

RAILWAY OCCURRENCE REPORT
R98M0029

MAIN TRACK RUNAWAY, COLLISION AND DERAILMENT

MATAPÉDIA RAILWAY COMPANY
CANADIAN NATIONAL TRAIN NO. A402-21-24
MILE 105.4, MONT-JOLI SUBDIVISION
MONT-JOLI, QUEBEC
24 SEPTEMBER 1998



The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

Railway Occurrence Report

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Synopsis

On 24 September 1998, at approximately 1240 eastern daylight time, 25 cars from Canadian National train No. A402-21-24 rolled uncontrolled on the main track of the Matapédia Railway Company (MRC) and then collided with four MRC yard locomotives standing on the main track in front of the station at Mont-Joli, Quebec. Seven cars, four yard locomotives and several hundred feet of main and yard tracks were damaged. There was also substantial damage to private property, including the station platform safety railing and four private vehicles in the station parking lot. There were no injuries.

Section 3 of this report contains the Board's findings as to causes and contributing factors and other findings. The Board has also identified safety deficiencies related to railway company communications, supervision and entry requirements for new operations. Section 4 lists relevant safety action taken by the industry, Transport Canada and the TSB. The Board has issued four safety recommendations to address the identified safety deficiencies.

Ce rapport est également disponible en français.

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1.0 *Factual Information*

1.1 *The Accident*

Canadian National (CN) train A402-21-24 (train 402) departed CN Joffre Yard at Charny, Quebec, on 24 September 1998, and arrived at Mont-Joli, Quebec, with 2 locomotives and 25 cars. At approximately 1208 eastern daylight time (EDT)¹, the CN crew members stopped their train on the main track on a grade at Mile 106 of the Matapédia Railway Company (MRC)² Mont-Joli Subdivision, just west of the industrial track switch. The CN crew disconnected the locomotives and left all the rail cars on its train at that location for subsequent handling and placement in Mont-Joli yard tracks by MRC employees. The conductor closed the locomotive angle cock on the brake line between the trailing locomotive and the first rail car. The locomotive engineer secured the remaining portion of the train using the emergency feature of the Sense and Brake Unit (SBU) located on the last car. Hand brakes were not applied to the rail cars left at that location.

The CN crew members uncoupled the locomotive consist from the train and proceeded into the Mont-Joli Yard to store the locomotives. They placed the locomotives on track RJ-26 as there were already two locomotives occupying the designated tie-up track for locomotives (track RJ-27). As they were proceeding to track RJ-26, the CN crew members noticed that there were four MRC locomotives stopped on the main track in front of the Mont-Joli Station. The CN crew members secured their locomotives, then went to the station to complete their paperwork.

At approximately 1240, both CN and MRC employees heard a loud noise. They determined that the portion of the train that the CN crew had left at Mile 106 had rolled eastward down the hill and collided with the four MRC locomotives in front of the station.

A tank car, which was crushed and opened by the impact, spilled some residual content into the parking lot and onto the street. A commercial truck, owned by Air Liquide Canada Inc., carrying cylinders of compressed gas, was crushed (Figure 1). The employees in the vicinity of the station immediately left. The police and fire department cordoned off the area and determined that the product from the tank car was non-hazardous (molasses) and that the compressed gas cylinders were not damaged. The police and fire department also coordinated and controlled the clean-up operation. The derailed cars came to rest close to commercial and residential properties in the centre of the town. The location, size and noise of the accident attracted significant local interest and media coverage.

¹ All times are EDT (Coordinated Universal Time (UTC) minus four hours) unless otherwise indicated.

² The name of the company was changed to Matapédia and Gulf Railway Company some time after the accident.



Figure 1 - View of accident scene looking east with station and local businesses in the background

The cars not damaged in the derailment were examined and it was determined that the air brakes on all but the last two cars of the train were released and that the angle cock of the lead car was in the open position.

The local police investigation into this occurrence concluded that, after the crew uncoupled the locomotive consist and left the location, two youths (aged 13 and 15) accessed the railway property at Gaboury Boulevard and walked westward along the tracks toward the local high school, Polyvalente Le Mistral, which bordered the south side of the MRC main track. They apparently walked over to where the cars were standing on the track, and pulled the air brake release rod on most of the 25 cars. This released the brakes on almost all cars. The cars then began rolling eastward down the hill toward the Mont-Joli Station. The individuals then apparently climbed aboard one of the moving cars, riding it for a short distance, then jumped off and continued on to school. The two youths were subsequently charged with criminal mischief.

1.2 *Injuries*

There were no injuries.

1.3 *Damage to Equipment*

1.3.1 *Train 402*

Seven cars were damaged: three sustained minor damage, two were extensively damaged and two were destroyed.

1.3.2 *MRC Locomotives*

The four MRC locomotives standing on the main track sustained minor damage.

1.3.3 *Other Damage*

Four automobiles parked in the station parking lot were destroyed by the derailed rail cars (Figure 2). There was extensive damage to the station platform safety railing, and several hundred feet of main and yard tracks, including 78 feet of rail and 34 railway ties that required replacing.



Figure 2 - Two of the four automobiles damaged in the accident

1.4 *Personnel Information*

1.4.1 *Crew on CN Train 402*

The CN operating crew consisted of a locomotive engineer and a conductor. They were qualified by CN for their respective positions and met fitness and rest standards.

1.4.2 *Crew on MRC Locomotives*

The MRC yard crew consisted of a locomotive engineer and a conductor. They were last qualified through CN for their respective positions and met fitness and rest standards.

1.5 *Train Information*

1.5.1 *CN Train 402*

Train 402 consisted of 2 locomotives and 25 cars: 3 loads and 22 empties, including 1 residue car which last contained sodium chlorate, Class 5.1 (UN 1495). The train was approximately 1,500 feet in length and weighed about 1,090 tons.

1.5.2 *MRC Locomotives*

The four stationary locomotives were being used by an MRC yard crew for switching. Before the accident, they had been secured with the hand brakes and left unattended on the main track in front of the Mont-Joli Station. The four locomotives measured approximately 260 feet in length and weighed about 640 tons.

1.6 *Occurrence Site Information*

1.6.1 *MRC Territory*

The MRC is a short line railway under federal jurisdiction which operates between Mont-Joli, at Mile 106.3, and Tide Head, New Brunswick, at Mile 4.7 of the Mont-Joli Subdivision. The MRC connects to the CN main track at Mile 106.3 and the New Brunswick East Coast Railway (NBEC) at Tide Head, near Campbellton, New Brunswick. The Chemin de fer Baie des Chaleurs (CFBC) had an agreement with the MRC allowing the CFBC running rights to Campbellton.

At Mont-Joli, the MRC connects to the Canada Gulf Terminal Railway (CGTR) and at Matapédia, Mile 12.9, the MRC connects with the CFBC. Figure 3 shows the extent of the MRC trackage and adjoining railways. A geographic map is contained in Appendix A.

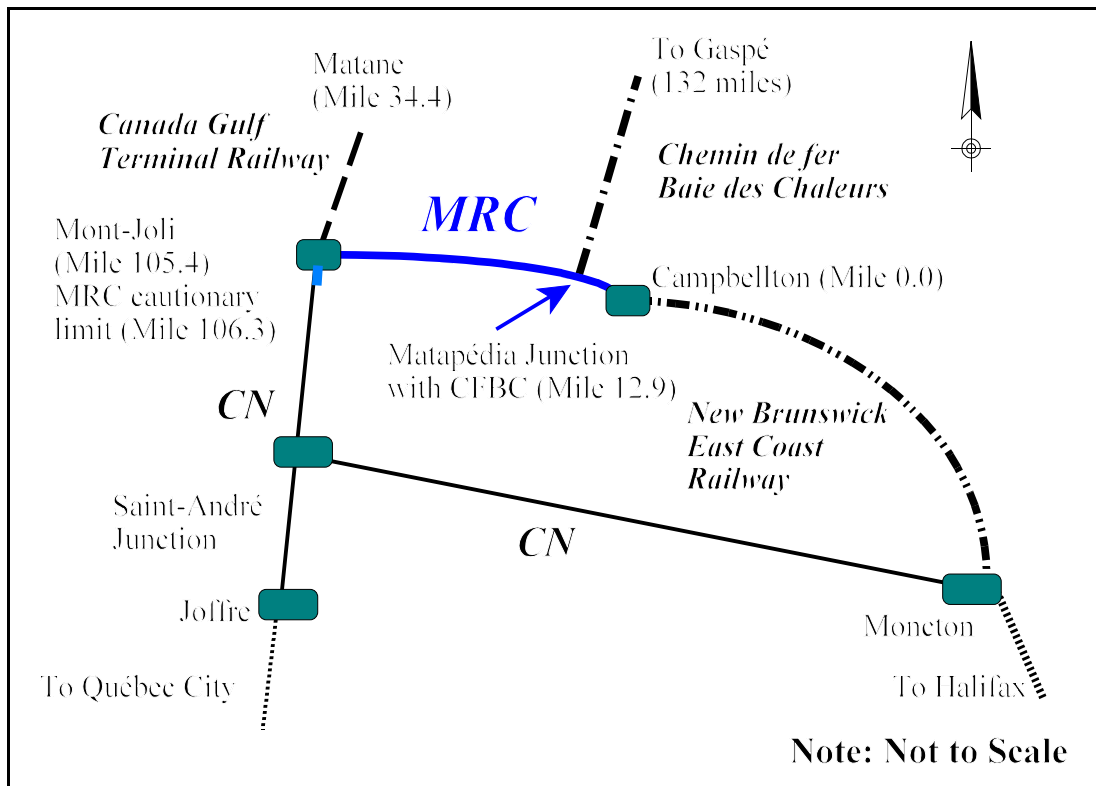


Figure 3 - Schematic showing MRC trackage and connecting railways

VIA Rail Canada Inc. (VIA) operates passenger trains between Montreal and Halifax (the “Ocean”) over the MRC railway six days a week, and also trains between Gaspé and Matapédia (the “Chaleur”) three days a week. The “Chaleur” train connects with the “Ocean” train at Matapédia, which is on MRC territory.

Six other railways, including the MRC, either were connected with, or operated on, MRC trackage. When operating on the tracks of another railway, all employees are required to operate in accordance with the rules and instructions specified by that particular company.

1.6.2 Mont-Joli

The MRC track roughly divides the town of Mont-Joli into a north and south section. The yard and station area are situated near the centre of the town. There are two railway overpasses, one crossing Gaboury Boulevard at Mile 105.8 and the other over Jacques-Cartier Boulevard at Mile 105.49 of the MRC Mont-Joli Subdivision (Figure 4). Both boulevards have a sidewalk on one side.

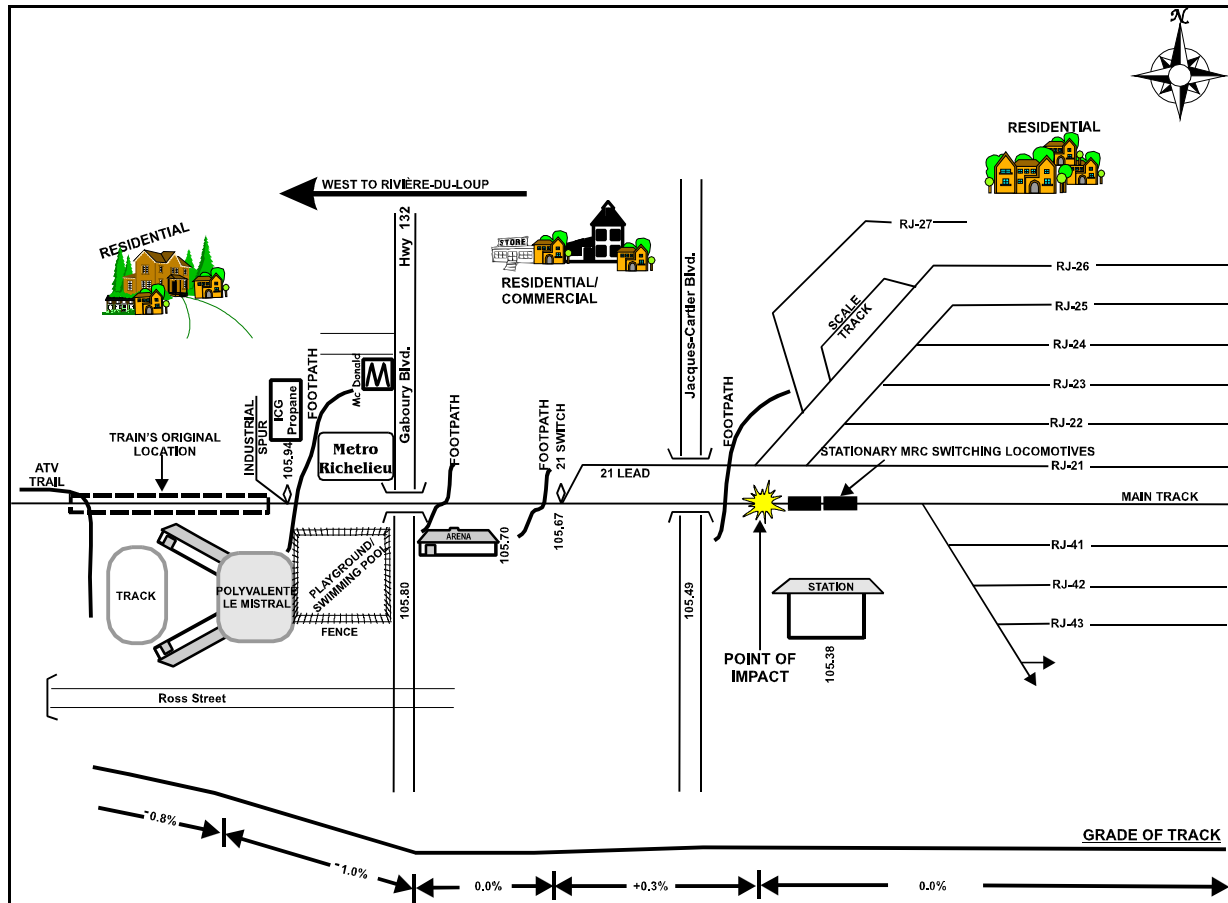


Figure 4 - Schematic showing details of occurrence site area

Gaboury Boulevard is part of Highway 132, which is a main artery passing through the town in a north-south orientation. On the east side of Gaboury Boulevard, a municipal arena backs onto the south side of the MRC main track. On the west side of Gaboury Boulevard, along Ross Street, there is a municipal playground/ballpark/swimming pool complex and immediately adjacent is the regional high school, Polyvalente Le Mistral. The property on which all of these facilities are situated is higher than the right-of-way and borders the south side of the MRC main track.

North of the MRC track, there is an industrial park which houses a liquid propane-handling facility, the local school bus company garage as well as several other commercial facilities. There is a residential area immediately beyond the industrial park and a popular fast-food restaurant located on Gaboury Boulevard.

1.6.3 *Fencing*

On the north side of the track, there was fencing only at the propane-handling facility. On the south side, the arena and playground/ballpark/swimming pool complex were fenced, although the existing fencing was damaged or missing in several locations. The school yard of the Polyvalente was not fenced; however, there were remnants of old cattle fencing in the area of the school on both sides of the track.

1.6.4 *Interchange Practice - MRC, CGTR and CN*

The formal agreement between the MRC and CN designated two specific yard tracks (RJ-41 and RJ-42) for the interchange of rail cars between the two railways. Both of these tracks were relatively flat with derail protection at both ends. CN also had running rights on track RJ-21, the designated siding (RJ-43), as well as the CGTR “wye” tracks (CG-05 and CG-06, Appendix C). Many of those same tracks were also used for interchange of traffic between the MRC and CGTR.

In order to prevent MRC yard congestion, new written instructions were provided to CN crews in April 1998 outlining interchange procedures for eastbound trains which included:

- the crew will leave the train on the main track at switch RJ-21;
- the crew will contact the MRC and follow the instructions given;
- the crew will inform the rail traffic controller (RTC) and secure the train, if necessary; and
- when there is no MRC crew on duty, the CN crew will yard the train in track RJ-43 and place the locomotives on the designated tie-up track.

As the designated locomotive tie-up track is accessed from the west end of the yard, the new procedure facilitated the change of motive power and the SBU on the train, and was deemed by the MRC to be more convenient and efficient.

A local practice of leaving CN eastbound freight trains on the MRC main track just west of a known footpath to the high school used by trespassers (Mile 105.94) had evolved between MRC and CN crews. The crews stated that this practice was to reduce the likelihood of trespassers climbing on and tampering with the equipment.

1.7 *Particulars of the Track*

The MRC Mont-Joli Subdivision consists of single main track with an authorized timetable speed of 65 mph for passenger trains and 50 mph for freight trains. The track structure in the area of the occurrence consists of 115-pound jointed rail on 14-inch double-shouldered tie plates, secured by four spikes per tie, anchored every third tie. At the location where the train was left, there was a 1.0 per cent descending grade, from west to east. The lead cars were sitting on a one per cent grade and the remaining cars were on a 0.8 per cent grade (see bottom of Figure 4 for details).

1.8 *Method of Train Control*

The MRC Mont-Joli Subdivision is controlled using the Occupancy Control System (OCS) method of train control which is under the supervision of an NBEC RTC located in Campbellton.

1.9 *Communications*

MRC employees were experienced railway employees previously employed and qualified by CN; the NBEC RTCs were trained and qualified by CANAC. When the MRC started up operation, the company provided the employees with CN's *Operating Manual*. The CN *Operating Manual* includes the following sections: operating bulletins, time table, regional data, passenger train information, Canadian Rail Operating Rules (CROR), special instructions, general operating instructions, dangerous goods information, track units section and miscellaneous job aids. The MRC did not indicate to employees operating on its territory which sections of the CN *Operating Manual* were applicable.

CROR Rule 105.1 required the RTC in Campbellton to be notified anytime equipment was left on the siding (track RJ-43). CN interchange instructions required the RTC to be advised when crews left an eastbound train on the main track at the RJ-21 switch. The RTCs could not provide any records to show that operating personnel were complying with these requirements, and they were not aware of the CN instructions.

CN train crew attempts to comply with the requirement to contact the MRC for yarding instructions, as required in the MRC interchange procedures, were not always successful as, on occasion, there was no response from the MRC.

1.9.1 *Operating Bulletins*

Operating bulletins are documents published by railway companies to provide employees with information or instructions pertaining to the movement of trains and engines. They are numbered consecutively (beginning on the first day of each year) and are posted in a book provided for that purpose at stations or other locations designated in the time table. As operating bulletins convey operating information which is not typically contained in the time table, it is imperative that all employees who travel over any territory are aware of such information.

Train crews are required (by CROR Rule 83(d)) to read, understand and sign operating bulletins before commencing work where such bulletins are posted. Employees of the various railways that operate on MRC territory began their tour of duty at different locations. The following table shows the locations where the bulletins were posted for employees of the different railways:

Railway	Cities
MRC	Mont-Joli, Quebec Campbellton, New Brunswick

VIA	Charny, Quebec New Carlisle, Quebec Campbellton, New Brunswick
CN	Joffre, Quebec Mont-Joli, Quebec
CFBC	New Richmond, Quebec
CGTR	Mont-Joli, Quebec

A review of the operating bulletins at these locations revealed the following:

- The office space allocated to CN and CGTR crews at Mont-Joli did not contain all the MRC operating bulletins.
- CN operating bulletins in effect on the CN Mont-Joli Subdivision were not being received and posted for VIA operating crews at the VIA Campbellton Station. The westbound VIA train crew operated from Campbellton to the meeting point with the VIA eastbound train. (The meeting point was normally at Trois-Pistoles, Quebec, which is located some 60 miles west of Mont-Joli on CN territory.)
- A number of MRC bulletins contained typographical and procedural errors (e.g. bulletins were not numbered consecutively). Words in both official languages were misspelled and bulletins differed in content (e.g. a monthly operating bulletin showed that a bulletin applied on two railways in one language, while in the other language, it indicated that it only applied to one railway).

1.9.2 *Time Table*

The MRC issued its own time table in April 1998; however, no bulletin was issued (as required by CROR Rule 4.1) indicating the effective date of the time table. Normal railway practice is to number each time table to prevent confusion with subsequent editions. The MRC time table was not numbered.

When the MRC time table was issued, subdivision footnote 1.3 referenced CROR Rule 112 Special Instruction (3)(c) requiring employees to “double” or “triple” the number of hand brakes at some locations. The MRC did not have any special instruction for CROR Rule 112. (The CN *Operating Manual* supplied to all MRC employees contained Special Instruction (3)(c) for Rule 112 pertaining to the minimum number of hand brakes to be applied.)

CN time table No. 76 indicated that CN crews which were required to operate within the MRC cautionary limits at Mont-Joli must communicate with the MRC RTC to ensure that they have the required General Bulletin Orders for that territory. The instruction did not specify when the CN crews must communicate

with the MRC RTC. The CN crews opted to contact the MRC RTC before leaving Joffre, which is approximately 200 miles west of Mont-Joli. Therefore, additional General Bulletin Orders may be issued by an RTC while a crew is en route and the crew may not be aware of them.

1.10 Weather

The temperature was 13 degrees Celsius, with a light wind from the north-west. The skies were partly cloudy.

1.11 Recorded Information

1.11.1 Train 402

The event recorder data indicated that the train stopped at 1208:12. The locomotives proceeded eastward at 1208:31, with the final recorded reading before all movement stopped at 1218:04.

1.11.2 MRC Locomotives

The event recorder data indicated that the time of collision was 1238, and that the four MRC locomotives, which were pushed approximately 40 feet eastward by the impact, reached a maximum speed of 5 mph.

1.12 Trespassing

1.12.1 Locations Frequented by Trespassers

Well-worn footpaths traversing the tracks were observed leading into the grounds of the recreational facilities on the east and west sides of Gaboury Boulevard, and into the grounds of the high school. The most frequented footpath was located at the north-east corner of the school

yard which crosses the track at the industrial spur switch at Mile 105.94 (Figures 5 and 6). There were also several footpaths in the area of the west lead switch for yard track RJ-21, and near the Jacques-Cartier Boulevard overpass³.



Figure 5 - View of pathway leading to the school, crossing both the industrial lead track and the main track



Figure 6 - View of pathway leading away from school property looking north toward the main track

Trespassing activity was highest to and from the high school property before school, at lunch time, and after school, with the vast majority of the trespassers being students. Train 402 usually arrived in the Mont-Joli area around the lunch hour, stopping on the tracks near the high school. There were reports of students being observed crossing between cars and walking alongside the train when the train was blocking the footpath.

At the north-west corner of the school property, there was a well-worn path used by “All Terrain Vehicles.” During the winter, this path was used as a crossing point by snowmobiles.

³

The schematic shown as Figure 4 also shows the general location of these footpaths.

At other locations, footpaths were used by people of all ages, at various times throughout the day. There was a long history of the residents using the footpaths as a short-cut between the north and south sides of the town, and a lack of awareness, or a disregard, by some of the Mont-Joli population regarding the inherent dangers of walking on the tracks. No injuries involving trespassers in Mont-Joli had been reported in accordance with the *TSB Regulations*.

1.12.2 *Fencing and Signage*

CN and the MRC were aware of the trespassing problem in the Mont-Joli area. CN had erected danger/no trespassing signs at some of the known footpaths as well as at both overpasses. Representatives from CN and the town of Mont-Joli met in 1997 to discuss methods to reduce trespassing through the area. The MRC continued with these meetings in 1998, focusing on the possibility of installing fences along the yard and main track, and a pedestrian crosswalk at the Gaboury Boulevard overpass. No final agreement had been reached at the time of the accident. The principal of the high school stated that the regional school board was also approached regarding fencing of the school; however, it was not actively involved in the negotiations between the MRC and the town.

Paragraph 24(1)(f) (Appendix B) of the *Railway Safety Act* (RSA) gives the government the power to develop regulations regarding fencing, signs or other means to prevent access to railway lands; however, none have been developed. The predecessor to the RSA, the *Railway Act*, did have provisions for fencing for cattle and other animals as follows under Section 217:

- (1) The company shall erect and maintain on the railway
 - (a) fences of a minimum height of four feet six inches on each side of the railway;
- (3) Fences, gates and cattle-guards shall be suitable and sufficient to prevent cattle and other animals from getting onto the railway lands.
- (4) The Commission may, on application made to it by the company, relieve the company, temporarily or otherwise, from erecting and maintaining fences, gates and cattle-guards where the railway passes through any locality in which, in the opinion of the Commission, those works and structures are unnecessary.

Section 217 of the *Railway Act* was repealed in October 1995. Railways under federal jurisdiction had agreed to abide by the principles of this statute and any exemptions that had been issued until new legislation became effective. Transport Canada (TC) has consulted stakeholders on a proposed railway right-of-way access regulation for fencing to address trespassing on several occasions and is continuing its effort to develop a railway right-of-way access regulation under paragraph 24(1)(f) of the revised RSA. However, to date, no regulations have been finalized.

There were no municipal by-laws in the town of Mont-Joli for the construction and maintenance of fencing to prevent trespassing and/or signage to warn of the dangers inherent to trespassing on railway property.

1.12.3 Education

In response to parental concerns for student safety, Operation Lifesaver was introduced at the high school in 1996 and was delivered to new students yearly. Operation Lifesaver is a program designed to educate students and municipalities about the dangers associated with grade-level crossings and trespassing on railway property. It is operated through the Railway Association of Canada (RAC) and its member railways and is supported by TC. Programs offered by Operation Lifesaver incorporate input from accident victims, railway employees, police officers and educators. The program targets locations identified as high risk through accident history and responds to individual requests from schools and municipalities.

There were no other educational initiatives to inform the public at large of the dangers posed by trespassing on railway property.

1.12.4 Enforcement

Amendments to the RSA, effective in 1994, included the following:

No access to line works

26.1 No person shall, without lawful excuse, enter on land on which a line work is situated.

TC proposed the inclusion of reference to the trespassing provisions, subsection 26(1) of the RSA, into the amendments to the regulations pursuant to the *Contraventions Act*. These measures make it possible for a police officer to issue a “ticket” to a person trespassing on a railway right-of-way, similar to the issuance of tickets for traffic violations, without appearing before a Justice of the Peace. At the time of this occurrence, the contravention scheme (ticketable offences) established under the *Contraventions Act* (federal legislation) had not yet been implemented in the province of Quebec.⁴

The municipal police force was aware of the trespassing problem, but expressed the concern that it did not possess the necessary tools to effectively enforce the existing anti-trespassing law.

1.12.5 Regulatory Overview - Trespassing

In 1996, an initiative entitled “Direction 2006” was undertaken. This initiative is a partnership between public and private sector railway stakeholders, including TC, provincial and municipal governments, law enforcement agencies, safety organizations, railway companies and their unions. The primary objective of Direction 2006 is to increase awareness of the safety issues surrounding rights-of-way and grade crossings through police officer training programs, information guides directed at road authorities, provincial driver education, public service announcements, and a “Community Trespassing Prevention Guide” which is being

⁴ An agreement in principle has been signed by the province of Quebec. Police forces are now able to issue “tickets” under the *Contraventions Act* to persons who are trespassing on railway property.

distributed nationally. Seven “working groups” focusing on Key Result Areas have been established under this partnership project. The program’s target is to reduce trespassing incidents and highway/railway grade crossing collisions by 50 per cent by the year 2006. TC, along with the other major stakeholders, has dedicated resources specifically to oversee and support this program.

As part of the Direction 2006 initiative, TC’s Quebec Region conducted a study to identify the underlying causes of the trespassing accidents in Quebec, with an aim to developing effective interventions.

TC’s Rail Safety Directorate is responsible for developing regulations, policies, and programs that are delivered through five (5) regional offices located across Canada. The Directorate’s mandate encompasses the reduction of risk due to trespassing. At the national level, TC uses statistical data points from trespassing accidents or incidents to identify high-risk locations. This information is then used at the regional level, in conjunction with regional priorities, to develop an annual program plan. TC does not receive data on “near-misses” (locations where trespassing occurs and yet no TSB reportable accident or incident resulted). Railways are not required to report such events.

Revisions to the RSA (passed by the House of Commons on 01 February 1999, receiving Royal Assent on 25 March 1999) give TC the authority to require the railways by regulation to develop and implement a safety management system to identify, assess and mitigate risks including the risks associated with trespassing. The RSA defines a Safety Management System (SMS) as:

... a formal framework for integrating safety into day-to-day railway operations that includes safety goals and performance targets, risk assessments, responsibilities and authorities, rules and procedures, and monitoring and evaluation processes.

1.13 *Other Information*

1.13.1 *Safety Management System*

In May 1998, TC formed a working group comprised of industry, labour and government representatives to develop a regulation on SMS. This regulation is still in the developmental phase but indications are that it will require railway companies to demonstrate within a year (or if they are not operating on the date the regulation becomes effective, at least 30 days before commencing operations) that they have a SMS through filing certain information applicable to their SMS with TC. Included in the information to be initially filed would be a list of all applicable rail safety rules, regulations, standards, and orders. The required components of a SMS may include:

- safety policy, annual safety targets and associated safety initiatives;
- safety authorities, responsibilities and accountabilities;
- employee and representative involvement;
- compliance with applicable rules, regulations, standards and orders;
- risk management process;
- risk control strategies;
- accident and incident reporting, investigation and analysis;
- skills, training and supervision;
- safety performance data collection and analysis;
- safety audit and evaluation;
- corrective action development, approval and monitoring; and
- documentation (ensuring applicable sections can be made readily available to those with defined responsibilities).

The intent of the initial SMS filing requirement is to provide preliminary assurance to TC that the railway company has developed and implemented a SMS that meets regulatory requirements. Compliance with the SMS regulation would be assessed through TC audits and in accordance with TC's Compliance Policy, allowing TC to take corrective action should any deficiencies be identified.

1.13.2 *MRC Internal Monitoring*

Trains operated over MRC territory at various hours of the day, seven days a week. There were two MRC supervisors located at Mont-Joli: one for train operating employees (train crews) and one for track maintenance employees. These supervisors were required to respond to all issues that arose in their respective fields of expertise. Frequently, supervisors worked in relief positions to fill vacancies created by their regular employees (e.g. due to sickness). It was

MRC senior management's position that it was part of the supervisors' functions to monitor the employees' practices to ensure compliance with the various standards, rules, regulations and operating practices applicable on the MRC.

The MRC did not have an internal program to ensure that all operating personnel were in compliance with MRC rules, regulations or procedures. The railway supervisory staff did not systematically assess the level of compliance with its operating practices. The MRC had not conducted a risk assessment of its operation to assist in identifying potential safety issues and in mitigating the risks. The Safety and Health Committee had not conducted regular inspections or walkabouts of the railway facilities to assess operational procedures and identify potentially unsafe workplace conditions.

MRC management instituted a local review of operating practices for the Mont-Joli Yard after the accident of 31 July 1998 where VIA train No. 14 collided with runaway freight cars (TSB occurrence No. R98M0020). Supervisors began performing twice-a-week spot checks for compliance with car securement rules and derail usage by MRC yard employees, as well as other railway employees when operating on MRC tracks.

1.13.3 Canadian Rail Operating Rules and Special Instructions

CROR Rule 112 states:

112. Securing Equipment

Unless otherwise directed by special instructions, a sufficient number of hand brakes must be applied on equipment left at any point to prevent it from moving. If left on a siding, it must be coupled to other equipment, if any, on such track unless it is necessary to separate such equipment at a public crossing at grade or elsewhere.

As stated in section 1.9.2, the MRC had not issued special instructions regarding securing equipment.

CN had issued a special instruction regarding securing equipment. The instruction provided specific information on the requirements of CROR Rule 112, and the minimum number of hand brakes to be applied depending on the number of cars left at a location. It also included an exception where hand brakes did not need to be applied. Exception 4(b) reads:

While en route switching, setoff or lift is being performed a portion of a train may be left on the main track or siding without handbrakes applied provided the standing portion left:

- i) Is ten cars or more;
- ii) Has air brakes applied in Full Service or Emergency and angle cock fully open;
- iii) Is not on a grade in excess of 1.5 percent; and
- iv) Will not be left in excess of two hours.

If the above conditions cannot be met, handbrakes must be applied as per the requirements of SI 3 during the switching process⁵.

1.13.4 *Actions of the Crew of CN Train 402*

The crew did not follow the interchange procedures outlined in the formal agreement between the MRC and CN, nor the revised written instructions provided to CN crews in April 1998 (section 1.6.4). They did, however, conduct themselves in a manner consistent with the normal daily routine that had evolved between the employees of both companies (MRC and CN). On arrival at Mont-Joli, the CN crew on train 402 attempted to contact the MRC yard crew by radio as per past practice. On the day of the occurrence, the CN crew members did not get a response to their attempts at contacting the MRC yard crew, but this was not unusual as it was lunch time. The CN crew elected to leave the train at the usual location, Mile 106, in order to be clear of both the industrial track switch and a well-known footpath used mainly by students going to and from the adjacent high school.

The CN train crew and their supervisor believed that the manner in which they were leaving their train at Mile 106 each day was in accordance with Exception 4(b) of the CN Special Instruction to CROR Rule 112. The CN train crew stated that the CN special instructions did apply while on MRC territory. The CN crew members had a copy of the MRC time table in their possession while on MRC territory, as required by a CN Operating Bulletin (CH482/98, dated 18 August 1998).

1.13.5 *Regulatory Overview - General*

1.13.5.1 *Philosophy and Policy*

The railway safety regulator is TC and its formal mission is to “. . . develop and administer policies, regulations and services for the best possible transportation system.”

TC is responsible for administering and enforcing the provisions of the RSA, which has, as an underlying philosophy, the following definitions of the role for regulation and railway management:

- railway management must be responsible, and accountable, for the safety of operations; and
- the regulator must have the power to protect the public and employee safety.

TC provided the following information to the TSB:

The following are fundamental principles on which the regulation of railway safety in Canada is based:

⁵ SI 3 refers to Special Instruction 3 which is a chart indicating the minimum number of hand brakes to be applied given the number of cars to be left at a certain location.

- Transport Canada ensures rules are properly written;
- Railways decide how to meet regulatory requirements;
- Transport Canada monitors for compliance; and
- Transport Canada enforces compliance.

TC achieves this either by regulating in accordance with government regulatory policy, or by approving rules developed in consultation with relevant associations and submitted by industry.

1.13.5.2 *Railway Safety Act*

The RSA refers to, among others, construction or alteration of railway works, operation and maintenance of railway works and equipment and non-railway operations affecting railway safety. Part II of the RSA (Operation and Maintenance of Railway Works and Equipment) includes regulation and rule-making powers. According to the RSA, regulations can be developed by the government while rules may be developed by a railway company or the Minister of Transport may order railways to submit rules for approval (sections 18, 19, 20 and 21). Once rules are formulated, they must be filed for approval by the Minister. The Minister of Transport can also give railways exemptions to certain rules. The applicable sections of the RSA are included in Appendix B.

Before commencing operations in Canada, railways under federal jurisdiction are required to obtain a Certificate of Fitness from the Canadian Transportation Agency (CTA)⁶. Administrative arrangements between the CTA and TC advise TC of new applicants before they are approved. The sole statutory requirement for the issuance of a Certificate of Fitness is proof that the new operation carries adequate liability insurance. New railways are not required to demonstrate that they meet any operational safety requirements and there is no discretion for the Minister to

⁶ The CTA's responsibilities for rail infrastructure include road, private, and utility crossings; railway works cost apportionment; railway operation compensation; and relocation of railway lines in urban areas. In addition to issuing certificates of fitness, the agency is responsible for functions related to the construction or operation of railways: approving railway line construction; approving railway crossings of other railways; and making railway track determinations (for discontinuance purposes).

deny entry into the market based on safety considerations. After operations commence, TC Railway Safety Inspectors can prevent, or restrict, the use of railway works, or restrict railway operations, if they perceive an immediate threat to safe railway operation.

The RSA does not require railway companies to file documents with the Minister of Transport to explain how they intend to operate in a safe manner. Typically, railways have filed rules through the RAC for approval by the Minister (e.g. CROR). Compliance with these rules by the railway companies has been the accepted foundation for safe railway operations. In the case of the MRC, no rules or documentation of any kind were filed directly with the Minister by the railway company or by the RAC on their behalf.

When the MRC began operations in January 1998, it elected to operate using the CROR. As the MRC did not have its own version of the CROR, special instructions or time table, it used the CN *Operating Manual*. The MRC subsequently published a time table (in April 1998); however, it did not indicate therein which set of rules were applicable for its operation, nor did it indicate whether it wished the CN special instructions contained in the CN *Operating Manual* to apply on its railway. In June 1998, the MRC issued an Operating Bulletin to its employees indicating that sections 2, 3, 5, 6 and 7 of the CN's General Operating Instructions section of the CN *Operating Manual* were applicable.

The following chart shows what documents were used by MRC employees:

	Jan. 1998 (start-up)	April 1998	June 1998	August 1998
Time Table	CN	MRC	MRC	MRC
CROR	CN	CN	CN	CN
CROR Special Instructions ⁷	CN	CN	CN	CN
General Operating Instructions	CN	CN	CN (adopted by the MRC)	CN (adopted by the MRC)
Operating Manual	CN	CN	CN	Developed by the MRC ⁸

The three functional branches (Operations, Engineering and Equipment) in TC's Rail Safety Directorate have monitoring programs. These programs are guidelines for regional safety inspectors to perform monitoring activities on railway property. TC - Safety and Security (in Ottawa) is responsible for developing the

⁷ MRC management's position was that CN's special instructions did not apply while employees believed they did. The NBEC RTCs did apply all CN special instructions even when working with MRC personnel.

⁸ *Operating Manual* is for Mont-Joli Yard only.

monitoring programs, while TC - Surface (Region) is responsible for delivering them. Regional managers report directly to a Regional Director. Head Office has functional authority over program delivery, but not line authority.

The method of securing cars as well as other operational aspects would come under the Train Operations Monitoring (TOM) program. The TOM program provides procedural guidelines to railway safety inspectors to assist them in fulfilling their mandate under the RSA for railway operations. It is designed to provide the regulator (TC) with an indicator of the level of safety of railway operations in Canada.

TC regional offices develop monitoring targets at the beginning of the fiscal year (such as the number of trains to be ridden and inspected or the number of yards to be inspected). They apply some of these targets to the various monitoring activities required to fulfill the objectives of the TOM program. The TOM program for the Quebec region did not give railway-specific or location-specific targets for the number of visits to be conducted or trains ridden for each railway to ensure the safety of railway operations.

Since the MRC began operations in January 1998, TC safety inspectors performed inspections in Mont-Joli on three different occasions (March, July and August), one of which was under the TOM program. During these inspections, they noted some infractions to operating and equipment rules but did not identify any threats to safe railway operations which would have required immediate corrective action. TC's Operations Branch monitored for compliance with the CROR.

1.13.5.3 *Growth of Short Line Railways*

During the last several years, the railway industry has become very competitive and, similar to many Canadian industries, subject to world market conditions. As Canada's largest federal railways strive to strengthen their businesses, one of the results has been an aggressive downsizing program to sell-off or lease under-utilized portions of their non-corridor routes. This has resulted in many miles of light-density lines being sold to operators of short line⁹ railways. The following table and graph show the change in the number of short line railways in Canada over the last 20 years:

Canadian Railways	1979	1989	1999
Federal Class 1	3	3	3
Federal Short Lines	20	25	25
Provincial Short Lines	10	10	42
Total	33	38	70

⁹ Although the railway industry typically differentiates between regional railways, terminal railways and short line railways, for simplification, all railways other than Class 1 railways (CN, Canadian Pacific Railway and VIA) will be considered short lines.

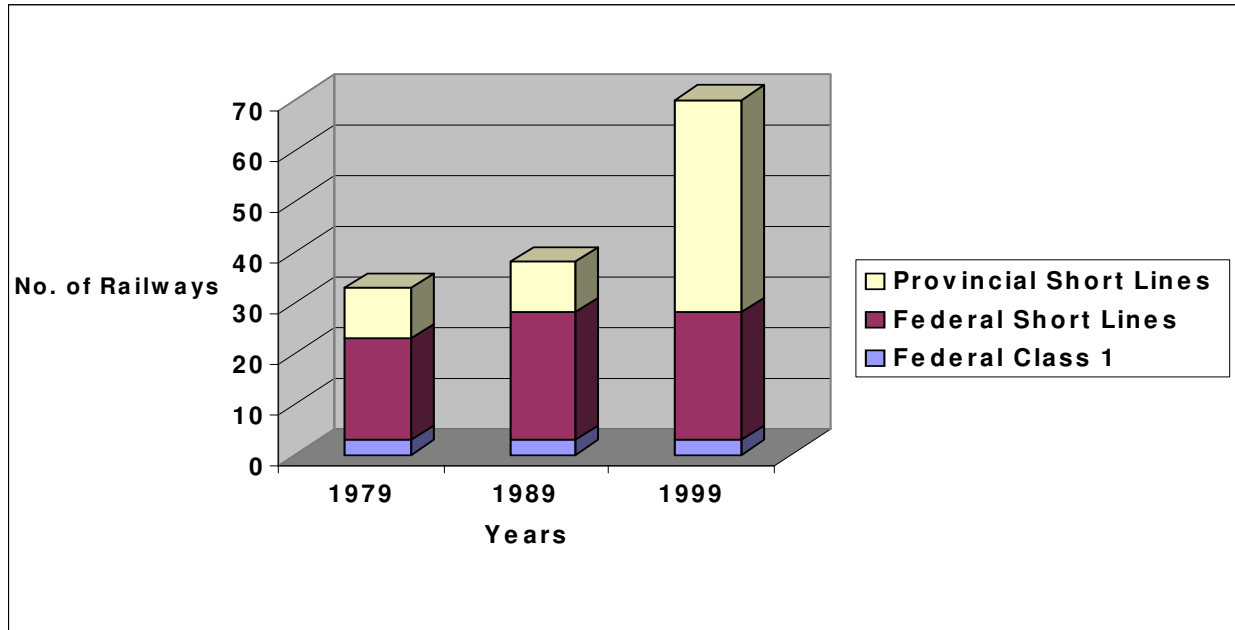


Figure 7 - Growth of Short Line Railways in Canada

1.14 *Recent Occurrences Caused by Trespassers and/or Involving Unsecured Cars*

In March 1998, vandals entered a railway track unit, commonly called a “switch broom,”¹⁰ started the motor and released it from a CGTR track in the Mont-Joli Yard. It subsequently travelled uncontrolled, traversing numerous public crossings at grade, to the pier at Matane, approximately 37 miles away, where it came to rest. There was no derailment, collision or injuries.

¹⁰ A “switch broom” is a multi-purpose on-track machine frequently used in winter to remove snow from the railway tracks.

In June 1998, an MRC yard crew, while switching at the east end of the Mont-Joli Yard, temporarily left some cars unsecured on one yard track and, while they were performing manoeuvres on the other track, their train was side-swiped by the cars which had begun moving uncontrolled. The resultant collision caused considerable damage to two cars, including one which rolled over on its side (TSB occurrence No. R98M0028).

In July 1998, an MRC yard crew left an articulated five-platform intermodal car on a Mont-Joli yard track without applying hand brakes. The car rolled uncontrolled onto the main track where it was struck head on by a VIA passenger train. The derailment caused extensive damage to equipment. Three of the 341 passengers received non-life threatening injuries (TSB occurrence No. R98M0020, investigation ongoing).

In October 1998, vandals placed truck tires on the MRC main track at Lac-au-Saumon, Quebec. The tires were subsequently struck by a VIA passenger train. There was minor damage to the equipment (TSB occurrence No. R98M0040).

2.0 *Analysis*

2.1 *The Accident*

The CN crew on train 402 elected to secure the portion of the train they were leaving behind in accordance with a CN Special Instruction for CROR Rule 112. The Special Instruction effectively modified the method of securing equipment required by this rule (applying a sufficient number of hand brakes) by allowing the crew to secure the cars using only the air brakes. The CN crew believed that all the conditions stated in the instruction were met and, therefore, it was quite acceptable to leave the cars unattended in that manner. Because the MRC had not issued instructions to employees operating on its railway, stating which rules and other instructions applied, the CN employees (as well as some MRC employees) erroneously believed that CN special instructions were applicable on the MRC.

The location where the train was left was in a high-trespassing area. Measures to reduce the incidence of trespassing and enhance the safety of train operations were not adequately addressed. Therefore, this analysis will discuss the actions of both CN and MRC crews, management and supervision, regulatory overview, and approaches to trespassing prevention.

2.2 *Identification of Operating Risks*

The investigation revealed a number of safety issues relating to risks associated with operational practices. The train was left unattended in a location where there were trespasser footpaths and at a time of day when there was a high probability of trespassing activity, rendering the equipment susceptible to tampering by passers-by. The CN crew had not communicated with the MRC yard crew; therefore, they had no way of knowing if the equipment they were leaving was going to be picked up in less than two hours. Furthermore, the beginning of the release of the brakes occurred shortly after the locomotives were disconnected (approximately 20 minutes), indicating that the two-hour limit may be excessive in an area frequented by trespassers. Had the train been secured in one of the designated interchange tracks in the yard, the consequences of any tampering with the equipment would have been considerably diminished, as similar to most of the other yard tracks, these tracks had derail protection and were not on a grade. Furthermore, the procedure of securing the train with air brakes on a grade was not sufficient to ensure that the standing portion of the train was protected against inadvertent release of the air brakes.

Despite prior efforts by the railway to eliminate trespassing through the posting of “No Trespassing” signs and the delivery of the Operation Lifesaver program, the problem persisted. A more pro-active approach by the railway company, using previous incident data as well as knowledge of trespassing activity, may have identified the additional risks that trespassing and vandalism posed to the daily operating practices, thus allowing the company to implement

effective corrective measures. Without a structured approach to safety management, including comprehensive risk assessment and risk management principles, the railway limited its ability to identify and address these types of safety issues.

2.3 *Operating Policies*

A number of discrepancies were identified between MRC policies toward operating rules versus the day-to-day operating practices of its employees. Although MRC management did not adopt CN special instructions, the employees' years of operating experience with the CN rules, combined with the absence of communicated desired operating policies from the MRC, resulted in many employees continuing to apply the CN special instructions. The period of time when the MRC was operating without its own time table likely added to the confusion regarding the applicability of various CN instructions.

There were also communication deficiencies in the time table and operating bulletins. For example, the MRC time table had no number or effective date. Furthermore, this information was not communicated to the employees with an operating bulletin as required by the CROR. The errors noted on the operating bulletins that were issued (duplication of bulletin numbers, spelling mistakes, etc.) suggest that this important communication tool was not given the attention to detail that it required.

The lack of adherence to specific directives for the interchange of trains and the securement of cars arriving from CN on MRC trackage, combined with the familiarity of MRC and CN employees with present and prior CN practices in Mont-Joli Yard, led to the assumption that the CN securement provisions were adequate in this instance. However, they were applied in an area where trespassers were able to circumvent the basic safety which the employees considered this rule provided.

Although the MRC is a relatively small railway, it interfaces with several other railways (CN, CGTR, CFBC, NBEC and VIA). Because the MRC did not communicate its desired operating requirements to all employees operating on its territory, they were using their own railway's operating policies and procedures. The number of railways interchanging with the MRC increased the risk of inconsistencies in operating practices of employees of different railways. It is important that operating policies and practices be closely evaluated by management and understood by all employees who may be operating on its territory. This evaluation and understanding would help identify potential areas of conflict and ensure that all employees are working in accordance with MRC's desired operating policies.

The small number of employees meant that there was frequent interaction with supervisors. The close working relationships created an atmosphere which may have made the need for formal guidelines appear unnecessary. Historically, safety within the railway operating environment has largely been dependent on the existence of, and adherence to, written communications, such as rules, instructions, time tables and bulletins. These communications must be carefully prepared and properly conveyed to all employees. Procedures must be in place to ensure that all employees understand and work in accordance with these communications.

Given the poor quality of written communications, the absence of communications pertaining to desired operating practices, other railways employing special instructions that were not applicable on the MRC, and

the number of employees that were unclear which instructions applied, it is apparent that the MRC did not effectively communicate its desired operating policies to the personnel of every railway operating on MRC territory.

Due to the recent growth in the number of short lines in the railway industry, areas where there are multiple railway operations are on the increase. The potential for mis-communication between employees with differing railway backgrounds and work experiences may also exist in other geographic areas of Canada.

2.4 *Monitoring*

There were no documented supervisory procedures (such as efficiency/proficiency tests) in place at the MRC nor was there a process to systematically assess the level of safety of the operation. Such processes or procedures might have allowed the MRC supervisory personnel to determine that there was confusion among employees operating on MRC property. Identifying the employees' misconception that CN special instructions did apply might have given MRC supervisory personnel the opportunity to take corrective action, potentially preventing the occurrence.

With only one supervisor of train operating employees (given the variety of functions performed and the hours of operation of the various railways), it would have been difficult to effectively supervise those employees' performance in operating safely. Despite the frequent interaction between the supervisor and the small number of MRC employees, the around-the-clock nature of the railway environment resulted in crews from other railways either connecting with, or operating over, MRC trackage at times of the day when no MRC supervisor was available. In an environment where there were low and infrequent amounts of direct supervision of employees from various railways, poor operating practices went uncorrected.

2.5 *Entry Requirements and Regulatory Overview*

TC does not presently require federal railway companies, before beginning operations, to submit documentation pertaining to those relevant safety-related materials which will apply on their railway. The only pre-requisite is the requirement to demonstrate that they have adequate liability insurance. Once operational, they must comply with the provisions of the RSA and any regulations made under the RSA. However, the legislation and regulations do not contain minimum safe operating requirements for railways. Rather, railways are permitted to formulate rules on their own, or on order of the Minister. In the case of railway rules in place on the majority of Canadian railways (e.g. operating, track safety, air brake, freight car safety rules, etc.) the regulator does not determine the contents of the rules. The rules are developed through the RAC after considerable industry consultation and they are then assessed and approved by TC with certain conditions, if necessary. Because they are not regulations, only the signatory railways in existence at the time are bound by these rules. Likewise, a railway company would not have to comply with any internal documentation for another federally regulated railway company (e.g. Time Table, General Operating Instructions, etc.) as the application of these safety-related materials is also railway company-specific.

The present regulatory regime neither screens entrants to ensure they meet certain minimum safety standards, nor does it ensure that a new federally regulated railway has in place rules or other systems to ensure safety when it commences operations.

Although the MRC did not file rules for approval by the Minister of Transport, TC safety inspectors monitored for compliance with the CROR because that was the standard they normally monitored against. They did not ensure that the CROR was the set of rules applicable on that railway company before assessing the level of compliance. TC's proposed requirement for every federally regulated railway to have a SMS in place, and filed with TC before they begin operations, would provide several obvious safety benefits. It would allow TC safety inspectors to assess the various components of the SMS including rules and other safety documentation before they perform their safety audits, and it would clarify which rules apply on that railway for TC audit purposes.

Despite TC's monitoring programs (Operations, Equipment and Engineering), safety inspections performed on the MRC only identified infractions of a minor nature. These monitoring activities did not identify any unsafe practices with regard to the securing of equipment. Without a structured approach to train operations monitoring, where the railways could be audited to ensure rules and procedures are in place to ensure railway safety (e.g. operating manuals, time tables, bulletins), TC's ability to pro-actively identify significant safety issues was limited.

2.6 *Trespassing*

Despite the long history of trespassing in Mont-Joli, there were few initiatives in place to mitigate the problem. The risk of injury and vandalism presented by individuals accessing railway rights-of-way was increased by the new MRC/CN interchange of equipment. Before January 1998, there was no exchange of locomotives, and the train was not left on the incline exposed to the high-trespassing area near the school. The evolution of an informal operating practice to facilitate a convenient interchange of equipment, as well as leaving the equipment just west of the known footpath to the high school, did not address these increased risks.

The question of how to reduce or eliminate trespassing has been addressed by many organizations, and it is now generally recognized that a multi-faceted approach is necessary to achieve an effective deterrent to trespassing and enhance public safety. The Board previously recognized the need for this type of approach in the investigation of the death of an 11-year-old girl walking on a railway right-of-way in Tecumseh, Ontario (TSB report No. R96S0106). Recent initiatives (e.g. Direction 2006) have the potential to facilitate a comprehensive approach through education, enforcement, fencing, signage, train operations and urban planning. An example of how a city can implement a trespassing prevention plan is the City of Brockville, Ontario. In response to the Board's report on a crossing accident that killed two young female pedestrians (TSB report No. R95D0055), the City of Brockville adopted a "zero tolerance" approach to trespassing by having local and CN police issue \$65 fines to trespassers, by installing fencing at a cost of \$100,000, and by continuing with educational efforts such as Operation Lifesaver.

Given the complexity of the factors influencing trespassing, it is likely that these initiatives will require considerable time to result in a significantly lower rate of trespassing-related incidents or accidents. In order for the initiatives to work, all stakeholders must contribute to a concerted effort to overcome the obstacles, dedicate the resources, financial and otherwise, and implement these initiatives in a timely manner. For example, as a consequence of the *Contraventions Act* not being applied nationwide, some provincial and municipal police forces, such as those in Quebec, had no effective means of enforcement to discourage trespassing on railway rights-of-way. Without enforcement, a balanced multi-faceted approach to mitigating the trespassing problem cannot be achieved.

The partnerships between local communities, police forces, TC and the railways as developed in Direction 2006, as well as the proposed requirement that railways have a method to identify, assess and mitigate trespassing-related problems, have the potential to deter trespassing. By dedicating resources specifically to address the trespassing problem, TC has shown its commitment to making significant improvements in the railway safety record in this area Canada-wide. However, TC's current approach of identifying areas only where trespassing-related incidents or accidents have taken place does not allow for the detection and reduction of trespassing areas before an accident occurs. Because data are not received on near-miss incidents involving trespassers, TC's risk analysis capability is limited, inhibiting TC from pro-actively mitigating these risks.

3.0 *Conclusions*

3.1 *Findings*

3.1.1 *Findings as to Causes and Contributing Factors*

1. The 25 rail cars that were left on the main track rolled uncontrolled as a result of a loss of brake cylinder air brake pressure on most of the cars.
2. The loss of the air brake pressure was apparently caused by two youths pulling the air brake release rods.

3.1.2 *Other Findings - Related to Risks to Persons, Property and the Environment*

1. The interchange practice at Mont-Joli of leaving equipment on a one per cent grade in an area frequented by trespassers, secured only with the air brakes, increased the risk of injury to both residents and rail employees, and exposed the equipment to tampering by trespassers.
2. In the absence of a structured approach to safety management, including comprehensive risk assessment and risk management, the railway limited its ability to identify and address safety issues.
3. Although the MRC interchange instructions indicated the location and the method of securement for interchange cars, the instructions were not effectively communicated or enforced, resulting in the crews modifying their procedures to facilitate a convenient interchange of equipment, as well as leaving the equipment just west of a known footpath to the high school.
4. The MRC did not effectively communicate its desired operating policies to all pertinent personnel of all railways operating on its territory; therefore, personnel were not aware of the desired operating requirements on MRC tracks.
5. The MRC did not systematically monitor operating crews to ensure compliance with its desired operating practices, thereby reducing its chances of identifying and correcting non-compliance with safety procedures.
6. MRC management did not identify the practice of leaving equipment at Mile 106, on a grade toward the centre of the town, as a potentially unsafe situation.
7. As currently structured, the CN Special Instructions for CROR Rule 112 do not provide an adequate safeguard in areas frequented by trespassers.
8. There is no comprehensive approach to the trespassing problem in Mont-Joli. This reduces the likelihood that current initiatives, such as fencing and Operation Lifesaver, will effectively mitigate the risk of injury and vandalism.

3.1.3 Other Findings - Related to Safety Overview

1. Due to the increase in multi-company railway operations, the potential exists in other geographic areas of Canada for mis-communication between employees with differing railway backgrounds and work experiences.
2. The lack of minimum regulatory safety requirements allows a new company to commence operations without a structured safety system in place, and prevents TC from effectively assessing the level of safety before that company begins operations.
3. Because new railway companies are not required to comply with existing rules developed by other railway companies, nor to submit their own safety documentation to the Minister of Transport, TC's ability to assess those railways' safety infrastructure after start-up by the normal methods (e.g. inspecting railway companies to assess their level of compliance with rules approved by the Minister) is limited.
4. TC safety inspections performed on the MRC did not identify the existing unsafe practices with regard to securement of equipment. Identification of such practices would have necessitated immediate corrective action.
5. Without an easily applied enforcement tool such as that provided by the *Contraventions Act* (ticketing provisions), provincial, municipal and railway police forces in some parts of Canada have no useful means of enforcement to discourage trespassing on railway property.
6. Implementation of a comprehensive approach to the trespassing problem Canada-wide is hampered by the complexity of coordinating the efforts of all the stakeholders, and allocating the required resources.

3.2 Safety Deficiencies

3.2.1 Communications

1. In this investigation, the Board determined that the MRC does not have effective means for communicating its operating policies and procedures to its employees and to the other railways with which its employees interface, or whose rolling stock connects with or operates on MRC track.
2. In an environment where the number of new short line railways is increasing, there are inadequate safeguards to reduce the risk of communication-related deficiencies between railways.

3.2.2 Supervision

1. Without a structured monitoring program to ensure consistent adherence to its operating practices, the MRC is unable to adequately assess the level of safety of operations on its property and identify unsafe work practices.

3.2.3 *Entry Requirements for New Operations*

1. There are no adequate means to ensure that railways have an effective safety infrastructure in place when they commence operations. For example, there is no requirement for a federal railway, before beginning operations, to file with TC documentation pertaining to those relevant safety-related materials which will apply on its railway; therefore, companies may begin operations without an adequate safety infrastructure in place. Accidents may occur before TC personnel who perform random monitoring activities become aware of safety inadequacies.

4.0 *Safety Action*

4.1 *Action Taken*

4.1.1 *Matapédia Railway Company*

Subsequent to the accident, MRC management promptly met with its Safety and Health Committee as well as all its employees and reviewed its concern over the number of recent occurrences on the MRC. As a result, a number of safety initiatives were implemented, including:

- an *Operating Manual* was written for the Mont-Joli Yard;
- improvements were made to the preparation and handling of its operating bulletins;
- a chart was prepared for the guidance of its employees stating the number of hand brakes required when securing equipment in the Mont-Joli Yard; and
- a Circular (017) was issued on 02 October 1998 instructing crews never to leave trains on the main track at Mile 106 unattended¹¹.

MRC management met with the Mont-Joli municipal authorities to attempt to come to an agreement for the installation of right-of-way fencing.

The MRC also hired a night security guard to warn trespassers of potential risks, and to inform MRC management of any trespass occurrences.

After the accident, the MRC undertook awareness and information activities. Student police officers have distributed pamphlets to passers-by at the entrance to the footpaths. Furthermore, a well-known athlete (Myriam Bédard) has visited the area to heighten the awareness of the Operation Lifesaver program.

4.1.2 *Transport Canada*

Following this occurrence, the TC - Surface Quebec regional office in Montreal issued a Notice and Order (dated 14 October 1998) to CN forbidding the use of train air brakes as the sole means of securement of equipment left at any point on the Champlain District. It provided the parent company of the MRC (the Société des chemins de fer du Québec) with a copy of the

¹¹ Unlike operating bulletins (CROR Rule 83), there are no requirements for train crews to read circulars.

order. The Director of Operations of the MRC confirmed to TC that employees operating on the MRC are not governed by CN's special instructions; therefore, the Notice and Order had little impact on MRC operations¹².

TC has developed a *Railway Safety Inspectors Compliance Manual*. The policy and associated operating procedures are presently being field tested.

TC recognizes that questions have been raised regarding new rail companies and their coverage under the CROR, and TC is actively working with the RAC to resolve this issue.

TC advises that the "Enforcement" working group established under Direction 2006 has been actively promoting enforcement of trespassing infractions to police forces throughout Canada. Promotional activities have included the publication and distribution of approximately 50,000 "Enforcement" pamphlets.

Before this occurrence, TC had initiated the working group on Safety Management Systems (SMS) for railway companies as outlined in this report. The Board considers the development of regulations requiring all federal railways to implement and maintain a SMS to be a significant safety event within the Canadian railway industry. The objectives of the SMS regulation are "to ensure that safety is given management time and corporate resources and is subject to performance measurement and monitoring on par with corporate financial and production goals."

Canadian railways have typically relied on a rules-based system to ensure safety and TC has accepted that compliance with approved rules ensures safety. The RSA gives railway companies the ability to formulate and submit rules to the Minister for approval but does not require that such rules be formulated. The MRC, upon inception, opted not to formulate rules and, therefore, was not bound by a system of rules approved by the Minister. The MRC decided to adopt the CROR, which had been approved for a number of other railway companies. To address this and other safety-related matters, the proposed regulations for SMS include the following references:

2. A railway company shall implement a safety management system that includes, at a minimum, the following components:
 - ...
 - (h) systems for ensuring that employees and management have appropriate skills and training and adequate supervision to ensure that they comply with all safety requirements;
 - ...
 - (j) procedures for periodic internal safety audits, management reviews, monitoring and evaluations of the safety management system.

¹² The Notice and Order was rescinded on 08 January 1999 after CN issued Operating Bulletin No. CH593/98 (related to switching, setting off or lifting cars in the Champlain District where there is clear evidence of trespassing activity) and clarified the use of exception 4(b). The exception was rewritten effective 01 April 1999 to better reflect its applicability.

- 4.(1) A Railway company shall submit to the Minister the following information in respect of its safety management system:
- ...
 - (f) a list of applicable railway safety regulations, rules, standards and orders;
 - ...
 - (j) a description of the railway company's internal safety audit program;
- (2) The information shall be submitted
- ...
 - (c) . . . 30 days before the railway company begins operations.

The wording of this proposed regulation would require all federal railways to file rules with the Department of Transport before commencing operations, and require all railways to have an effective internal monitoring program.

The proposed filing requirements of the SMS, if implemented, will allow TC to screen entrants to ensure they meet certain minimum safety standards, and ensure that a new federally regulated railway has in place rules or other systems to ensure safety when it commences operations. TC states that it is anticipated that increased management attention to safety and an enhanced safety culture within the industry will reduce public and employee fatalities and injuries, reduce property damage resulting from railway accidents, and reduce the impact of accidents on the environment. Once the regulations are developed and in force, and should the above objectives be met, the Board believes that a systematic approach to managing safety by railway operators will advance rail transportation safety within Canada.

4.1.3 *VIA Rail Canada Inc.*

VIA has made arrangements with CN to have its operating bulletins sent to the VIA Station at Campbellton. On 06 November 1998, VIA confirmed that the VIA ticket agent, who is the person tasked with posting the operating bulletins as they are received at that location, has ensured that this is being done.

4.1.4 *Railway Association of Canada*

The RAC, following consultations with its Operating Rules Committee, has developed a final draft circular entitled *Safe Securement of Railway Equipment*. This circular represents a commitment by member railways to adhere to these recommended practices. The RAC has also contracted the services of CANAC to develop an appropriate car securement workshop for use by member railways (particularly regional and short line railways) and selected shippers and receivers. The workshop is based on the elements contained in the RAC circular, and includes additional information on related accident/incident statistics and reporting requirements, railway equipment air systems, ergonomics related to hand brake application, and hand brake mechanisms and characteristics. The workshop includes video presentations, quizzes, tests, job aids, and on-site practice/demonstration. The workshop is modular in design and will be distributed to the RAC membership for local delivery to employees and selected customers.

The RAC and TC are jointly developing a process to ensure that all federally regulated railways are formally signatory to all the rules and related amendments established since the proclamation of the RSA in 1989. In addition, the RAC is developing a “Regulatory Workshop” for all railway companies in Canada (federal and provincial) to enhance awareness of the regulatory framework and policies under the RSA, the rule-making process, compliance monitoring and enforcement. The workshop will be delivered to individual railway companies commencing year-end 1999.

4.1.5 *Transportation Safety Board of Canada*

In December 1998, a Rail Safety Information Letter was sent to TC concerning the Notice and Order that TC issued to CN (Champlain District) prohibiting cars being left secured with only air brakes. The information letter stated that it was determined that other employees were following the same procedures; therefore, the safety message contained in TC’s Notice and Order may not have been communicated to all employees.

4.2 *Action Required*

4.2.1 *Communications*

In order to ensure safe operations, railway companies should have comprehensive operating policies and practices which are effectively communicated to all employees and to other interconnecting railways. The investigation revealed that MRC employees and the railways that interfaced with the MRC were not always aware of all MRC operating requirements. This resulted in some confusion amongst the employees of the different railways when operating on MRC property about the applicability of some operating instructions (e.g. CN’s special instructions for CROR Rule 112). Considering that there are both dangerous goods and

passenger trains operating daily over MRC track, without effective communication between all operating personnel, elevated levels of risk will exist for both railway employees and the travelling public. The Board therefore recommends that:

The Matapédia Railway Company implement an effective system to communicate operating policies and practices to its employees and the other railways with which it interfaces.

R99-05

and that:

The Department of Transport, in consultation with the Railway Association of Canada, assess all railways under its jurisdiction to help ensure that they effectively communicate operating policies and practices to employees and the other railway companies with which they interface.

R99-06

4.2.2 *Supervision*

To evaluate compliance with desired operating policies and practices, railway companies develop and apply structured monitoring programs (e.g. proficiency testing/monitoring). At the time of the occurrence, the MRC did not have any such program in place, and conducted little monitoring of railway operations, particularly employees of other railways operating on its lines. Several instances of non-approved work practices were revealed during the investigation, such as employees employing special instructions that were not applicable on the MRC, employees not communicating with the MRC nor the RTC before leaving trains on the main track, and poorly prepared written communications (e.g. operating bulletins). Without a structured program, the MRC will continue to have difficulty properly assessing the level of safety of all operations on its property, and identifying non-approved work practices as well as other deficiencies. Therefore, the Board recommends that:

The Matapédia Railway Company (MRC) develop and apply a structured program that will effectively evaluate whether employees operating on MRC property are complying with its operating policies and procedures.

R99-07

4.2.3 *Entry Requirements for New Operations*

TC's proposed regulation on Safety Management Systems (SMS) requires that, as a prerequisite to commencing operations, a railway company must develop and implement an internal system to ensure safety. This system includes an effective internal monitoring program, and a requirement to file all rules with the Minister of Transport. The development of the regulation follows a consultative approach with input received from many industry stakeholders. This can influence the final wording of the regulation and the important elements contained in the draft regulation, described previously. The regulations for SMS are still in the early stages of development, and not expected to come into force until mid-2000. Given the continuing growth of short line railway companies in Canada, the Board is aware that:

- before SMS regulations come into force, new railways may begin operations without an internal system to ensure safety, which includes an effective internal monitoring program and a requirement to file all rules with the Minister of Transport; and
- the final wording of the SMS regulations may not include some of the important elements contained in the draft regulation as explained in section 4.1.2.

Before operating, new federal railways are required to obtain a Certificate of Fitness from the CTA. While key to the start-up process, the role of the CTA is limited by statute to ensuring that the carrier has established proof of adequate liability insurance.

The MRC had correctly applied for and received a Certificate of Fitness from the CTA allowing it to begin railway operations. There was no formal process to advise TC which rules, policies, or procedures it would adopt as a standard safe operating practice or whether it had filed rules for approval by the Minister of Transport. The administrative arrangements already in place between the CTA and TC, which are helpful to keep TC apprised of new operators, could be further used by TC as a catalyst to pro-actively assess the safety infrastructure of a new railway company before operations commence.

Examples of alternative approaches which could be considered to address this situation in the future are:

- to issue a certificate of operations to new federal companies once the safety infrastructure is assessed and found adequate; or
- to develop a process such that no Certificate of Fitness will be issued by the CTA until both the requirements of the CTA have been met, and the Department of Transport has advised the CTA that it has positively assessed the safety infrastructure of that railway.

Therefore, the Board recommends that:

The Department of Transport develop a process to help ensure that new federal railway companies have an adequate safety infrastructure in place when they commence operations.

R99-08

4.3 *Safety Concern*

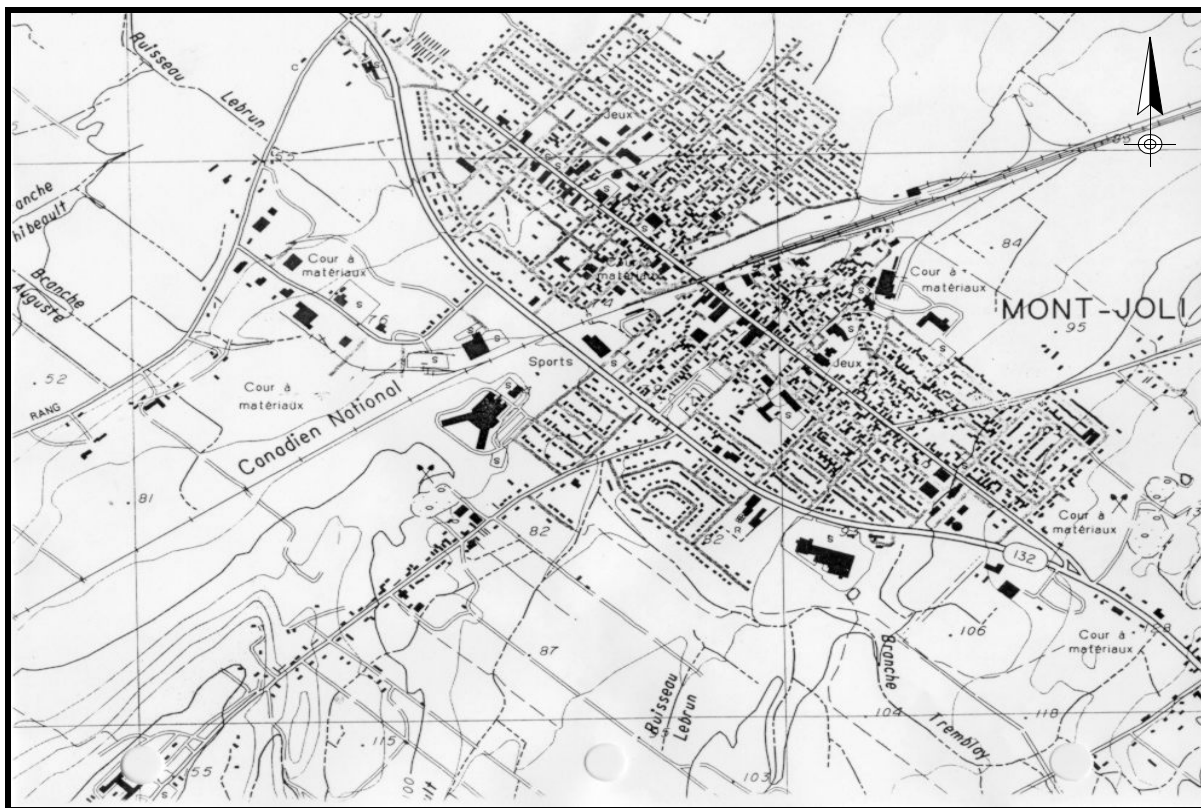
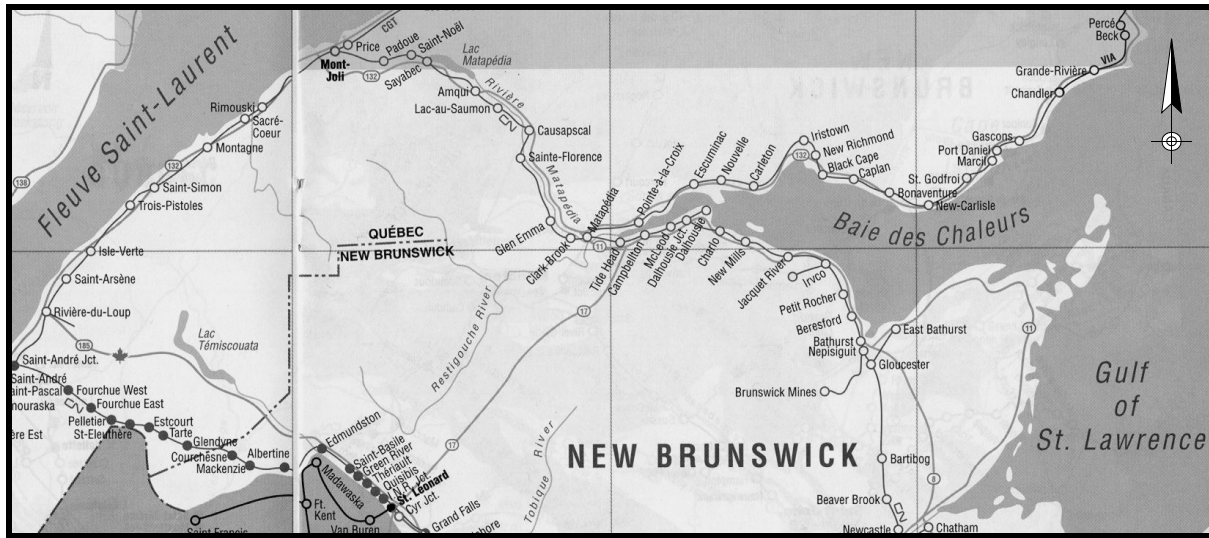
4.3.1 *Trespassing*

Since law enforcement has been identified as one of the essential elements in a comprehensive approach to controlling trespassing, police agencies need to have the necessary legal powers to actively participate in trespass control. In areas where police forces have appropriate tools for enforcing trespassing, they appear to be an effective deterrent. Now that police forces in Quebec are able to issue fines in accordance with the *Contraventions Act*, there is a need for collaboration between the railways and law enforcement agencies at all levels on the consistent use of this enforcement tool.

In order to promote public safety, a comprehensive approach should be adopted by all stakeholders to deter and prevent unauthorized access to railway property. Although there are some initiatives underway (e.g. Operation Lifesaver, Direction 2006), the complexity of coordinating the efforts of all the stakeholders and allocating the required financial resources are a continuing challenge. The Board is aware that much has been done to heighten awareness of the risks involved in trespassing and in developing strategies to address all of the issues involved. However, the Board remains concerned about the number of these accidents occurring in Canada each year. For this reason, “Unauthorized Use of Railway Rights-of-Way” is one of the TSB’s Key Safety Issues. It is hoped that the ongoing efforts of partnership initiatives, such as Direction 2006 and Operation Lifesaver, will lead to significant reductions in these types of accidents.

This report concludes the Transportation Safety Board’s investigation into this occurrence. Consequently, the Board, consisting of Chairperson Benoît Bouchard, and members Jonathan Seymour, Charles Simpson, W.A. Tadros and Henry Wright, authorized the release of this report on 30 November 1999.

Appendix A - Geographic Maps of MRC Territory



*Appendix B - Sections 18, 19, 20, 21 and 24 of the Railway Safety Act
Regulations*

18. (1) The Governor in Council may make regulations
- (a) respecting the operation or maintenance of line works, and the design, construction, alteration, operation and maintenance of railway equipment, which regulations may embrace, among other things, performance standards;
 - (b) declaring positions in railway companies to be critical to safe railway operations;
 - (c) respecting the following matters, in so far as they relate to safe railway operations, in relation to persons employed in positions referred to in paragraph (b):
 - (i) the training of those persons, both before and after appointment to those positions,
 - (ii) hours of work and rest periods to be observed by those persons,
 - (iii) minimum medical, including audiometric and optometric, standards to be met by those persons,
 - (iv) the control or prohibition of the consumption of alcoholic beverages and the use of drugs by those persons, and
 - (v) the establishment of support programs for those persons and standards applicable to such programs; and
 - (d) respecting the establishment of a scheme for licensing persons employed in positions referred to in paragraph (b), and prescribing the fees for the licences.

Idem

- (2) The Governor in Council may make regulations respecting the operation and maintenance of crossing works.

Regulations to override rules

- (3) Where the Governor in Council, at any time, makes regulations respecting a matter referred to in subsection (1) that are inconsistent with rules approved in relation to a particular company by the Minister under section 19 or 20 in respect of that matter, then, to the extent of the inconsistency, those rules are thereupon revoked.

Formulation or revision of rules pursuant to ministerial order

19. (1) The Minister may, by order, require a railway company
- (a) to formulate rules respecting any matter referred to in subsection 18(1) that is specified in the order and is not dealt with by regulations made pursuant to that subsection, or
 - (b) to revise its rules respecting such a matter in a manner specified in the order, and to file with the Minister for approval, within a period specified in the order, the rules so formulated or so revised.

Formulation or revision of rules at initiative of railway company

20. (1) Where a railway company, on its own initiative,
- (a) proposes to formulate rules in respect of any matter referred to in subsection 18(1) that is not dealt with by regulations made pursuant to that subsection, or
 - (b) proposes to revise its rules in respect of any such matter,
- the company shall file the rules as formulated or as revised with the Minister for approval.

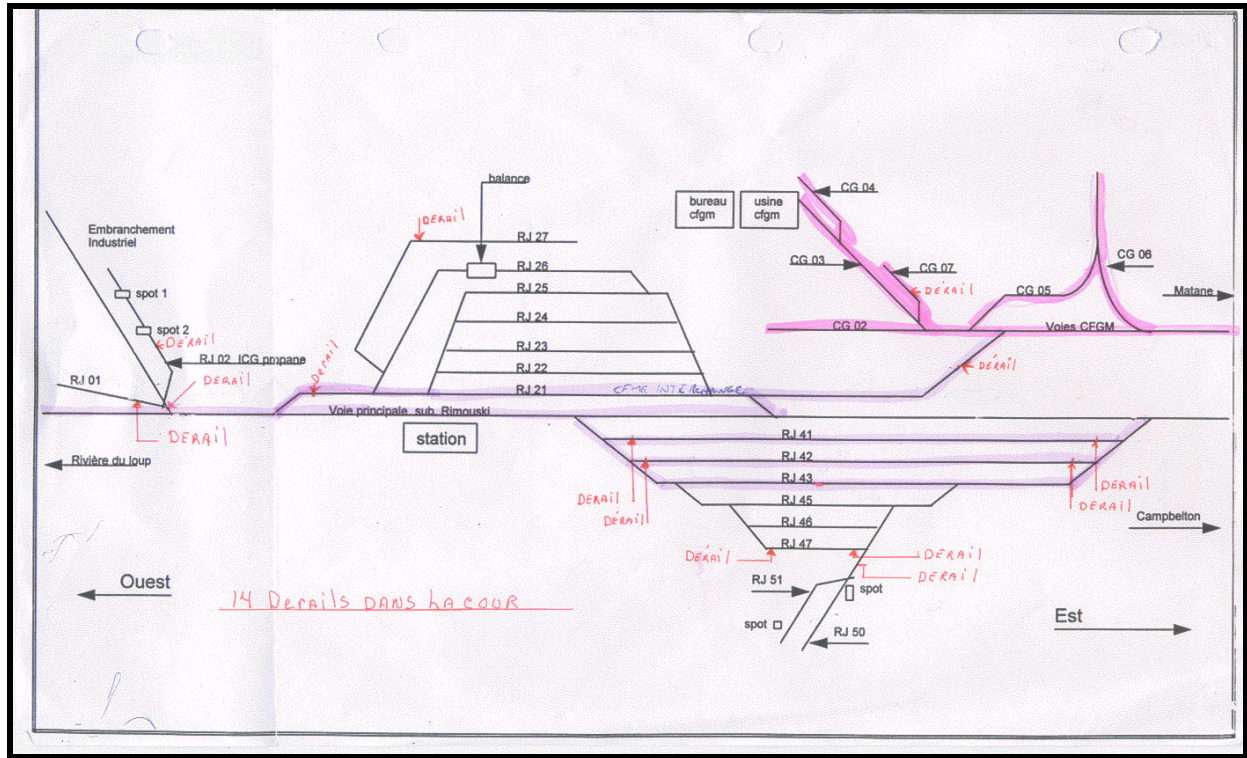
Uniformity of rules

21. In establishing, under section 19 or 20, rules applying to a particular railway company or in deciding, under section 19 or 20, whether to approve rules formulated or revised by, and applying to, a particular railway company, the Minister shall, to the extent that it is, in the opinion of the Minister, reasonable and practicable to do so, ensure that those rules are uniform with rules dealing with a like matter and applying to other railway companies.

Regulations

24. (1) The Governor in Council may make regulations
- (f) for restricting or preventing, by means of fences, signs or any other means, access to the land on which a line of railway is situated by persons, other than servants or agents of the railway company concerned, by vehicles, or by animals, where the presence of persons, vehicles or animals on that land would constitute a threat to safe railway operations.

Appendix C - Schematic Showing Running Rights and Derail Locations in Mont-Joli Yard



Sketch as provided by the MRC

Appendix D - Glossary

CFBC	Chemin de fer Baie des Chaleurs
CGTR	Canada Gulf Terminal Railway
CN	Canadian National
CROR	Canadian Rail Operating Rules
CTA	Canadian Transportation Agency
EDT	eastern daylight time
mph	mile(s) per hour
MRC	Matapédia Railway Company
NBEC	New Brunswick East Coast Railway
OCS	Occupancy Control System
RAC	Railway Association of Canada
RSA	<i>Railway Safety Act</i>
RTC	rail traffic controller
SBU	Sense and Brake Unit
SMS	Safety Management System
TC	Transport Canada
TOM	Train Operations Monitoring
TSB	Transportation Safety Board of Canada
UTC	Coordinated Universal Time
VIA	VIA Rail Canada Inc.

