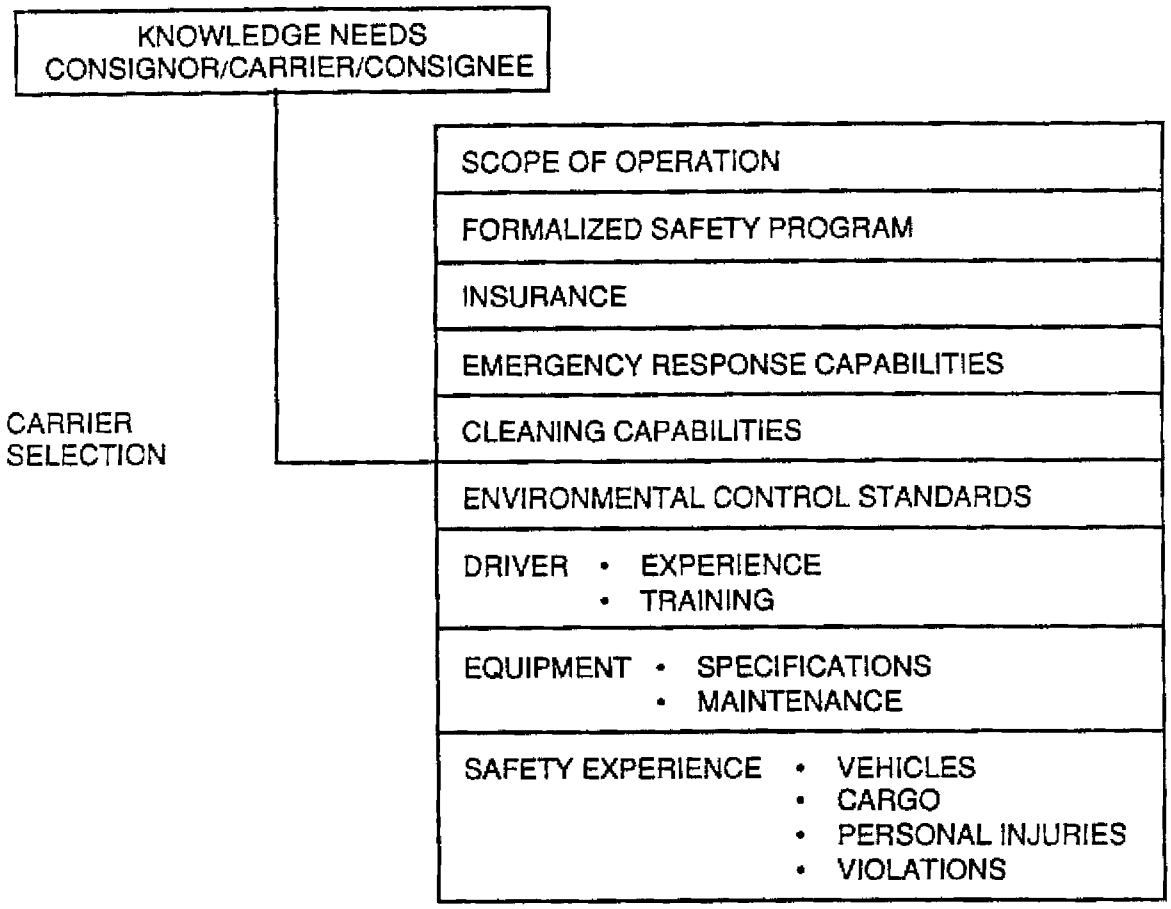
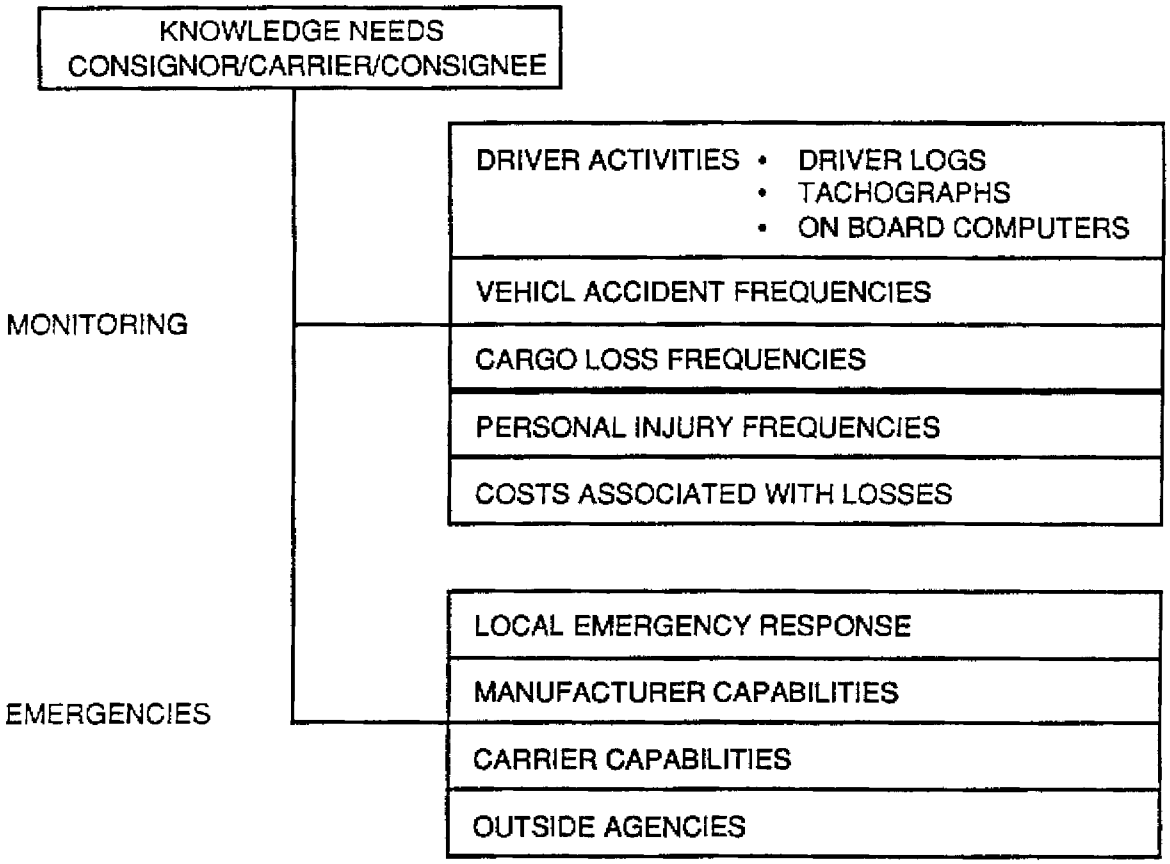
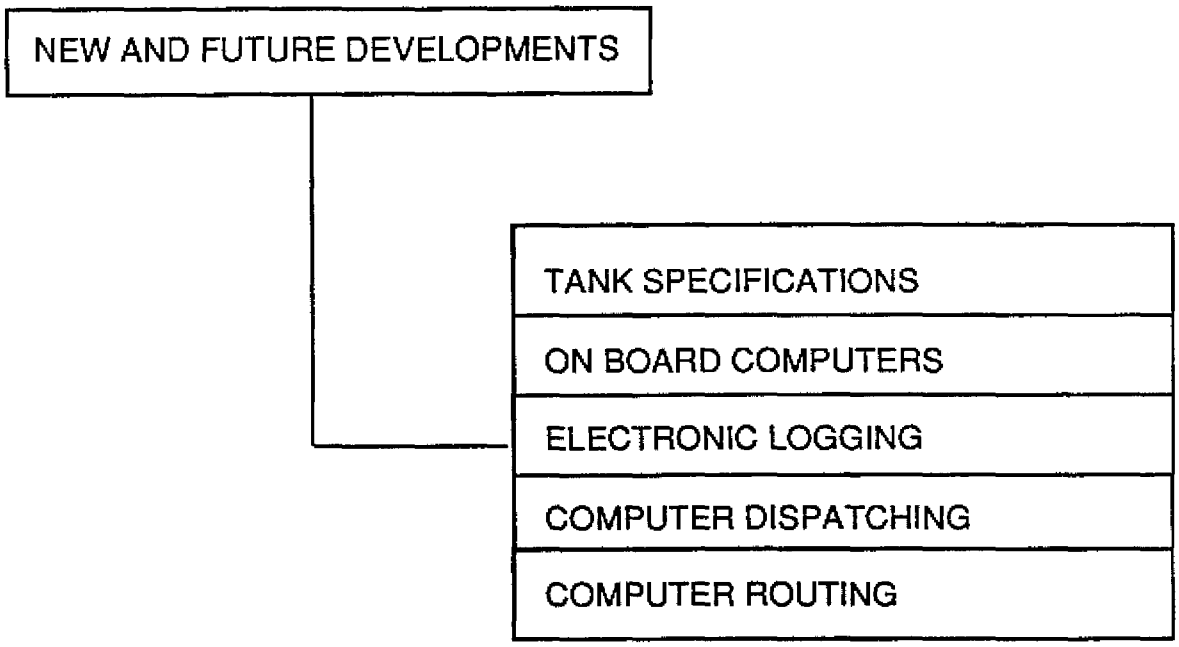

KNOWLEDGE NEEDS
CONSIGNOR/CARRIER/CONSIGNEE
CARRIER
SELECTION
SCOPE OF OPERATION
FORMALIZED SAFETY PROGRAM
INSURANCE
EMERGENCY RESPONSE CAPABILITIES
CLEANING CAPABILITIES
ENVIRONMENTAL CONTROL STANDARDS
DRIVER • EXPERIENCE
• TRAINING
EQUIPMENT • SPECIFICATIONS
• MAINTENANCE
SAFETY EXPERIENCE • VEHICLES
• CARGO
• PERSONAL INJURIES
• VIOLATIONS





ACCIDENT PREVENTION : THE ROLE OF THE RAIL CARRIER

A PRESENTATION ON BEHALF OF CN/CP

Safety is fundamental to sound railway operations. The customers who keep us in business need to know their goods will reach their destination intact and on time; our employees have an undeniable right to work in a safe, secure environment; and the general public justifiably demands that railways go about their business as unobtrusively as humanly possible.

Safety is job one at CN, at CP, and at every other Canadian railway. Our approach to safety starts with the premise that anything less than a total commitment is unacceptable, and our policies with respect to safe railway operations develop from there.

That this commitment is more than lip service can be seen in the fact both of Canada's major railways - CN and CP - consistently rank in the top five of North America's 28 major railroads in terms of safety.

The statement gains an interesting perspective when you consider that during the past 10 years, train movement accidents in relation to workload have decreased by 49 percent; the absolute number of train accidents on our lines have decreased by 53 percent; employee lost-time injuries have declined by 47 percent; injuries to the general public have declined by 33 percent; and overall fatalities have decreased by 15 percent.

CN and CP Rail on any one given day, operate a total of 800 freight trains and 315 passenger trains over 60,000 km of track from coast to coast, in every conceivable type of geographic and climatic condition.

And despite the fact that, dangerous goods, on average, account for about 7 percent of the total traffic transported on this traffic, or about 223,000 loads each year, the number of train and yard incidences that have resulted in a tank car rupture or leak during the past 5 years averages less than 5 per year.

Our hearts and minds are in the right place, but accidents still do and will continue to happen. We try our best to prevent them but where we can't, we have programs and procedures in place to lessen their severity and impact.

First, I'd like to look at some of the ways we try and prevent them. The key to maintaining and improving the safety of rail operations is training. CN and CP invest nearly $32 million annually in this area and have one of the most advanced instructional technology systems in North America.

This training is given to employees involved in every aspect of train handling: car persons, yardpersons, yardmasters, dispatchers, maintenance crews, welders, dangerous commodity teams, etc.

An important element in the CN's training program is its multifaceted transportation training centre in Gimli, Manitoba. There, apprentice and experienced locomotive engineers use sophisticated locomotive simulators to learn or expand their skills. The centre also provides refresher courses for dispatchers and operating officers.

CP Rail conducts training for new dispatchers and refresher courses for chiefs and existing dispatchers at its training center in Montreal. The mechanical department uses a stationary track/train dynamics analyzer in Montreal's Windsor station, and two mobile train dynamics analyzers to conduct train simulation as part of the on-going training of locomotive engineers.

Other railway training centres are located in Ottawa, Calgary, Toronto, Winnipeg, Kamloops, B.C., and Charny, Quebec. They ensure that the railway's welders and track maintenance crews are fully competent to meet the high standards of track installation and maintenance required by today's faster, heavier trains.

As well, employees newly hired to running trade positions are given complete and comprehensive training on their respective regions. Those promoted to conductor receive all instruction necessary for the safe discharge of their new responsibilities.

Employees who conduct car inspections are trained and certified according to Canadian Transport Commission requirements. For specific response personnel, the railways supplement this with their own internal intensified training program to make sure their inspectors actually surpass the standard CTC requirements.

And concern for safety reaches down to the shop floor, as the railways conduct regular safety audits of main workshop and other repair and maintenance facilities.

As well, joint union/management health and safety committees monitor housekeeping practices, the condition of equipment, compliance with safety rules, and employee work habits.

For employees' personal safety, the railways enforce mandatory use of protective gear such as hard hats, protective eyewear, ear plugs, protective footwear, and protective clothing.

That is the human side of the safety equation; complementing and completing it is the railways' commitment to safe and reliable track structures, equipment, and operating procedures. In this respect, research and the application of technology have allowed the railways to make significant improvements in safety.

As I mentioned earlier, the CN and CP systems combined comprise about 60,000 km of track stretching from St. John's Newfoundland to Vancouver Island. One of the largest annual expenditures is the maintenance and upgrading of this fixed plant to ensure the safety of the equipment and cargo which travels over it.

The main lines of these two railways now handle 86 percent of their total workload. For such volumes of traffic to travel safely, track structures needed to be heavier, prompting the installation of over 20,000 km of continuous welded rail and more than 3 million concrete ties since 1970.

The demands of installing and maintaining this improved track structure have required the simultaneous design of new rail-laying equipment. The highly advanced P-811 and rail change-out machines are able to completely replace or renew track components in a highly efficient and safe manner. Hydraulic tools, ballast regulators, high speed tampers and switch undercutters, all contribute to the improved safety and efficiency of track structure maintenance.

Safety and ways of improving it are also of prime concern to the railways' respective technical research programs. Determining the causes of accidents and recommending courses of action is one of their roles.

In 1986, to supplement its many on-going track inspection programs, CN introduced a special track-geometry consist, known as Track Evaluation Systems, or TEST. Operating at speeds of 100 kph, TEST uses lasers, electronic sensors, video cameras, and talking computers to analyse and monitor track conditions as they appear under the weight of a moving, fully-loaded freight or passenger car. TEST is an important innovation in ensuring the safety of CN track because it detects geometric faults in the track before they can cause damage or accidents. And CP Rail has recently developed a new track evaluation system that is currently being tested in the field.

The high standards the railways demand in the inspection and maintenance of their track also apply to their company's rolling stock. The same ultrasonic testing which detects hidden flaws in rails is now being used to test all new axles and wheels.

Improvements to inspection, maintenance, and repair procedures have resulted in a steady rise in the number of miles CN and CP equipment travels before component failure removes it from service for repair. For example, in 1977, CN equipment averaged 14 million kms per yard or train movement before requiring service due to component failure; by 1986, that number had risen to 148 million kms.

CP Rail, for its part, has initiated a program of planned maintenance which involves gauging wear rates and projecting change out dates for rail car components. This program will improve car availability and reliability, and reduce maintenance costs.

One of the main causes of equipment related failure is the overheated journal, or hot box. To reduce the number of hot box incidents, CN and CP are systematically replacing friction bearings with roller bearings, which are less susceptible to overheating. Of all the rolling stock now operating on their lines, 85 percent are equipped with these safer roller bearings.

CN and CP are also expanding their already extensive network of hot box detectors. These detectors are an essential part of the railways' commitment to prevent incidents. Hot box detectors identify overheated journals that could lead to a derailment.

As of October 1981, Canadian railroads under the jurisdiction of the CTC were ordered to carry out inspections and reduce train speeds when carrying one or more special commodities through certain densely populated areas. Initially the order addressed areas with a population of 100,000 or more, but the order has now been expanded to include areas with a population of 10,000 or more. CN and CP have made maximum use of the hot box detectors to meet the CTC's gateway and interval inspection requirements.

Another safety imperative is the on-going installation in our locomotives of reset safety controls. These monitor the movements of the locomotive engineer and operate on an electronic timing cycle. The circuit is maintained when the engineer operates or touches the controls. If the circuit is broken for more than 23 seconds, panel lights are activated and an alarm sounds. If appropriate action is not taken to restore the circuit, the train brakes are applied automatically. By the end of 1987, all CN's main line fleet of locomotives will be equipped with this feature. CP's fleet is expected to be fully equipped by the end of 1988.

Over the years, CN and CP have developed a full range of computer-based programs to improve the efficiency of their human resources, and of their operations functions.

Included are programs to help dispatchers keep track of their trains, and maintenance crews keep their equipment in top-notch condition. Computers also play a very large role in our own procedures to ensure the safe transportation of dangerous goods. The programs provide immediate emergency response information about dangerous goods carried on CN or CP lines, and determine the proper position in a train consist for cars carrying dangerous goods. An incident reporting program helps identify any potential difficulties in the safe handling of these goods.

To this point, I have focused on CN and CP initiatives. But I would be remiss if I didn't say a few words about a truly successful, industry-originated safety program, the tank car retrofit program. I am sure most if not all here today are familiar with it. The fitting of headshields, double shelf couplers, and thermal protection is a classic example of how industry, of its own volition, solved a problem without benefit of legislation.

This is not to imply that legislation is not important, or that it does not have its uses. But in order for any legislation to be effective, it is imperative that it be well thought out, that its benefits are real as well as perceived, and that the cost of implementation does not outweigh the advantages.

An illustration of the pros and cons of the legislative process can be seen in the current discussion of CTC regulation requiring the orange banding of pressure tank cars, scheduled for introduction in 1990. The CTC's main argument seems to be that in the event of a derailment or a yard emergency, the orange banded cars would be easily recognized, and thus more safely handled.

Opponents of the regulation contend that safety will decrease if employees and response personnel concentrate on cars with orange bands, and become complacent with non-banded cars. There is also concern that by relying solely on the orange band and not on documentation, emergency forces would not know whether the car was loaded or empty, nor know the nature of the car's contents. And the U.S. have stated that they are not going to require orange banded cars, and would expect to be able to offer such unbanded cars for transport into Canada.

Support for orange banding comes from Canadian emergency forces, in particular fire fighters. And the Minister's advisory council on dangerous goods has recommended that passage of the orange banding regulation should not be delayed.

However, the feeling in the industry appears to be that whether orange banding is useful or not, other forms of tank car identification should be explored, and that any regulations should take U.S. intentions into consideration.

Regardless of how they are identified, however, the transportation of dangerous goods by rail is nothing new; if anything, it has become an increasingly attractive option for shippers given rail's demonstrated ability to carry these goods safely. In fact, 99.7 percent of all dangerous goods handled by CN and CP arrive safely at their destination.

Another interesting statistic is that of the .3 percent that don't arrive without incident, almost half, or 45 percent were tank cars found leaking but not because of a train or yard accident.

Tank cars found leaking, loads and empties are an ever increasing concern for the railways and for shippers. The cost of just one leaking tank car in a rail yard can be astronomical when one considers the variables. For example, a leaking tank car in a busy yard such as Sarnia or Lethbridge can literally tie up the yard until the affected car is isolated and/or secured.

The normal protocol is that once the yard supervisor is notified of the leaking car, all activity on the track where the leaking car is located is called to a halt. As well, activities on adjacent tracks may also be halted or restricted depending upon the commodity involved and the severity of the leak.

Trains cannot be made up, taken apart, arrived or departed until the leaking tank car is secured. In certain instances, leaking tank cars cannot be secured and the product must be transferred to another rail car or highway tank causing the rail yard to be shut down or restricted for an even greater period of time.

In addition to the obvious operating problems leaking tank cars create, the railways are also very concerned for the safety of their employees. On more than one occasion, a poorly secured manway cover has resulted in a member of the rail crew being splashed with product.

Because leaking tank car occurrences are reportable to the regulatory authorities and in certain situations it is necessary to have the local fire and police forces on hand to assist during the securement or transfer operation, the railways immediately become the focal point for negative publicity regardless of the cause or effectiveness of the emergency response.

However, dangerous goods shipments are ***not*** accidents waiting to happen. Movement of these goods is carefully prescribed in stringent government regulations covering their handling, packaging, and inspection. And in the event an incident involving a dangerous commodity does occur, railway personnel follow comprehensive and continually evaluated procedures to contain it.

Before I give you details of these procedures, I would like to point out that we do not for one moment believe we can unilaterally manage every dangerous goods rail incident without the expertise and assistance of industry and municipalities.

It goes without saying that as carriers or shippers of dangerous goods, we have a responsibility to ensure that dangerous goods are transported in a safe manner, consistent with regulatory requirements and our company policies.

As shippers, you are obliged to ensure that the dangerous goods you offer are properly packaged, whether it be a drum or a rail tank car, that the goods are marked with appropriate labels and/or placards, and that a properly prepared shipping document accompanies each consignment. Failure to use appropriate packagings or to properly secure a tank car will most likely at best result in your traffic being delayed. More likely, it will result in your emergency response plan being activated to secure or transfer the product.

As for incomplete or improperly prepared shipping documents and the inappropriate use of labels and placards, cars will be held at the location where the discrepancy is discovered until verified with the shipper. There is also a danger that should an incident occur before the discrepancy is discovered, that inappropriate emergency response action could be initiated.

Upon arrival at the shippers plant, rail carriers are responsible for conducting an on-the-ground visual inspection to ensure the rail cars are ready for transport. This includes making sure loading/unloading lines have been disconnected, checking running gear for any obvious defects, and ensuring that the placards on the car agree with the description on the shipping papers.

As responsible carriers committed to safety, the railways are very conscious of the need to develop and maintain close communications with both the manufacturers who ship the dangerous goods we carry, and with the general public who bear the brunt of the consequences should those commodities be involved in an incident.

In the event an incident does occur, communication between the railway and shipper officials, the community, and appropriate regulatory authorities is initially handled by the train's conductor. The conductor's first act is to immediately apprise the dispatcher of the emergency.

The dispatcher acts as advisor and communications co-ordinator during the period immediately following the event. Together with the conductor, the dispatcher reviews action taken at the scene, and responds to any request for assistance from fire, police, or medical services.

No attempt to have the site cleared is authorized until the emergency area has been declared safe. Every co-operation is offered civil authorities, and to officials representing the shipper, by making available any documentation or other factual information that may help the decision-making process relative to employee or public safety.

After a review of the action taken by the the conductor at the scene, and of the measures initiated by the train dispatching office, computer copies of the train consist, emergency response procedures, and shipping document information are generated at the regional operations control centre to provide a clearer picture of the cars' commodities, and the potential hazards of the products involved.

Officials from transportation, equipment, engineering, public affairs, and regional operations are notified on a need-to-know basis, as is the special commodities officer responsible for emergency response.

A senior rail operations officer is dispatched to the incident scene as quickly as possible to take on responsibility as on-scene commander. A red vest with the word "commander" displayed identifies this person from CN, whereas the officer from CP will have a blue and white vest with the word "coordinator" displayed.

Should the incident be of such magnitude that a civil authority takes charge as the on-scene commander, a red vest with the words "duty officer" displayed identifies the CN officer in charge of railway activities at the scene. The CP railway officer will retain the blue and white vest with the word co-ordinator.

There's no question that both railways are wholly committed to an open spirit of co-operation at such times. However, it would be unrealistic to expect that such a commitment would always and every time translate smoothly into reality.

But the fact of the matter is, and many if not all of you can attest to this from personal experience, that the stresses and pressures at work during an emergency situation can put even the most sublime of communication and co-operation intentions to rather severe tests. And if at any time during such emergencies we do not appear to be living up to the letter and the spirit of our commitment to communication and co-operation, we'd like you to let us know.

To return to our incident scenario: the railway on-scene commander establishes a command post, initiates a log book to be maintained there, and verifies that appropriate action has been taken by the train crew. The on-scene commander also directs the public affairs officer in contacting community officials and the media as soon as possible.

The on-scene commander/co-ordinator works with the emergency forces, regulatory agencies, and other civic authorities as the incident may dictate, and makes available all documentation relating to the products involved.

As traffic volumes have increased over the years, and new potentially hazardous products have been introduced into the market place, railways have recognized they can no longer rely solely on shippers or local emergency forces for assistance.

As a result, CN and CP now have emergency response personnel on stand-by at 52 locations across Canada. Emergency response equipment includes 24 auxiliaries, 26 hi-rail cranes, 16 wreck dozers and 24 hydraulic rerailers, strategically located throughout Canada to maximize response efforts.

In addition to this equipment for clearing derailments, the two railways also have 29 emergency response units ranging from 45 ft. trailers designed and equipped with communication equipment to serve as mobile communication posts, to the smaller, self-propelled emergency response vehicles that contain support supplies and materials used by the railway emergency response personnel at the scene.

The Canadian rail industry is determined to do everything possible to maintain and improve the safe movement of dangerous goods. Statistics continue to confirm that the rail way is the safe way. We want the public, and our customers, to feel comfortable with us and the way we do business. In an era of severe competition that can only intensify once deregulation comes into effect in January 1988, to be unsafe means to lose business. And that alone, apart from a myriad other excellent reasons, guarantees that safety remains job one.