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By/Par Michael Bourque

How Canada's railways are addressing our country's most pressing public-rail safety issue

Les chemins de fer et l'enjeu de sécurité ferroviaire le plus criant



As we enter the legislative review of the *Railway Safety Act*, it is worth looking at the facts around rail safety in Canada. In reviewing monthly rail statistics collected by the Transportation Safety Board, a recurring theme emerges. In February 2017 – the most recent monthly data available at the time of this magazine's publication – there were two fatalities, both the result of people trespassing on railway property (the data does not distinguish between a trespassing accident and a suicide). This amount is actually lower than the four trespasser fatalities recorded in February 2016, and the five-year February average of three. With respect to serious injuries, there's a similar trend. In February 2017, three of the five serious injuries involved trespassers. Again, this total

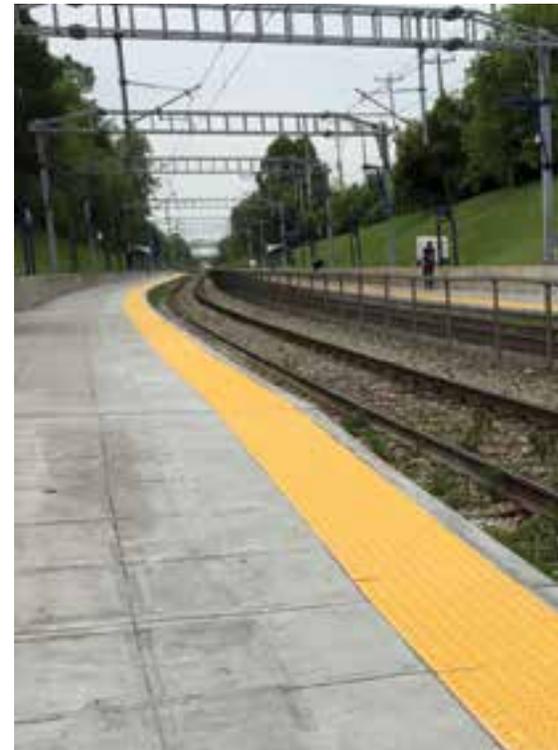
Le moment est bien choisi, alors que s'entame la révision de la *Loi sur la sécurité ferroviaire*, de s'intéresser aux données sur la sécurité ferroviaire au Canada. Un thème récurrent s'impose à l'étude des statistiques mensuelles colligées par le Bureau de la sécurité des transports. En février 2017 (le dernier mois dont les données sont disponibles au moment de rendre cet article), on relève deux décès. Ce sont deux cas d'intrusion sur une emprise ferroviaire (le Bureau ne fait pas de distinction entre les accidents suite à une intrusion et les suicides). Ce nombre est inférieur aux quatre décès dus à une intrusion en février 2016 ou à la moyenne des cinq dernières années : trois. On constate la même tendance au chapitre des accidents graves : en

was higher than the previous year (two) and the five-year average (one).

Annual safety data, and statistics for any other month of the year, tell the same story. According to TSB data from the last 10 years, 91 per cent of fatalities and 85 per cent of serious injuries occurred either at a crossing or as a result of trespassing on railway property.

This issue of *Interchange* is dedicated to rail safety, specifically as it relates to innovation, technology

and enforcement. The articles cover how the industry is harnessing data and information technology to improve safety, the role of railway police forces in Canada and much more. For Canada's railways, nothing is more important than safety. When it comes to crossings and trespassing, we have a responsibility to do everything that we can to ensure that our operations are safe, that people understand the dangers of railway operations, and that we work with governments,



When it comes to crossings and trespassing, we have a responsibility to do everything that we can to ensure that our operations are safe, that people understand the dangers of railway operations, and that we work with governments, communities and stakeholders to foster safe behaviour.

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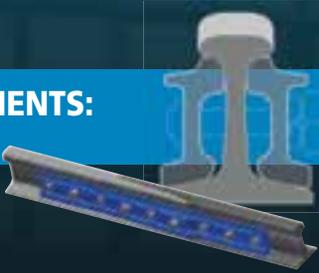
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communities and stakeholders to foster safe behaviour.

Canada's railway industry is focused on three areas that offer the most impactful public-rail safety benefits. First, we believe in education and outreach. That is why we partnered with Transport Canada to create Operation Lifesaver (OL) more than 35 years ago to teach Canadians about rail crossing safety, and to raise awareness about the dangers of trespassing on railway property. This year, OL launched a new, innovative virtual reality campaign to communicate important safety messages to school children



Nous avons le devoir de tout faire pour assurer la sécurité de nos activités, sensibiliser la population aux dangers de nos activités et collaborer avec les gouvernements, les collectivités et les intervenants afin d'encourager un comportement sécuritaire.

février 2017, trois des cinq blessés graves circulaient illégalement sur l'emprise ferroviaire. Ce nombre est supérieur aux données de l'année précédente (deux) et à la moyenne des cinq dernières années (un).

Les données annuelles sur la sécurité et les statistiques des autres mois de l'année brossent le même tableau. Selon les données du BST des dix dernières années, 91 pour cent des décès et 85 pour cent des accidents graves ont eu lieu à un passage à niveau ou à la suite d'une intrusion.



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and specific groups that are at risk, such as drivers and those living near railway property. We want people to take OL's "Look, Listen and Live" message to heart.

We also have an important community initiative designed to ensure that cities and land planners understand the right way to develop property in proximity to railway operations. Developed with the Federation of Canadian Municipalities, the *Guidelines for New Development in Proximity to Railway Operations*

– or Proximity Guidelines, for short – provides specific engineering advice and it has now been adopted by dozens of municipal governments across Canada.

Finally, Canada's railways have invested more than \$24 billion in infrastructure since 1999 to maintain a safe and efficient network. This amount includes investments in railway-roadway crossings to ensure they meet stringent federal regulations that require crossings to have adequate sightlines, proper signals



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During the review of the *Railway Safety Act*, we will be putting forward our views as to how these areas can be strengthened even more, through a combination of regulation, voluntary action and good public policy. When it comes to rail safety, it pays to get the facts. ■



Le présent numéro d'*Interchange* porte sur la sécurité ferroviaire et tout particulièrement sur l'innovation, les technologies et l'application de la loi dans ce domaine. Nos articles s'intéressent entre autres à l'utilisation des données et de l'informatique pour

resserrer la sécurité et au rôle des forces de police des chemins de fer. Rien n'est plus important que la sécurité pour les chemins de fer canadiens. Nous avons le devoir de tout faire pour assurer la sécurité de nos activités, sensibiliser la population aux dangers de nos



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activités et collaborer avec les gouvernements, les collectivités et les intervenants afin d'encourager un comportement sécuritaire.

Le secteur ferroviaire concentre ses efforts sur trois éléments qui donnent les meilleurs résultats en matière de sécurité. D'abord, l'éducation et la sensibilisation. Nous y croyons. C'est pourquoi nous faisons équipe avec Transports Canada dans Opération Gareautrain (OG) depuis plus de 35 ans. OG renseigne la population sur la sécurité aux passages à niveau et la sensibilise aux dangers de s'introduire dans une emprise. Cette année, OG a lancé une campagne novatrice de réalité virtuelle intitulée « Regarder, écouter, vivre » pour faire passer d'importants messages aux écoliers et à certains groupes à risque, comme les conducteurs vivant à proximité d'une voie ferrée.

Nous menons aussi un projet communautaire pour aider les villes et les urbanistes à faire des aménagements à proximité des chemins de fer. Les *Lignes directrices applicables aux nouveaux aménagements à proximité des activités ferroviaires* ont été élaborées avec la Fédération canadienne des municipalités. Des dizaines de municipalités les ont adoptées.

Enfin, les chemins de fer canadiens ont investi plus de 24 milliards de dollars dans la sécurité et l'efficacité de leur réseau d'infrastructure depuis 1999. Cette somme inclut l'adaptation des passages à niveau à la réglementation fédérale, celle-ci encadrant le type et la visibilité des systèmes d'avertissement, ainsi que le type de barrières physiques à utiliser dans certains emplacements.

Pendant la révision de la *Loi sur la sécurité ferroviaire*, nous présenterons nos idées en vue de resserrer la sécurité par la conjugaison de réglementation, de gestes volontaires et de politiques publiques. En matière de sécurité ferroviaire, les données sont essentielles. ■

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Data: The next frontier of rail safety

How Canada's railways are harnessing data and information technology to improve safety.

By/Par Sarah B. Hood

“Big data” and “technologies involving connected infrastructure” may not be phrases typically associated with the railway business. But those are some of the terms included in the five-year strategy of Metrolinx, the Crown corporation that manages commuter rail operator GO Transit, in reference to the many developments that are influencing the future of rail safety.

As it rolls out its plan, Metrolinx is not alone in adopting new ways to monitor and address potential safety risks before they turn into issues. Across Canada, railways, led by Canada's Class 1 operators, are harnessing data and information technology to improve safety.

CP, for example, is using data and information technology to “make managers more effective and efficient in safety,” says AVP of Field Safety and Systems Scott Sutherland.

A foundation of CP's safety management system is its regular management safety accountabilities, which are “tasks that we assign every operating manager to do weekly and monthly,” says Sutherland. These may be referred to as “safety inputs” at other companies.

One example is an efficiency test, which may include “observing employees on the way that they perform the activities”, such as using correct procedure to get on or off moving equipment, says Sutherland.

“They would make these observations and then they would talk to the employee. It may be a coaching opportunity. We do 500,000



PHOTO: CN

Données : nouvelle frontière de la sécurité ferroviaire

Comment les chemins de fer canadiens exploitent les données informatiques pour améliorer la sécurité.



« **Médadonnées** » et « technologies impliquant une infrastructure connectée » ne sont peut-être pas des expressions typiquement associés à l'activité ferroviaire. Mais ce sont quelques-uns des termes inclus dans la stratégie quinquennale de Metrolinx, société d'État qui gère les trains de banlieue GO Transit.

Metrolinx n'est pas la seule à adopter de nouvelles façons de surveiller et de gérer les risques. Partout au Canada, les chemins de fer, à l'instar des opérateurs de classe 1, exploitent l'informatique et les données pour améliorer la sécurité.

Le CP, par exemple, les utilise pour « rendre les gestionnaires plus efficaces en matière de sécurité », dit le VPA de la sécurité et des systèmes Scott Sutherland.

Le système du CP repose sur les responsabilités de sécurité, qui sont « les tâches de sécurité hebdomadaires et mensuelles que nous attribuons à chaque gestionnaire d'exploitation », dit M. Sutherland. Dans d'autres entreprises, on parle des « intrants de sécurité ».

Un test d'efficacité, par exemple, peut inclure « d'observer la façon dont les employés mènent les activités », dit M. Sutherland.

« Ils font ces observations et puis ils parlent à l'employé. Ce peut être une occasion de coaching. Nous faisons 500 000 observations par an. C'est près de sept par employé. »

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observations a year. That would probably be close to seven per employee.”

In the past, data gathered from all these encounters and others could only be collected after managers took the time to enter them, sometimes days later.

“What we’ve changed in the last two years is [that] we’ve created what we call a Safety Dashboard that now provides near real-time [information on] safety performance, and also provides insight into all of the safety inputs that were conducted yesterday, week to date, month to date, and it will go back three years,” says Sutherland.

Activities are logged on the basis of pass or fail, or compliance or non-compliance. “If you don’t find non-compliance, then obviously managers

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Dans le passé, les données de ces rencontres pouvaient être recueillies seulement après que les gestionnaires aient pris le temps de les entrer, parfois des jours plus tard.

« Au cours des deux dernières années, nous avons créé un tableau de bord qui fournit presque en temps réel [des informations sur] la sécurité, et livre également un aperçu de tous les intrants qui ont été saisis hier, depuis le début de la semaine, depuis le début du mois et jusqu'aux trois années précédentes », précise M. Sutherland.

Les activités sont enregistrées comme réussies ou échouées, conformes ou non conformes. « Si vous ne trouvez pas de dérogation, alors il est évident que les gestionnaires sont bien formés, poursuit M. Sutherland. Si vous en trouvez, cependant, vous pouvez donner immédiatement la formation qui s'impose. »

Les données peuvent être tirées de l'ordinateur central du CP à partir de n'importe quel ordinateur de bureau faisant partie du système. Au cours des 12 derniers mois, les gestionnaires ont été équipés d'applications mobiles. « Quand ils ont fini une discussion de sécurité avec un autre gestionnaire ou employé, ils peuvent immédiatement entrer dans leur téléphone les informations, qui se chargent rapidement dans notre système et les rendent visibles le lendemain, » dit-il.



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are well trained,” says Sutherland. “However, if you find non-compliance, it allows us to provide coaching to that employee immediately.”

The data can be pulled from CP’s mainframe computer to any desktop in the system. Within the past 12 months, managers have been equipped with mobile apps so they can input data from any location. “When they finish a safety discussion with another manager or employee, they can immediately input the information into their phone, which quickly loads it into

our system and it makes it visible the following day,” he says.

“It really has influenced our thinking about the way to use data. I can now do analysis myself; I can get real-time information and do queries on my own,” Sutherland says.

The new system provides detailed safety information on topics like number of incidents or injuries, as well as safety profiles for every employee.

“We’ve eliminated the wait time. It provides managers with insight into what’s working well and gives



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“The application of new technologies allows CN to provide a safer and more reliable network.”



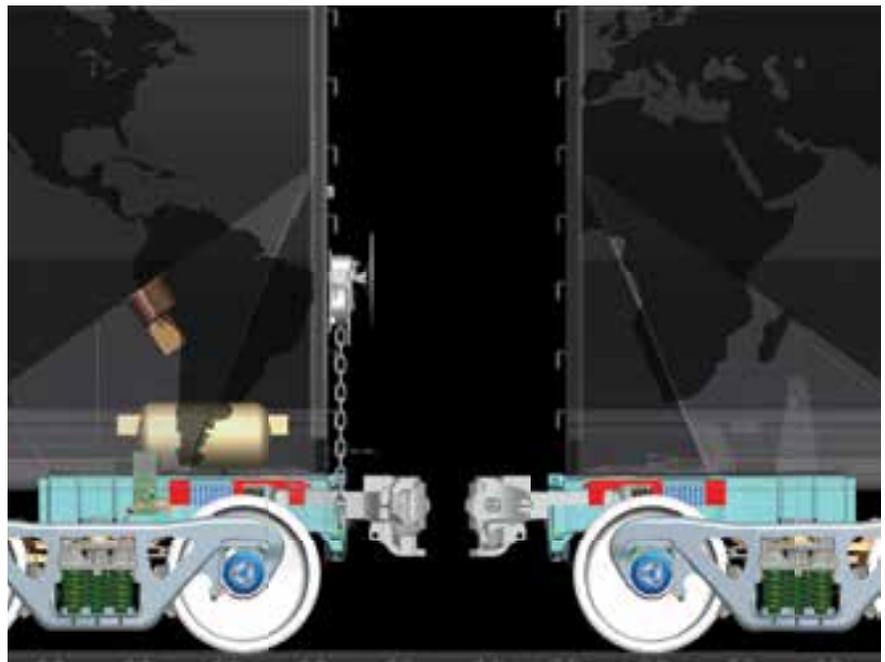
« L'application de nouvelles technologies permet au CN de fournir un réseau plus sûr et plus fiable. »

« Cela a vraiment influencé notre réflexion sur la façon d'utiliser les données. Je peux maintenant faire une analyse moi-même; je peux obtenir de l'information en temps réel », poursuit M. Sutherland.

Le nouveau système fournit des informations détaillées sur des sujets tels que le nombre d'incidents ou de blessures, ainsi que des profils de sécurité pour chaque employé.

« Nous avons éliminé le temps d'attente. Nos gestionnaires ont un

aperçu immédiat de la performance de leur équipe en ce qui concerne les intrants de sécurité. Par exemple, nous pouvons identifier les employés qui n'ont pas eu d'interaction avec un gestionnaire depuis un certain temps. Cela nous donne une vision claire de la corrélation entre les intrants et extrants, et nous permet également d'être plus agiles dans le suivi de nos activités lorsque nos extrants n'atteignent pas l'objectif. Ça montre également quels secteurs



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them immediate insight into their management team's performance for safety inputs. For instance, we can identify employees who may not have had an interaction with a manager for quite some time. It gives us a very strong view and correlation between safety inputs and safety outputs, and it also allows us to be more nimble and agile in monitoring our activities when our outputs are not at target. It also provides the opportunity to understand which areas are operating well and providing recognition."

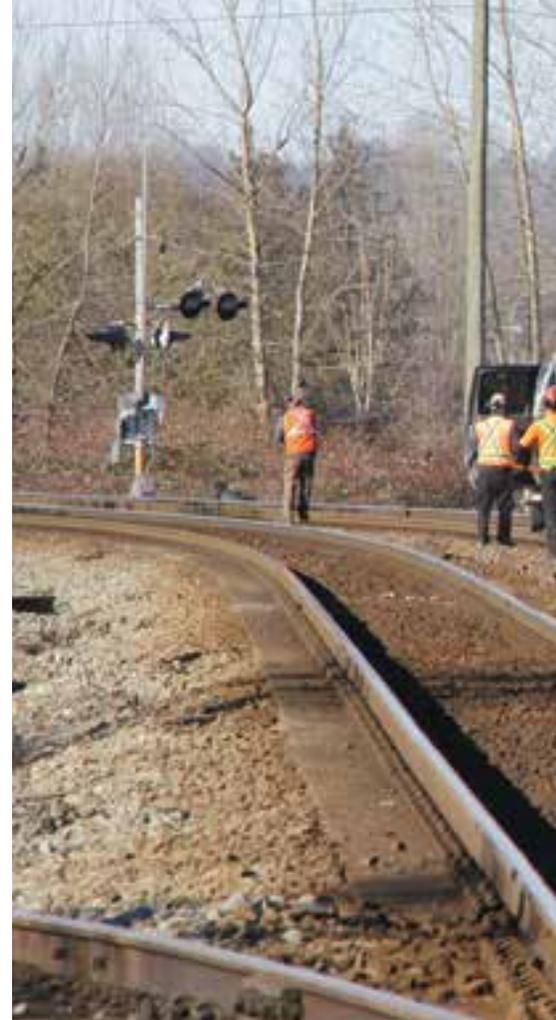
Initiatives like CP's have led to significantly lower accident rates across Canada's railway industry. During the last 10 years alone, Canada's freight rail accident rate has fallen by close to 40 per cent, to less than 1.5 accidents per billion gross tonne-kilometres. Robust investments have made these types of resources possible. Since 1999, Canada's railway industry has invested more than \$24 billion since 1999 to ensure the safety of its infrastructure – including innovative safety technologies.

Like CP, CN prioritizes investments that improve safety. CN is currently in the fourth year of its Safety Innovation Program, which leverages new technology to support its broader safety management system.

"The application of new technologies allows CN to provide a safer and more reliable network, and that is a key part of our safety program," says Kevin Day, assistant chief engineer of technology, testing and standards.

CN's annual capital program will once again include dedicated investments in safety technology like wayside inspection systems and track testing vehicles. As part of its program, CN is also investing in predictive analytics and data management initiatives to assess the state of the infrastructure, so that it can prioritize routine maintenance more efficiently and proactively identify potential problem areas.

"Over the past two years, we've developed a tool called Engineering Reliability Analytics (ERA) that



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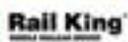
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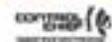
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fonctionnent bien et permet de les féliciter. »

Des initiatives comme celle du CP ont fait baisser la fréquence des accidents dans toute l'industrie. En dix ans, le taux d'accidents du transport ferroviaire de marchandises du Canada a chuté de près de 40 pour cent, pour se situer moins de 1,5 accident par milliard de tonnes-kilomètres brutes. Des investissements robustes ont rendu possible ce type de ressources. Depuis 1999, l'industrie ferroviaire du Canada a investi plus de 24 milliards de dollars pour assurer la sécurité de son infrastructure – y compris les technologies de sécurité innovantes.

Comme le CP, le CN privilégie les investissements qui améliorent la sécurité. Le CN est actuellement dans la quatrième année de son Programme d'innovation en matière de sécurité, qui met à profit les nouvelles technologies.

« L'application de nouvelles technologies permet au CN de fournir un réseau plus sûr et plus

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"It really has influenced our thinking about the way to use data."

assists our field forces in prioritizing work and provides planners the ability to make data driven decisions when developing capital plans," says Day. "This is only the start of what we believe is the future, that is using the data generated from new technologies that we implement across the network to advance our goal of being the safest railway in North America." ■



Rail flaw detection vehicle performing ultrasonic testing of the rail.

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« *Cela a vraiment influencé notre réflexion sur la façon d'exploiter les données.* »

fiable », dit Kevin Day, ingénieur en chef adjoint de la technologie, des tests et des normes.

Le programme d'investissement annuel du CN inclura de nouveaux investissements dans la technologie de sécurité comme les systèmes d'inspection en bordure de voie. Dans le cadre de son programme, le CN investit également dans l'analyse prédictive et les initiatives de gestion de données pour évaluer l'état de l'infrastructure, de manière à pouvoir établir des priorités d'entretien.

« Au cours des deux dernières années, nous avons mis au point un outil appelé Analyse de fiabilité de l'ingénierie (AFI) qui aide nos équipes à établir des priorités et fournit aux planificateurs la capacité à prendre des décisions fondées sur les données, conclut M. Day. Ce n'est que le début de ce que nous croyons être l'avenir, soit d'utiliser les données générées par les nouvelles technologies pour faire avancer notre objectif d'être le chemin de fer le plus sûr en Amérique du Nord. » ■

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Force to be reckoned with

The role of railway police services in Canada.

By/Par Sarah B. Hood

“With our new radio technology, we’re able to talk to officers clear across North America. All our police units have in-car cameras, so that collects the best evidence in real time, but also protects the officers as well in terms of their actively conducting their policing duties professionally.”

For more than 100 years, railway police have promoted rail safety and infrastructure security in Canada.

During that time, they have evolved into sophisticated, modern police operations that patrol enormous territories and safeguard railway personnel and property.

These services are essential to public safety. Railway police are fully sworn officers who have essentially the same authority and obligations as federal, provincial or municipal police.

In most cases, their power extends to within 500 metres of railway property. Within that territory, they can make arrests, issue traffic tickets, conduct investigations and carry out other functions normally associated with policing. However, they are also responsible for upholding public safety beyond their assigned territory. For example, if railway police encounter a crime beyond their area, they are expected to respond within the powers of



PHOTO: CN

Une force à ne pas négliger

Le rôle des services de police ferroviaires au Canada.

Depuis plus de 100 ans, les corps de police ferroviaires veillent à la sécurité des chemins de fer du Canada.

Ce sont aujourd'hui des organisations sophistiquées qui patrouillent d'énormes territoires.

Ces services sont indispensables à la sécurité publique. Les agents assermentés ont les mêmes pouvoirs que les agents fédéraux, provinciaux ou municipaux.

Dans la plupart des cas, leur pouvoir s'étend à moins

de 500 mètres de la propriété ferroviaire. Dans ce territoire, ils peuvent procéder à des arrestations, donner des contraventions, mener des enquêtes et accomplir d'autres fonctions normalement associées à la police. Ils sont aussi responsables de promouvoir la sécurité publique. Par exemple, si la police des chemins de fer a connaissance d'un crime hors de son territoire, elle est censée intervenir dans les limites prévues par le Code criminel du Canada.

« Grâce à notre nouvelle technologie radio, nous sommes en mesure de parler aux agents de tout le continent. Toutes nos voitures de police sont munies de caméras, pour recueillir les preuves en temps réel, protéger les agents et promouvoir le professionnalisme. »



PHOTO: CP

the Canadian Criminal Code in the interests of public safety.

Canada's Class 1 and passenger railways – including CN, CP, VIA Rail, GO Transit and more – have the largest railway policing operations. The CP Police Service (CPPS) was founded in 1913, making it the oldest operation in Canada, and was followed by CN Police Operations, which was established in 1923.

In 2016, CPPS moved its headquarters to a refurbished historical facility at the company head office in Calgary. Its officers work out of more than 25 field offices operating in six provinces and 14 U.S. states. With 15 officers, the Calgary office is the largest detachment. Those officers police the regional rail network and handle security at CP's corporate headquarters. In 2015, the CPPS partnered with the Medicine Hat Police Service and Lethbridge College to train recruits.

For CPPS, the biggest change of the past decade has been the emergence of new



PHOTO: CN

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« Nous nous efforçons de collaborer avec tous les corps de police dont les territoires sont traversés par notre réseau. »

Les chemins de fer de classe 1 et de passagers – y compris le CN, le CP, VIA Rail, GO Transit et d'autres – ont les plus grands corps de police ferroviaires au pays. Les Services de police du CP (SPCP) ont été fondés en 1913, ce qui en fait les plus anciens au Canada. Ceux du CN ont été établis en 1923.

En 2016, les SPCP ont déménagé leur siège dans un bâtiment historique à Calgary. Ses agents travaillent dans plus de 25 bureaux répartis entre 6 provinces et 14 États américains. Avec 15 agents, le bureau de Calgary est le plus grand détachement. Ses agents surveillent le réseau ferroviaire régional et gèrent la sécurité au siège social du CP. En 2015, les SPCP ont collaboré avec le Service de police de Medicine Hat et le Collège de Lethbridge pour former les recrues.

Pour les SPCP, le plus grand changement de la dernière décennie a été l'émergence de nouvelles technologies. Leur centre de communication de Calgary a traité plus de 140 000 appels en 2016. Pour trier ces appels, il a récemment installé un nouveau système de répartition assistée par ordinateur, premier du genre en Amérique du Nord. Le système aide les agents à évaluer les nouvelles informations et à informer les autres services d'urgence en temps réel.

« Il n'y a pas si longtemps que même la communication radio était inégale à travers le Canada, dit Ken Marchant, chef des SPCP. Grâce à notre nouvelle technologie radio, nous sommes en mesure de parler aux agents de tout le continent. Toutes nos voitures de police sont munies de caméras, pour recueillir les preuves en temps réel,

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“We are working hard to partner as much as possible with all the police forces where our tracks run through their territory.”

policing technology. The force’s communications centre in Calgary, which monitors the entire network, processed more than 140,000 calls in 2016. To triage these calls, it recently installed a new Computer Aided Dispatch (CAD) system, the first of its kind in North America. The system dispatches officers across the continent and helps them assess new information and inform other emergency services in real time.

“It wasn’t that long ago that even radio communication was spotty across Canada,” says Ken Marchant, CPPS’s Chief of Police. “With our new radio technology, we’re able to talk to officers clear across North America. All our police units have in-car cameras, so that collects the best evidence in real time, but also protects the officers as well in terms of their actively conducting their policing duties professionally.”

With the new CAD system, every vehicle is like “their virtual office on wheels,” Marchant says. In addition, every vehicle can be tracked using GPS.

“We also will be installing the CAD mobile stations in all our hazmat [hazardous materials] response units, so we can coordinate [them] through our main police dispatch. We have quite a strong incident command model to mitigate risk.”

CN Police Operations is responsible for safeguarding 32,000 kilometres of track and 19,000 crossings across North America with police officers and special agents. Headquartered in Montreal, the service coordinates eight operational divisions through regional offices in Toronto, Winnipeg, Edmonton, Surrey, B.C., Chicago, Memphis, Tennessee, and Detroit.

CN Police run a 24-hour communications centre in Montreal



PHOTO: CN



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protéger les agents et promouvoir le professionnalisme. »

Avec le nouveau système, chaque véhicule est comme « un bureau virtuel sur roues », poursuit M. Marchant. En outre, chaque véhicule peut être suivi en utilisant le GPS.

« Nous avons également installé des stations mobiles dans toutes nos unités de matières dangereuses, afin de pouvoir les coordonner à partir du centre de répartition principal. Nous avons un modèle de commandement assez robuste pour atténuer les risques. »

Le Service de police du CN est responsable de la protection de 32 000 kilomètres de voies et 19 000 passages à niveau en Amérique du Nord. Basé à Montréal, il coordonne huit divisions par le biais des bureaux régionaux de Toronto, Winnipeg, Edmonton, Vancouver, Surrey, Chicago, Memphis et Detroit.

Le Service de police du CN possède, à Montréal, un centre

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that handles emergency dispatch functions for its entire network. It coordinates response to crossing and trespassing incidents, for example,

and helps CN connect with some 7,000 emergency services and hundreds of other police agencies. In 2016, the communications centre

handled more than 123,000 calls. There is also a specialized Network Security Intelligence component based in Toronto.

Over the years, CN's police service has evolved to an "evidence-based kind of policing," says Jocelyn Latulippe, Deputy Chief in charge of CN Police Operations for North America.

"There is a clear need for our officers to become problem solvers based on evidence," he says. "We decided to adopt a COMSTAT approach."

Short for computer statistics, COMSTAT is a policing method that employs data to identify issues and areas to be addressed by targeted enforcement. CN is in its second year of using this model, which applies to everything from crime prevention strategies to schedule optimization.

"We are working hard to partner as much as possible with all the police forces where our tracks run through their territory," says Latulippe, who adds that safety communications have evolved and are now supported through robust social media efforts. "Educating people and changing behaviours is a lot about changing communication."

Changing technology has also broadened the potential for railway policing in Canada. Latulippe points out that emerging technology has reduced the need for in-person surveillance, which has allowed CN to reduce certain risks associated with railway policing.

"When you're all by yourself patrolling a yard at night, and you're only one in the middle of nothing, people don't realize what kind of a job it is," says Latulippe. "It's a unique type of policing that should be recognized a lot more."

"Policing today is really going to a different level," says Shawn Will, CN's Assistant Chief in charge of Operational Support for North America. "On the railway policing side, I believe we're a leader in this area. We ask our people to think outside the box and be problem solvers. We want them to be innovators." ■

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PHOTO: CN



de communication qui gère jour et nuit les fonctions de répartition d'urgence. Il coordonne la réponse aux incidents touchant les passages à niveau et les intrusions, par exemple, et aide le CN à communiquer avec quelque 7 000 services d'urgence et des centaines d'autres services de police. Ce centre de communication a traité plus, en 2016, plus de 123 000 appels. Le CN compte aussi, à Toronto, un service de renseignement sur la sûreté du réseau.

Au fil des ans, le Service de police du CN a évolué pour accomplir un « travail de police

fondé sur des preuves », explique Jocelyn Latulippe, directeur adjoint responsable des opérations de police du CN pour l'Amérique du Nord.

« Nos agents ont clairement besoin de résoudre les problèmes en s'appuyant sur les preuves, dit-il. Nous avons décidé d'adopter une approche statistique dite COMSTAT. »

C'est une méthode de maintien de l'ordre qui exploite des données informatisées pour identifier les problèmes et les aspects à cibler. Le CN est à sa deuxième année d'utilisation de ce modèle, qui s'applique à tout, des stratégies de

prévention du crime à l'optimisation des horaires.

« Nous nous efforçons de collaborer avec tous les corps de police dont les territoires sont traversés par notre réseau », dit M. Latulippe, ajoutant que les communications de sécurité ont évolué et se font désormais par le biais des médias sociaux. « Il faut changer la communication pour sensibiliser les gens et modifier les comportements. »

L'évolution technologique a également élargi le potentiel des services de police ferroviaires au Canada. M. Latulippe souligne que la technologie émergente a réduit la nécessité d'une surveillance en personne, ce qui a permis au CN de réduire certains risques associés à la police des chemins de fer.

« Les gens ne réalisent pas ce que c'est que d'être tout seul à patrouiller une gare de triage en pleine nuit, dit M. Latulippe. C'est un type de travail policier qui mérite une meilleure reconnaissance. »

« Le maintien de l'ordre est vraiment à un autre niveau maintenant », dit Shawn Will, chef adjoint du CN responsable du soutien opérationnel pour l'Amérique du Nord. « Je crois que nous sommes un chef de file dans ce domaine. Nous demandons à nos gens de sortir des ornières et résoudre des problèmes. Nous voulons qu'ils soient des innovateurs. » ■

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Customer appreciation

Safety in Canada's industrial railway sector.

By/Par Sarah MacFadyen

Keeping Canada's railways running smoothly is a team effort. From manufacturers and producers, to railways and ports, everyone has a part to play in supply chains, including industrial railways.

There are more than 450 industrial railways – typically customers of Canada's Class 1s and shortlines – across the country, operating at over a thousand sites coast to coast. Many of Canada's major economic sectors depend on the services industrial railways provide to get their products – from metals and minerals to forest products to petrochemicals – where they need to go.

Making safety priority number one

But industrial railways don't just keep supply chains fluid. As first-and last-mile participants, they play a critical role in ensuring goods are delivered safely. They are responsible for safely loading, unloading and moving railcars, while meeting operational and environmental standards. By prioritizing safety, they help to avoid potentially negative impacts on employees, communities and the fluidity of rail-based supply chains—especially when it comes to the transportation of dangerous goods.

"It's a whole team effort as far as the safe transportation of dangerous goods goes," explains Andy Ash, the Director of Dangerous Goods for the Railway Association of Canada (RAC).

"When it comes to safety, all the railway companies are out there trying to do the same thing and trying to operate an extremely safe railway."
Steve Gallagher, Cando

"It actually starts at the customers, where the cars are loaded. They have a responsibility to ensure that they are offering a safe and secure shipment into the rail transportation cycle. But then once the rail carrier takes over management of that dangerous good shipment, they're now responsible for it, so they have to ensure the safety and security of that shipment as well. And it goes on and on, down the cycle until it ends at the shipper's site for unloading. So, everybody plays an equal role as far as making sure it's safe and secure in transport."

For Jon McEachran, the CEO of Vidal Street Industrial Park (VIP) Inc., focusing on safety isn't just the right thing to do, it is also key to the bottom line of industrial railways like his. VIP operates in the heart of Sarnia, Ont.'s "chemical valley," providing loading and unloading services, as well as railcar repair and cleaning. Since the company started in 2005, VIP has made safety part of what it does "every single day," says McEachran, and running a safe operation is critical to its ability to attract business.

"Safety always comes before price with our customers," says McEachran.

"And our motto is service, safety and security. We find our customers expect all three of those things. You can't do work in the chemical valley if you don't have a safe track record."

Building a strong safety culture

Creating a safe industrial rail sector takes work and commitment. For Steve Gallagher, Corporate Safety Manager for Cando Rail Services, which operates at 20 locations across Canada and the U.S., it is all about minimizing risks, whether with dangerous goods or any other products they handle.

"We do risk assessments on all our projects before we start them to understand what the risks are and what the control measures will be to control or eliminate



PHOTO: CANDO

Appréciation des clients

La sécurité dans le secteur ferroviaire industriel du Canada.

Faire rouler les trains du Canada en douceur est un travail d'équipe. De fabricants aux producteurs, en passant par les chemins de fer et les ports, tout le monde a un rôle à jouer, y compris les chemins de fer industriels.

On compte au pays plus de 450 chemins de fer industriels – typiquement des clients des chemins de fer de classe 1 et chemins de fer d'intérêt local. Plusieurs secteurs économiques comptent sur les chemins de fer industriels pour livrer leurs produits – des métaux aux minéraux en passant par les produits de la forêt et de la pétrochimie.

La sécurité avant tout

Mais les chemins de fer industriels ne se contentent pas de préserver la fluidité des chaînes d'approvisionnement. Comme participants du premier et du dernier mille, ils jouent un rôle critique pour assurer la livraison sans encombre des marchandises. Ils sont responsables de charger, décharger et déplacer les wagons en toute sécurité. En privilégiant la sécurité, ils aident à éviter les impacts potentiellement négatifs sur les employés et les communautés ainsi qu'à préserver la fluidité des chaînes d'approvisionnement, surtout en ce qui concerne le transport des marchandises dangereuses.

« La sécurité du transport des marchandises est une affaire d'équipe », explique Andy Ash, directeur des marchandises dangereuses de l'Association des chemins de fer du Canada (ACFC). « Ça commence en fait chez le client où l'on charge les wagons. Ils ont la responsabilité de confier des wagons sécuritaires. Mais c'est le transporteur ferroviaire qui en devient responsable une fois qu'il les prend en charge. Et ainsi de suite jusqu'au site de destination où a lieu le déchargement. Donc, tout le monde joue un rôle égal. »

Pour Jon McEachran, PDG de Vidal Street Park Industrial (VIP) Inc., mettre l'accent sur la sécurité est non seulement un devoir, mais c'est essentiel à la rentabilité de chemins de fer industriels comme le sien. VIP opère au coeur de la « vallée de la chimie » à Sarnia, en Ontario. Depuis son entrée en exploitation, en 2005, VIP traite la sécurité comme un élément du « quotidien », selon M. McEachran, et la sûreté de son exploitation est essentielle à sa capacité à attirer les entreprises.

« La sécurité vient toujours avant le prix aux yeux de nos clients, poursuit M. McEachran. Notre devise est le service, la sûreté et la sécurité. Nous constatons que nos clients veulent les trois. Vous ne pouvez pas travailler dans la vallée de la chimie si vous n'avez pas de bons antécédents de sécurité. »

« En ce qui concerne la sécurité, toutes les compagnies de chemin de fer essaient de mener une exploitation extrêmement sûre. » Steve Gallagher, Cando



“Safety always comes before price with our customers.”

Jon McEachran, Vidal Street Industrial Park

those risks,” says Gallagher. “We also have a robust safety management system that we roll out to all our employees at all our locations so it’s a consistently applied system that has specific targets, specific initiatives and specific actions associated with it to minimize our risks at different locations.”

McEachran says that minimizing risks starts with educating employees. At VIP’s operation in Sarnia, they hold weekly meetings to instruct staff on how to operate in the safest way possible.

“Once a week, we get together in the boardroom and sit down as a group and talk, find out if there are any concerns and go through a safety lesson that we’re dealing with at the time,” explains McEachran. “It might be a new contract or we’ll talk about cold weather — whatever we think is relevant. We hope it helps keep safety top of mind for our employees.”

Finding innovative ways to promote safety

Although safety has always been the railway industry’s top priority, innovations help support the industrial rail sector’s efforts to foster a strong safety culture. New technologies facilitate better communication, which enhances operational safety.

“From a transloading perspective there’s a lot of computerization of processes that make things that much easier,” Gallagher explains. “From a transportation perspective, we get a lot of information to and from customers – obviously EDI [electronic data interchange] – but in respect to apps on phones these days as well. For the dangerous goods industry, and for emergency responders, there are apps on their phones; they can take a look at what’s on a train when they sign up.”

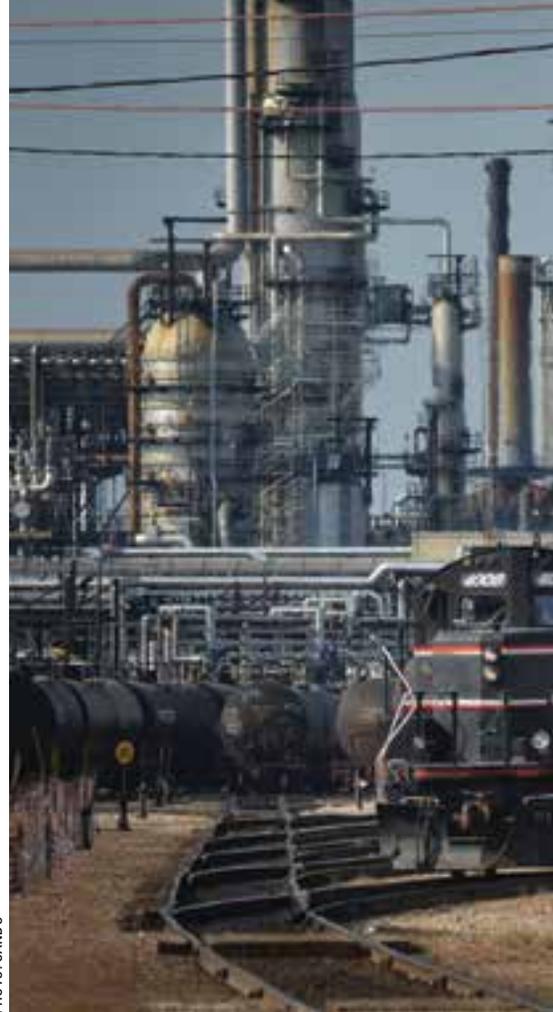
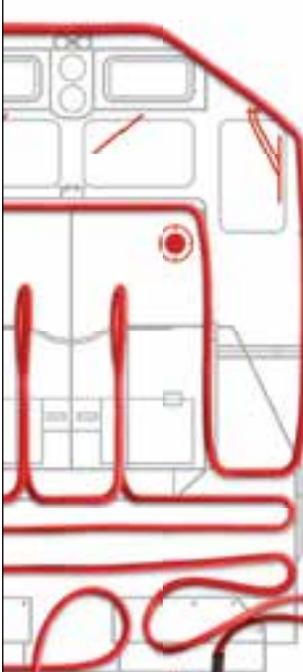


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Établir une solide culture de la sécurité

La création d'un secteur industriel ferroviaire sécuritaire nécessite du travail et de l'engagement. Pour Steve Gallagher, directeur de la sécurité pour Cando Rail Services, société active à 20 endroits au Canada et aux États-Unis, tout repose sur la réduction des risques, que ce soit avec des marchandises dangereuses ou d'autres produits.

« Tous nos projets font l'objet d'une évaluation des risques, poursuit M. Gallagher. Nous avons aussi un système de gestion de la sécurité robuste qui comprend des objectifs spécifiques, des initiatives spécifiques et des actions spécifiques afin de minimiser nos risques à chaque endroit. »

M. McEachran ajoute que la réduction des risques commence par l'éducation des employés. Les installations VIP de Sarnia tiennent des réunions hebdomadaires pour instruire le personnel sur la façon de



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Working together to build a safer rail sector

Helping industrial railways find ways to make their operations even safer is also where RAC comes in. For example, Cando recently worked with RAC to assess its safety culture. Using RAC’s safety assessment tool – part of a larger RAC-led initiative to enhance safety culture within the railway industry – the association surveyed Cando staff, analyzed the results, and provided the company with an improvement plan and other resources to foster a positive safety culture.

“It’s basically to understand where our culture is from a safety perspective and where we need to be to be that much better,” says Gallagher. “We’ve put new initiatives in place this year based on our safety culture assessment and we have new targets as well.”

The safety culture assessment is just one of the many services RAC provides to industrial railways. The RAC’s dangerous goods team also offers site inspections to assist



PHOTO: CANDO

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« **La sécurité vient toujours avant le prix aux yeux de nos clients.** »
Jon McEachran, Vidal Street Industrial Park

travailler de la manière la plus sûre possible.

« Une fois par semaine, nous réunissons les employés pour savoir s'il y a des problèmes et passer en revue une leçon de sécurité, explique M. McEachran. Le sujet peut porter sur un nouveau contrat ou le temps froid – tout dépend de ce qui nous semble pertinent. Nous espérons que cela aide nos employés à garder la sécurité en tête. »

Trouver des moyens novateurs pour promouvoir la sécurité

Bien que la sécurité ait toujours été la priorité absolue de l'industrie ferroviaire, les innovations aident à soutenir ses efforts pour favoriser une solide culture de sécurité. Les nouvelles technologies facilitent la communication, ce qui améliore la sécurité des opérations.

« Du point de vue du transbordement, il y a beaucoup d'informatisation pour nous faciliter la tâche, explique M. Gallagher. Nous échangeons beaucoup d'informations avec les clients – par EED [échange électronique de données] bien sûr – mais aussi par des applications de téléphone mobile. Celles-ci permettent aux intervenants d'urgence de savoir ce que contient un train. »

Travailler ensemble pour construire un secteur ferroviaire plus sûr

Aider les chemins de fer industriels à trouver des façons de rendre leurs opérations encore plus sûres est également un rôle de l'ACFC. Par exemple, Cando a récemment travaillé avec l'ACFC pour évaluer sa culture de la sécurité. En utilisant l'outil

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“It’s a whole team effort as far as the safe transportation of dangerous goods goes.” Andy Ash, RAC

members in transportation of dangerous goods compliance, and training that is specifically designed for the different products an industrial carrier may haul. The team’s training is about bringing together all the players in Canada’s rail system, so they can work together to find ways to build the safest industry possible.

“When it comes to safety, all the railway companies are out there trying to do the same thing and trying to operate an extremely safe railway,” explains Gallagher. “That’s where the RAC comes in handy; they work like the melting pot and the coordinator for all the different railways. The RAC brings us all together so that we’re able to share best practices.” ■



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« Le transport sécuritaire des marchandises dangereuses est un travail d'équipe. » Andy Ash, ACFC

d'évaluation de la sécurité de l'ACFC – qui fait partie d'une initiative plus vaste pour améliorer la culture de sécurité au sein de l'industrie ferroviaire – l'association a interrogé le personnel de Cando, a analysé les résultats et a présenté à l'entreprise un plan d'amélioration ainsi que d'autres ressources pour favoriser une culture de sécurité positive .

« Notre tâche consiste essentiellement à comprendre où se situe notre culture est du point de vue de la sécurité et où nous devons être, ajoute M. Gallagher. Nous avons mis de nouvelles initiatives en place, cette année, en fonction de notre évaluation de la culture de la sécurité et nous avons de nouveaux objectifs aussi. »

L'évaluation de la culture de la sécurité n'est que l'un des nombreux services que l'ACFC fournit aux chemins de fer industriels.

Son équipe des marchandises dangereuses offre également des inspections sur place et une formation spécifiquement conçue pour les produits qu'un chemin de fer industriel peut transporter. La formation sert à rassembler tous les acteurs dans le système ferroviaire du Canada, afin qu'ils puissent travailler ensemble pour trouver des façons de construire l'industrie la plus sûre possible.

« En ce qui concerne la sécurité, toutes les compagnies de chemin de fer essaient de mener une exploitation extrêmement sûre, conclut M. Gallagher. C'est là que l'ACFC montre toute son utilité : elle fait office de creuset et de coordinatrice pour tous les chemins de fer. L'ACFC nous rassemble afin que nous soyons en mesure d'échanger les meilleures pratiques. » ■



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100 YEARS OF

The evolution of rail sa

Canada's railways are among the safest in North America. How did the industry achieve this distinction? The timeline below highlights some important events and innovations involving RAC and its members that advanced rail safety in Canada.

1917

The Railway Association of Canada (RAC) was first established as the Special Committee on War and National Defence at a meeting of rail executives on Oct. 23, 1917. The purpose of the committee was to ensure the efficient movement of troops and supplies during the First World War. The committee was renamed the Railway Association of Canada in 1919, and was formally incorporated in 1953.

1951

The Uniform Code of Operating Rules (UCOR) was adopted by Canadian railways in 1951. Prior to that, each railway had its own individual rule book, broadly based on the U.S. Standard Code of Operating Rules. This led to serious variations in the requirements of individual railways, and impeded the smooth operation of the rail network. The UCOR was created by a committee of representatives from all federally regulated railways in Canada, and its adoption enabled the crews of one railway to seamlessly operate over another.

1952

CP became the first railway in North America to operate piggyback trains – highway trailers on flatcars – in overnight service between Montreal and Toronto. The flatcars were equipped with roller bearings that allowed them to safely travel at speeds up to 65 m.p.h.

1954

In 1954, CN was the first company to introduce continuous welded rail (CWR) in Canada. With fewer joints, CWR reduced wear and tear on equipment, and resulted in fewer track maintenance issues.



PHOTO: CANADA SCIENCE AND TECHNOLOGY MUSEUM

A sectionman welds rail at Turcot Yard in Montreal in 1942.

1961

CN installed Canada's first hot box detector. Trackside hot box detectors monitor the temperature of passing axle bearings and alert crews to potential axel overheating that could result in a derailment.

1965

In 1965, CN extended Centralized Traffic Control (CTC) – a technology which allows a train dispatcher to remotely control signals and switches – from coast to coast. This expansion greatly enhanced the safety and efficiency the Canadian rail network.



CREDIT: CANADA SCIENCE AND TECHNOLOGY MUSEUM

A dispatcher remotely controls rail operations in Ottawa from a Centralized Traffic Control panel.

RAIL SAFETY

fety in Canada

1970

CP's first official coal unit-train arrived at Roberts Bank, near Vancouver, with 9,000 tonnes of coking coal from Sparwood, B.C. The train – which consisted of 88 “bathtub” gondola cars – made use of what was called “robot technology”; in addition to a head-end locomotive, a radio-controlled locomotive was placed elsewhere on the train to better distribute power, and thus improve safety.

PHOTO: CITY OF VANCOUVER ARCHIVES / VANCOUVER EXPRESS / PUGSTEM PUBLICATIONS



People watch as the first shipment of coal from the Kootenay region arrives at the Roberts Bank Superport in Delta, B.C.

1999

The Railway Association of Canada's Dangerous Goods Team was created in June 1999. This team provides essential training and audit services to RAC's member railways and assists them with regulatory compliance. Since its inception, RAC's DG Team has held more than 1,200 TRANSCAER events to inform municipalities about the products being transported through their communities.



RAC Dangerous Goods Specialist Curtis Myson (orange vest) trains first responders at RAC's Railway Emergency Response course at the Justice Institute of British Columbia in September 2016.

PHOTO: OPERATION LIFESAVER

1980

Operation Lifesaver (OL), an organization jointly funded by the Railway Association of Canada and Transport Canada, was founded in 1981. To this day, OL's mission is to teach Canadians about rail crossing safety, and to raise awareness about the dangers of trespassing on railway property.



Operation Lifesaver's logo, circa 1990.

2015

In collaboration with RAC and the Association of American Railroads, Canada's railways launched the AskRail™ mobile app, aimed at providing emergency responders with real-time information about railcar contents in the event of an emergency. ■



PHOTO: ASSOCIATION OF AMERICAN RAILROADS

An emergency responder connects to the AskRail mobile app.

100 ANS DE SÉCU

L'évolution de la sécurité

Les chemins de fer du Canada sont parmi les plus sûrs en Amérique du Nord. Comment l'industrie a-t-elle atteint cette distinction? La chronologie ci-dessous énumère des faits marquants et innovations de l'ACFC et de ses membres qui ont fait progresser la sécurité ferroviaire.

1917

L'Association des chemins de fer du Canada (ACFC) a d'abord été créée comme Comité spécial sur la guerre et la défense nationale à une réunion de dirigeants ferroviaires le 23 octobre 1917. Le comité avait pour but d'assurer le déplacement efficace des troupes et du matériel pendant la Première Guerre mondiale. Il a été renommé l'Association des chemins de fer du Canada en 1919, et a été officiellement constitué en société en 1953.

1951

Le Règlement unifié d'exploitation (RUE) a été adopté par les chemins de fer canadiens en 1951. Précédemment, chaque chemin de fer avait son propre règlement, généralement basé sur la norme américaine. Cette diversité entraînait de graves variations et entravait le bon fonctionnement du réseau ferroviaire. Le RUE a été créé par un comité de représentants de tous les chemins de fer sous réglementation fédérale, et son adoption a permis aux équipes des diverses compagnies de collaborer de façon harmonieuse.

1952

Le CP est devenu le premier chemin de fer en Amérique du Nord à exploiter des trains de ferroutage – remorques routières sur wagons plats – en service de nuit entre Montréal et Toronto. Les wagons plats étaient équipés de paliers à rouleaux qui leur permettaient de filer en toute sécurité jusqu'à 65 mph.

1954

En 1954, le CN fut la première entreprise à utiliser des rails soudés au Canada. Avec moins de joints, cela réduisait l'usure du matériel, ainsi que les problèmes de maintenance des voies.



PHOTO : MUSEE DES SCIENCES ET DE LA TECHNOLOGIE DU CANADA

Un travailleur du CN soude des rails au triage Turcot à Montréal en 1942.

1961

Le CN a installé le premier détecteur de boîtes chaudes au Canada. Les détecteurs de boîtes chaudes surveillent la température des paliers d'essieu et alertent les équipages des surchauffes pouvant entraîner un déraillement.

1965

En 1965, le CN a élargi la commande centralisée de la circulation (CCC) – une technologie permettant à un répartiteur de trains de contrôler les signaux et les aiguillages à distance – d'un océan à l'autre. Cette expansion a grandement amélioré la sécurité et l'efficacité du réseau ferroviaire canadien.



PHOTO : MUSEE DES SCIENCES ET DE LA TECHNOLOGIE DU CANADA

Un répartiteur contrôle à distance les opérations ferroviaires à Ottawa à l'aide d'un panneau de commande centralisée de la circulation.

RITÉ FERROVIAIRE

ferroviaire au Canada

1970

Le premier train-bloc au charbon officiel du CP est arrivé à Roberts Bank, près de Vancouver, avec 9 000 tonnes de charbon à coke en provenance de Sparwood, en Colombie-Britannique. Le train – qui était formé de 88 wagons-tombereaux à parois hautes – utilisait ce qu'on appelait la « technologie robot » ; en plus d'une locomotive de tête, une locomotive contrôlée par radio était placée à un autre endroit du train afin de mieux répartir la puissance.

ARCHIVES DE LA VILLE DE VANCOUVER /
VANCOUVER EXPRESS / PUGSTEIN PUBLICATIONS



Des gens regardent la première expédition de charbon de la région de Kootenay arriver au Roberts Bank Superport à Delta, C.-B.

1980

Opération Gareautrain, une organisation financée conjointement par l'Association des chemins de fer du Canada et Transports Canada, a été fondée en 1981. À ce jour, la mission d'Opération Gareautrain est d'informer les Canadiens sur la sécurité aux passages à niveau et à les sensibiliser aux dangers des intrusions sur le domaine ferroviaire.

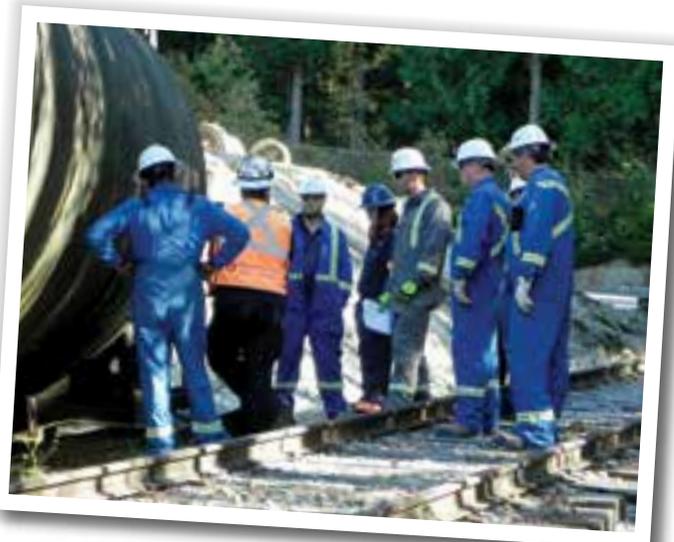
PHOTO : OPÉRATION GAREAUTRAIN



Logo d'Opération Gareautrain vers 1990.

1999

Création en juin de l'équipe des marchandises dangereuses de l'ACFC. Cette équipe fournit des services de formation et d'audit essentiels aux chemins de fer membres de l'ACFC. Depuis sa création, l'équipe a tenu plus de 1200 événements TransCAER pour informer les municipalités sur les produits transportés à travers leurs communautés.



Le spécialiste des marchandises dangereuses de l'ACFC, Curtis Myson (gilet orange), forme les premiers intervenants au Justice Institute of British Columbia en septembre 2016.

2015

En collaboration avec l'ACFC et l'Association of American Railroads, les chemins de fer du Canada ont lancé l'application mobile AskRail^{MC}, visant à fournir des informations en temps réel sur le contenu des wagons en cas d'urgence. ■

PHOTO : ASSOCIATION OF AMERICAN RAILROADS



Un intervenant d'urgence se connecte à l'application mobile AskRail

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