism is known as sustained load cracking (SLC).

<sup>2</sup> *Transportation of Dangerous Goods Regulations* § 7.32 and § 8.4.2.

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Seamless aluminum cylinders must be visually inspected in accordance with CGA Publication C-6.1, and composite cylinders must be inspected in accordance with CGA Publication C-6.2.<sup>3</sup>

Each time before filling a cylinder, it must be inspected to verify that there is no visible damage that could weaken its pressure retention integrity.<sup>4</sup>

**A cylinder that is due for requalification must not be filled.**

Transport Canada will continue to monitor this issue. In order to facilitate any further investigation into this matter, we request that information on any cylinder failures be reported to:

Senior Specialist, Cylinders  
Regulatory Affairs Branch  
Transport Dangerous Goods Directorate  
Transport Canada  
Place de Ville, Tower C  
330 Sparks Street, 9<sup>th</sup> Floor  
Ottawa, Ontario  
K1A 0N5

Any questions or comments may be also directed by telephone to Amy Park at (613) 990-1137.

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<sup>3</sup> CGA C-6.1, "Standards for Visual Inspection of High Pressure Aluminum Compressed Gas Cylinders", and CGA C-6.2, "Guidelines for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders", are available from the Compressed Gas Association at (703) 412-0900.

<sup>4</sup> *Transportation of Dangerous Goods Regulations* §§ 7.32(1) and §§ 8.4.2(1), and CSA B340, "Selection and Use of Cylinders, Spheres, Tubes, and Other Containers for the Transportation of Dangerous Goods, Class 2", clause 5.1.3. CSA B340 is available from the Canadian Standards Association at 1-800-463-6727.