Transport Canada Transports Canada

TRANSPORTATION OF DANGEROUS GOODS NEWSLETTER

We invite you to read the first edition of 2022 of the Transportation of Dangerous Goods (TDG) Newsletter. This issue includes articles on some of the topics that have kept the TDG Program busy during the last few months.

INSIDE

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Canada

WORD FROM THE DIRECTOR GENERAL

Author: Benoit Turcotte

I am pleased to introduce this edition of the Transportation of Dangerous Goods (TDG) Newsletter. This edition will highlight some of TDG's latest achievements.

As you will see, the TDG Program is making progress on a number of key files, as evidenced by articles in this edition.

Regulatory Oversight Management (ROM)

In the 2021 Edition of the TDG Newsletter, I announced the new name of the new oversight solution. It's been nearly a year since TDG Core's flagship application known as Regulatory Oversight Management (ROM) has been rolled out to users across the country which warrants a closer look at this high-profile transformation project.

A Modern Application

When ROM was conceived, it promised to provide a modern application like what users have grown accustomed to in their personal life (i.e., Google, Apple, Facebook, etc.). To achieve this, ROM was built with the MS Dynamics 365 platform, and customized to deliver on each users' workflow. This is the first time the TDG Program has invested in an application requiring annual licensing fees which does impact ongoing expenses, but this has been mitigated with department-wide bulk licensing

purchases. The approach not only provides a modern tool for users today, but it also enables ROM to extend its life since Microsoft has teams of developers working on enhancements year-round.

What we've heard from users: fast, convenient and reliable

ROM is always accessible thanks to its integration with Microsoft's single sign-on feature. If a user has logged in to the network, ROM can be loaded at the click of a mouse. ROM has much faster load speeds than its predecessor providing users with a quality-of-life difference in how quickly users can complete their tasks. Quick loading combined with other speed related enhancements such as quick search features, in-App access to documents, email integration and pre-filled Enforcement Action forms means that Inspectors are spending less time entering information and more time on stakeholder compliance. Other features such as pre-loaded workplans, flexible reporting and a responsive support team provides inspectors, managers, and planners with reliable high-quality data.

What's next

The TDG Core development team is now working on a new Facilities Design and Registration (FDR) and a Client Identification Database (CID). So future ROM enhancements will be completed by TDG Program's development support team. The mandate of this team is to support all TDG Program's legacy applications which means ROM enhancements will be scheduled months in advance and delivered in the form of four-week Sprints. The next Sprint for ROM is scheduled for July 11 – Aug 5, 2022. A list of enhancements such as workplan improvements, inspection narratives integration and implementing disconnected mode are being considered for this Sprint. If users have ideas for enhancements or bug fixes, they should send them to the ROM support team at TDGOversight-SurveillanceTMD@tc.gc.ca if they haven't already done so.

I remain convinced that this new application will play a large role in helping Transport Canada and the TDG Program move towards a modern, digital-first oversight environment.

Legislative Process

The TDG Program has also been undergoing the process of updating the TDG Act. Unfortunately, the Department of Justice (DoJ) drafters have been busy with other Government priorities bills therefore work on our bill has been paused for the moment. The TDG Program foresees a fourth draft of the bill might be available in this summer at the earliest. This fourth draft will hopefully be the last iteration prior the final draft.

As a reminder, we received the third draft of the bill on March 7. The TDG, Rail Safety and Surface & Intermodal Security Policy Programs have reviewed their sections of the bill and will be meeting separately with Legal Services and DoJ drafters in summer 2022 to address outstanding questions and concerns. We are also coordinating the drafting of supporting material for the Minister's briefing binder and expect the briefing to take place in fall 2022. Introduction of the bill in the House of Commons (HoC) will then follow in fall 2022 or winter 2023, and its consideration in the HoC could take up to 12 months.

Moving forward, TDG will continue to make itself more effective, efficient, and agile as a regulator through these special initiatives, while continuing to fulfill its core mandate.

I hope you find some valuable information in this edition and wish to thank you for your continued support as we work together to promote the safe transportation of dangerous goods.

REMOTE AND VIRTUAL INSPECTIONS: LESSONS LEARNED AND BEST PRACTICES

Author: Greg Sliva

The COVID-19 pandemic caused regulators and industries all over the world to adopt numerous alternative methods to ensure business continuity. Over the last two years, the TDG Program has continued to carry out most of its planned inspections remotely to oversee the safe and secure transportation of dangerous goods. The introduction and adoption of remote inspections during the COVID-19 pandemic is a prime example of the TDG Program demonstrating flexibility, adaptability, and agility in the face of a crisis.

In light of the information gathered during the exchanges with the industry, the consensus is that most companies do not care too much whether the regulator inspects remotely or on-site. However, it was possible to observe several common themes emerging from these comments. This article will review some of the benefits and challenges of remote inspections with consideration of the industry's perspective.

Benefits

We should first recognize that for the last two years, not only TDG inspectors worked remotely and changed how they worked, but it was also the companies themselves. Industry was generally positive about the remote process and always happy to assist inspectors. The virtual environment put forward during the pandemic greatly accommodates the industry to support maintaining a safe work environment. As such, this option could be the preferred one in case of another wave of COVID-19, for example, or any upcoming situations that could lead to a restricted or limited access to the companies for inspections.

Many companies are already very comfortable with an increased use of virtual formats, so they did not face barriers with the virtual approach. Screen share, virtual walking tours and real-time collaboration with colleagues, including a head office in another city or province, were all options to support some of the remote inspections. Industry views that a remote inspection offers value if it reduces travel costs and time for the inspector. It was also noted that the companies can better prioritize their workload and still meet TDG's regulatory requirements and inspection needs when they are given the ask upfront and sufficient lead time.

From a TDG perspective, the experience is that the remote inspection process can work better when the type of site is well known to the TDG inspectorate,

has been recently inspected, and the site contact reasonably understands what the TDG inspector is looking for. In some cases, the site is limited in scope and the inspection will only represent a paper exercise. Without having anything on-site to be inspected, those sites retain documentation that can easily be retrieved and shared with the inspector to be reviewed (e.g., classification, shipping documents and training records), which could be very convenient in a virtual environment.

Transport Canada (TC) can benefit from remote inspections by allowing an inspector to save time, improve work-life balance and minimize TC's carbon footprint. Remote inspections can provide a good solution and effective use of resources to allow both TDG inspectors and industry to meet from the convenience of their desk or home office.

Challenges

We also must recognize that there is an incredible diversity of opinions across Canada, among TDG inspectors and all the companies we regulate as we transition, adapt and learn how to work throughout the COVID-19 pandemic and afterwards.

- Many companies and individuals continued to work on-site throughout pandemic
- Many COVID-19 restrictions are being relaxed in the various jurisdictions across the country
- Some companies believe on-site inspections are still the most effective and efficient way to perform an inspection activity at their site

The most common issue for inspectors and industry is that remote oversight activities can be drawn out as there can be much back and forth with the company to obtain all information needed to complete the activity. Inspectors note there can be some frustration among industry with remote inspections when asking for more information to be able to complete the inspection.

The complexity and scope of an inspection at some sites make it challenging for an inspector to fully assess compliance remotely. Those challenges are not necessarily industry's concern; however, not being able to fully assess compliance due to not being on-site to have a complete picture of the site can present challenges to some inspectors who want to provide more education and awareness to those sites.

Technology is key, and everyone has different tools. Poor internet connections in remote communities leading to problems during video conferences and data sharing is also a challenge that is more likely to happen in a virtual environment. Email size limits the ability to share photos, videos and other documents and a few smaller sites still have only paper-based processes which is a challenge when performing inspections.

What we learned

A good inspection is one of the most important ways TDG enforces regulations, ensures regulatory compliance and promotes compliance with industry.

On-site inspections are much better suited to efficiently uncover any TDG Regulations violations, but certainly not all within a site-based system that doesn't always consider the company as a whole. On-site inspections represent a very good way to promote compliance with industry. However, promoting compliance across Canada one site at a time may not be very efficient: on-site inspections may not represent the only standard approach.

Remote inspections will not substitute on-site inspections, but they have shown their value to remain a tool in TDG's regulatory toolbox. They can represent an effective use of limited government resources when targeted towards certain TDG sites, focusing on certain TDG Regulations non-compliance, to determine priorities or determine whether a costly on-site inspection in a remote community is required.

Lastly, I would like to thank everyone that provided feedback on their experience with virtual inspections.

REGULATORY SANDBOX PROJECT ON ELECTRONIC SHIPPING DOCUMENTS FOR DANGEROUS GOODS SHIPMENTS

Authors: Sharon-Ann Lyttle and Sylvie Rheault

On March 31, 2022, Transport Canada (TC) concluded its transportation of dangerous goods project: Regulatory sandbox on electronic shipping documents. The project launched in 2020, with a goal to see if using electronic shipping (e-shipping) documents might be a viable alternative to the mandated paper format for transporting dangerous goods in Canada via air, marine, rail and road.

Some of the accomplishments are:

- seven companies participated in the project to test their communication system;
- collectively, 20 million sheets of paper were saved during the project;
- three successful simulation exercises were held with rail participants; these exercises demonstrated overall potential to quickly obtain digital shipping information during an incident;
- four studies were conducted to gather information on the use of the shipping document for first responders, shipping document practices of fifteen countries, shipping document practices in European Union countries and the Canadian trucking industry's readiness to adopt e-shipping documents;
- close collaboration with the Canadian Association of Fire Chiefs to better understand firefighters' needs in relation to the shipping document; and
- close collaboration with the Canadian Centre for Occupational Health and Safety to reach a broader audience through social media.

Through this study, we heard that the shipping document contains more information than required and that some provisions may be outdated. As a result, it is recommended that a regulatory review be conducted on the provisions of the *Transportation of Dangerous Goods Regulations* (TDG) that refer to the shipping document. The goal of the review is to modernize the shipping document by ensuring the relevance and currency of the information it provides and cutting unnecessary information.

We also learned that rail is most advanced when it comes to communicating shipping documents digitally. Electronic information management systems for Class I railways can provide an equivalent level of safety already provided by paper shipping document if certain performance criteria are met. As such, it is recommended that a regulatory consultation be developed on the likelihood of permitting the use of electronic shipping documents and electronic consists by railways with certain provisions.

For road, we learned that the state of readiness for electronic shipping documents varies. Although there is an interest from road carriers to use e-shipping documents, this mode of transportation is more complex. Factors such as a lack of consistent internet and cellular coverage throughout Canada, a shortage of funding for first responder technological resources such as tablets, and the absence of a centralized data-sharing platform indicate that regulatory changes should be delayed until possible solutions are identified. In the meantime, TC will continue to allow road carriers to use electronic shipping documents through equivalency certificates until further research is completed.

In summer 2022, TC will publish a report summarizing findings and recommendations on proposed amendments to the TDG Regulations. An executive summary will be made available on TC's website under Dangerous Goods.

We would like to thank everyone who contributed to the success of the sandbox project. Your involvement and generosity are greatly appreciated.

TRANSPORTATION OF DANGEROUS GOODS CLIENT IDENTIFICATION DATABASE (CID)

Author: Maya Stewart

Data is crucial to ensuring that governments are implementing effective public policies, such as by allowing us to measure the impacts of federal programs and services over time. In recent years, there has also been a growing public association between transparent and accountable governments and those that use data-based decision-making. Initiatives like the Open Government Partnership, which champion the proactive disclosure of government data, showcase this. For Transport Canada's (TC) Transportation of Dangerous Goods (TDG) Program, data is particularly important when developing policies on public safety.

Public safety is a concept at the core of many transportation operations and public policy developments. While difficult to define in precise terms, it is generally the absence of harm to people, property, and the environment. More important than any specific definition is the ways in which we choose to measure our departure from perfect safety. For the TDG Program, such quantitative measures may include incident rates (e.g., injuries, property damage, or deaths) associated with TDG operations per year, per mode of transport, or per class of dangerous goods.

But it can also be far simpler than that. Identification data is the most basic kind of data needed to ensure TC's regulated entities are in compliance with the TDG Regulations. Such data could include a regulated person's name, contact information, or the address where they transport dangerous goods. It could also include the class or amount of dangerous goods involved in these operations. Ultimately, knowing the who, what, when, where, and why of transportation operations involving dangerous goods allows TDG inspectors to better plan when and where safety inspections of TDG sites should occur.

The TDG Client Identification Database (CID) is being created to gather this information for that very purpose. It will serve as a central, comprehensive inventory of sites where the transportation of dangerous goods take place. Once in force, regulated entities will need to register themselves with TC by providing basic identifying information, in addition to some risk-relevant information (i.e., whether they transport UN high-consequence dangerous goods or not). This will allow inspectors to better identify TDG sites and plan risk-based inspections. It will also improve the TDG Program's ability to produce predictive analytics to identify emerging TDG issues. Lastly, it will allow for better communication with currently unknown regulated entities; this will help to create a more holistic picture of Canada's TDG landscape, and a more inclusive TDG Program for all stakeholders.

CANADIAN EMERGENCY RESPONSE TO FLAMMABLE LIQUID INCIDENTS IN TRANSPORT (CERFLIT) – TRAINING PACKAGE

Author: Michel Béland

The Canadian Emergency Response to Flammable Liquid Incidents in Transport (CERFLIT) training resource is a series of online courses, resources, and support materials for face-to-face training. The curriculum and materials have been designed to help communities, and firefighters at every level, become better prepared to manage an incident involving flammable liquids being transported by road or rail. In being better prepared we keep first responders, the public, and communities safer in the event of a flammable liquid incident occurring on a roadway or railway in Canada.

These courses have been developed through collaboration between industry experts, regulatory agencies, and educational institutions.

- The Level 1 – Training course (online only) is recommended for all first responders and emergency response planners in Canada. This course should be completed before moving on to the next level
- The Level 2 – Firefighter Response Training (both the online course and face-to-face component) is recommended for all firefighters in Canada
- The Level 3 – Advanced Response Training is on-site training that can be delivered at approved sites across Canada. This training is appropriate for experienced firefighters who have completed the Level 2 training

The TDG Program has recently contracted with the Canadian Association of Fire Chiefs to promote the training and to post the links on its website. The online courses are free for anyone to access. The support material for the Level 2 and Level 3 face-to-face courses will be available to trainers and instructors at no cost upon request.

REPORTING REQUIREMENTS: A BRAND-NEW GUIDE

Author: Geneviève Langlois

After some discussion on reporting requirements between the Transportation of Dangerous Goods (TDG) Program and several industry stakeholders over the past year, a common observation stood out: the reporting requirements present an interpretive challenge, including what must be reported and who must report it.

In order to address this challenge, a working group on Part 8 of the TDG Regulations was created with the valuable collaboration of industry stakeholders. The objective was to address areas of ambiguity in the reporting requirements. Without limitation, the most questionable elements in the context of a dangerous goods incident and reporting were:

- identification of the level of authority to which the report should be made
- definitions of anticipated release and public safety
- the meaning of loading and unloading
- alignment of requirements with other departments and levels of government
- reporting to CANUTEC
- contact with Emergency Response Assistance Plan (ERAP) holders
- multiple documents and information scattered around

This common observation between industry stakeholders and TDG led to the restructuring of the Guide for reporting dangerous goods incidents which now has a more streamlined structure with more complete definitions and examples to help cover a variety of scenarios that could lead to confusion in interpretation.

Let's take a look at these changes!

CONTENT

- Details added to clarify requirements and consider various scenarios for all modes
- Revised table for emergency phone numbers of local authorities and organizations responsible for responding to emergencies
- Enhanced definitions and more detailed examples have been provided and revised by members of the working group
- New section on ERAP Incident report

STRUCTURE

Definitions now accessible at the beginning of the section, in alphabetical order and with a **hyperlink** to each definition

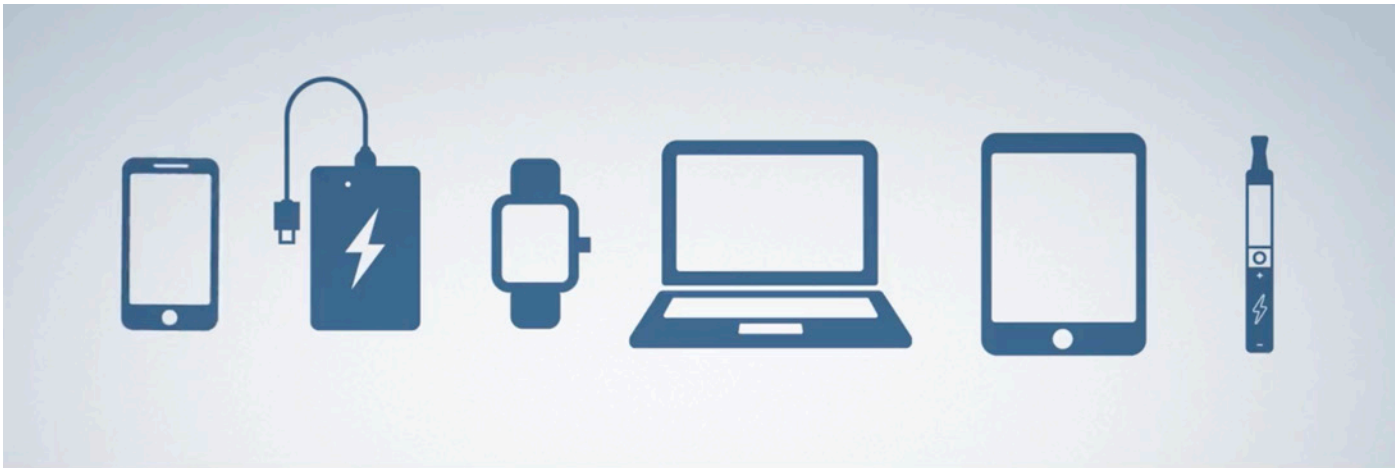
- New Reporting Requirements home page
- **Interface with subway style navigator**

In the PDF – **Table that summarizes the types of reports** required by Transport Canada with a hyperlink to each report

The new guide is accessible through the reports section of the CANUTEC's web page and the TDG homepage.

LITHIUM BATTERY BY AIR AWARENESS CAMPAIGN

Authors: TDG Safety Awareness Team and Micheline Paquette



Lithium batteries can be found everywhere, but did you know that they are considered dangerous goods? To inform passengers and promote the safe handling of devices containing lithium batteries when travelling by air, the TDG Safety Awareness team has launched a video and an awareness campaign on TC's social media platforms.

As many remain unaware of the hidden dangers tied to lithium batteries or how many of the electronic devices they carry contain lithium batteries, our initiative is directed to bring awareness on the safety risks and the care that needs to be taken when packing them into baggage.

Lithium batteries differ from other conventional batteries in that the cells are constructed with a flammable electrolyte, which can be forcibly released when a cell is in a state of thermal runaway. Thermal runaway is a chemical reaction within the cell itself that results in a dramatic and uncontrolled rise in both temperature and pressure. This can result in ejection of flammable gas, flammable electrolyte, extremely high temperatures or excessive quantities of smoke and fire.

Lithium batteries are classified as Class 9, Miscellaneous products, Substances, or Organisms dangerous goods under the TDG Regulations. They are in common everyday personal electronic devices (PEDS) such as mobile phones, tablets, laptops, cameras, medical devices and e-cigarettes. When it comes to packing for your flight, devices containing lithium batteries should be placed in carry-on baggage. As checked baggage is loaded in cargo hold in the underbelly of the plane, this is inaccessible during flight in the event that something overheats or leads to a fire. If a device in a carry on were to overheat or catch fire, the cabin crew is trained to deal quickly and efficiently with the situation and extinguish any fires that could potentially happen.

Spare lithium batteries including power banks, are prohibited in checked baggage; these must be placed in carry-on baggage, carried in the cabin and be individually protected to prevent short circuits.

Has your personal electronic device been crushed? Has it ever overheated or smoked? Is the casing of the battery split? It is always important to inspect and ensure your personal electronic device is not damaged prior to getting on a flight.

Before you fly, check with your airline for more information.

We encourage you to follow our **Lithium Battery by Air Awareness Campaign** on Transport Canada's social media platforms such as Twitter, Facebook and Instagram. Watch for our tweets regarding Lithium Batteries and take part in our discussion with **#SafetyStartsWithYou**. To help broaden our reach, please share and encourage the conversation with your colleagues and friends.

SCIENTIFIC RESEARCH PUBLICATIONS

Author: Barbara Di Bacco

Transportation of Dangerous Goods (TDG) Program, the TDG Scientific Research Division plans, manages and delivers scientific and engineering research, to inform and contribute to the improvement of public safety during the transportation of dangerous goods. This research is done in accordance with section 25 of the *Transportation of Dangerous Goods Act*, 1992.

In an effort to disseminate our research to a wider audience, the Division publishes abstracts and technical research summaries for completed research projects on the TDG website.

Since the last TDG Newsletter research update in 2021, we have published abstracts and summaries for the following research reports:

ABSTRACT TITLE	DESCRIPTION
Modelling the Heat Transfer, Lading Response, and Pressure Relief of Crude Oil Rail Tank Cars in a Fire	This report describes combined heat and mass transfer modelling, as well as crude oil property and reaction modelling to study rail tank cars exposed to fire while containing crude oil.
Rail tank cars exposed to fire: Detailed analysis of Sandia experimental crude oil fire data	This report describes an analysis of crude oil fire experiments, to further understand how different crude oils burn and how the resulting fires behave.
Numerical Fire Modelling of Crude Oil Spills: Validation Report	This report describes an analysis of crude oil fire experiments, to further understand how different crude oils burn and how the resulting fires behave.

The abstracts listed here, along with other research abstracts in the past five years, are available for reading on the TDG Publications page.

A copy of all published reports can be provided upon request to the Scientific Research Division: TC.TDGScientificResearch-RecherchesscientifiqueTMD.TC@tc.gc.ca