

Lac-Mégantic

Loose Ends and Unanswered Questions

Bruce Campbell





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ABOUT THE AUTHOR

Bruce Campbell is the executive director of the CCPA.

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As with my earlier reports, I persist in asking uncomfortable questions about the breakdown of our transportation regulatory regime. We owe it to the victims of Lac-Mégantic—three of whom were members of my colleague Diane's family—who paid the ultimate price for regulatory failure and corporate negligence, to ensure that it never happens again.

ABBREVIATIONS

- API American Petroleum Institute (API)
- AFPM American Fuel & Petrochemical Manufacturers
- AMP Administrative Monetary Penalties
- CROR Canadian Rail Operating Rules
- ERAP Emergency Response Assistance Plan
- FRA Federal Railway Administration
- SPTO Single-Person Train Operation
- MMA Montreal, Maine & Atlantic Railway (now Central Maine and Quebec Railway)
- QNS&L Quebec North Shore and Labrador Railway
- PCO Privy Council Office
- PHMSA Pipeline and Hazardous Materials Safety Administration
- PMO Prime Minister's Office
- RAC Railway Association of Canada
- ROC Railway Operating Certificate
- RSA Rail Safety Act
- RSI Railway Supply Institute
- SMS Safety Management Systems
- TC Transport Canada
- TDG Transportation Dangerous Goods Directorate
- TSB Transportation Safety Board
- US NTSB U.S. National Transportation Safety Board.

5	Executive Summary
11	Introduction
15	The Transportation Safety Board Report
20	Transport Canada Actions and Industry Responses
27	Summary of Regulatory Failures
31	Conclusion
34	Appendix
47	Notes

Executive Summary

THE LAC-MÉGANTIC DISASTER of July 6, 2013 caused a massive breach of public confidence in the government's ability to ensure public safety in the face of surging volumes of crude oil transported by rail in Canada.

The Transportation Safety Board's (TSB) August 2014 final report is by far the most comprehensive account of the accident to date. The TSB found that both Transport Canada and the company Montreal, Maine & Atlantic (MMA) shared responsibility, though its findings downplayed the role of regulatory failure as a contributing factor.

The federal government has, from the beginning, denied any responsibility for the accident, stating that culpability rests with the three MMA employees who allegedly broke rules that were already in place. Not surprisingly, the government would like the TSB report to be the final word on Lac-Mégantic and has resisted calls for an independent inquiry. It would like the public focus to be on the improvements to rail safety it has made in its effort to restore public confidence in moving oil by rail safely.

However, the TSB report is not the end of the story, rather the end of a chapter in a story as yet unfinished. It is a story of a dysfunctional regulator; the story of a government that turned a blind eye to the potentially catastrophic consequences of the surge in oil-by-rail shipments in the single-minded pursuit of its "energy superpower" ambitions; a government that in the name of deficit reduction starved Transport Canada's regulatory resources, disabling its capacity to cope with the oil-by-rail boom.

Regulatory failure should be seen within the wider frame of a transformation in the relationship between the government the public service. This government has used its power of appointment, its power to restrict budgets, its unprecedented control over and suppression of information — and centralization of decision-making — to subvert the independence of government agencies, including regulatory and advisory bodies.

The government has created a climate of fear within the public service. The message to senior public servants, including heads of agencies, was that if you step out of line, if you challenge or criticize the government or are offside with its agenda, you will be fired and publicly pilloried, your appointment will not be renewed, or your agency will be eliminated. It sent a message that the role of regulatory and advisory bodies is to support without question the government’s agenda.

In this context, Lac-Mégantic is a story of a political culture that views regulation as an impediment to job creation by business rather than an indispensable instrument to serve the public good. It sees government’s top priority as serving business, and thus, even with the regulations in place, lets businesses oversee themselves. The climate of austerity provides a convenient cover for cutting capacity to develop regulations, monitor compliance and enforce the rules where necessary.

At the press conference accompanying the release of the TSB’s final report, in her last act as board chair, Wendy Tadros issued a withering indictment of Transport Canada as well as MMA.

“This was a company with a weak safety culture,” she said. “A company where unsafe conditions and unsafe practices were allowed to continue. Which begs a question: Who, then, was in a position to check on this company... to make sure safety standards were being met? Who was the guardian of public safety?

“That’s the role of government; to provide checks and balances. Oversight. And yet this booming industry — where unit trains were shipping more and more oil across Canada, and across the border — ran largely *un-checked*.”

And yet the report’s conclusions were curiously much more muted with respect to the regulatory failure at Transport Canada. Of its 18 findings as to *causes and contributing factors* only the three related explicitly to regulatory failure, and only one targeted Transport Canada headquarters — namely that it did not provide adequate oversight of unspecified “significant operational changes” at MMA.

There was no mention in any of the TSB's *findings* of the absence of a global risk assessment by Transport Canada of the enormous increase in oil transport by rail, or about the woefully inadequate departmental regulatory resources.

A number of regulatory breaches were downgraded from *causes and contributing factors* to *findings as to risk* and *other findings*. They included misclassification of the highly volatile Bakken crude oil, which greatly magnified the destruction and loss of life, unsafe tank cars that punctured and spilled their contents, imprecise rules for brake application and train securement, and the lack of effective Transport Canada audits of the company's safety management systems (SMS).

Most notably, Transport Canada's decision to allow MMA to operate its unit oil trains with a single-crew member, which evidence in the body of the report points to single person train operations (SPTO) as a *cause and contributing factor* to the accident but, in the end was "demoted" to *findings as to risk* and *other findings*. Regardless of the merits of the rationale for shifting these breaches from one category to another, it was an effective communication tactic, turning the media spotlight away from this critical area of regulatory failure.

This raises the question of what role, if any, the transport minister's office and the Prime Minister's Office (PMO) played in influencing the TSB findings. Or whether the board simply went easy on regulatory failure at Transport Canada because it did not want to antagonize the government — a consequence of the chill effect that is the new normal in government–public service relations.

Transport Canada has taken a number of actions in the aftermath of Lac-Mégantic to improve rail safety. While these measures constitute a step in the right direction, they are far from adequate. Moreover, of the measures Transport Canada *has* undertaken to improve safety we must ask: Will they be properly implemented, enforced and resourced? Are they too vague and easily circumvented? Will they, over time, be weakened, watered down or overturned under industry pressure? Will they be transparent and open to outside scrutiny, or will they be hidden behind a wall of secrecy?

Neither the rail nor oil industry has acknowledged any responsibility for the accident. In general, with some exceptions, both continue to push back on any new regulations that conflict with their commercial interests.

Nor has industry or government suggested that oil-by-rail traffic should be slowed at least until the proposed safety measures have been fully implemented. On the contrary, its continued growth is simply assumed. In-

vestments in oil loading facilities in Alberta are expanding rapidly. New port facilities connected to rail lines are being built for exporting crude oil.

One cannot pinpoint a single regulatory failure that led to Lac-Mégantic. Rather, multiple failures interacted with each other in mutually reinforcing ways, and their effect was cumulative, to the point where they created the conditions for a perfect storm. This report, the third in a series on Lac-Mégantic, identifies the following regulatory failures:

1. Transport Canada failed to act on longstanding warnings from the TSB (and its U.S. counterpart) that so-called legacy DOT-111 tank cars were unsafe for transporting hazardous products.
2. Transport Canada and its U.S. counterpart failed to heed evidence prior to Lac-Mégantic about the high volatility of Bakken crude.
3. Although in 2011 Transport Canada's Transport Dangerous Goods Directorate (TDG) identified the rapid increase in the transportation of oil by rail as requiring greater attention, its inspections did not extend to the verification of the contents and classification of crude oil being transported or imported.
4. Furthermore, Transport Canada failed to verify the volatility of the Bakken oil from North Dakota, either en route or at the destination Irving refinery, despite evidence it was routinely misclassified as having a lower volatility.
5. Transport Canada failed to do its own global risk assessment of the increase in transport of crude oil by rail or to introduce measures to mitigate that risk.
6. Resources in the TDG and Rail Safety Directorate were (and are) woefully inadequate to cope with the increase in crude oil traffic.
7. Transport Canada failed to oversee the major change in MMA's cargo (Bakken oil in unit trains), and the company's practice of leaving these trains unlocked and unattended on the main track on a steep grade, to ensure the company did a risk assessment and took appropriate mitigation measures.
8. The Canadian Transportation Agency failed to monitor changes in the risk profile of MMA's cargo. Nor did regulations in place require an increase in the risk profile to raise its insurance coverage of \$25 million.

9. Transport Canada approved the Railway Association of Canada's re-drafting of the Canadian Rail Operating Rules (CROR) in 2008, over the objections of the unions, enabling companies to implement single-person train operations (SPTO) for freight trains without needing an exemption or conditions, and without ensuring an equivalent level of safety as with two-person crews. Transport Canada's cozy relationship with the rail industry is widely acknowledged.
10. There is substantial documentation on the industry's successful resistance to new regulations to deal with the huge increase in the transportation of dangerous goods, and its advocacy for the removal of existing regulations dealing with the transportation of dangerous goods in the lead-up to Lac-Mégantic.
11. Transport Canada failed to heed the advice of a National Research Council study it commissioned — to conduct a two-year pilot project of SPTO on an agreed upon route complete with monitoring and evaluation before proceeding.
12. Despite serious deficiencies in Transport Canada's oversight of MMA's safety management system (SMS), including the lack of follow-up to ensure compliance, and failure to impose penalties for chronic noncompliance, and notwithstanding its abysmally poor safety record, MMA's continued operation does not appear to ever have been in serious jeopardy.
13. Despite warnings from Transport Canada's Montreal office about MMA's poor safety and regulatory compliance record, the department allowed the company to begin SPTO with virtually no operating conditions in place to ensure a level of safety equivalent what existed with two persons.
14. Transport Canada failed to address conclusions of reviews dating back to 2006, which documented flaws in its SMS rail regulatory regime, namely that the companies have in practice been left largely to regulate themselves.

Responsibility for the regulatory failures outlined above ultimately rests at the very top. Here lies the responsibility for budget cuts that greatly restricted the department's ability to cope with the expansion in oil-by-rail transportation. Here lies the responsibility for the industry-friendly red tape reduction policy, which requires that regulators remove one rule every time

they introduce another; whose practices and procedures, while paying lip service to health, safety and the environment, employed short-term costs to business were as the sole test for determining whether a proposed regulation is accepted.

The federal government has sought to control the narrative and obfuscate the full extent of the regulatory failure and corporate negligence behind the Lac-Mégantic disaster. It would like the TSB report to be the final word. But there are too many unanswered questions, too many loose ends.

An independent judicial inquiry is necessary: to put all the facts on the table; to compel key government and industry players to address, in a public forum, the questions left unanswered by existing investigations; to lift the veil on the root causes of the disaster, which powerful interests would like to remain obscure.

Only three MMA employees at the bottom of the accountability pyramid have been charged in connection with the accident. An inquiry is necessary to ensure that the betrayal of public trust, for which the victims of Lac-Mégantic paid the ultimate price, is not compounded by a failure of justice — a failure to hold anyone else to account.

The people of Lac-Mégantic need to know why the rail safety measures implemented over the last 18 months were not in place at the time of the accident.

They and indeed all Canadians need assurance that the rail safety improvements are sufficient to prevent another such tragedy. They need to know that over time there will be no backsliding, no watering down or circumvention of Transport Canada's public safety mandate.

In the face of stalled pipeline construction projects, oil transportation by rail has emerged as a default growth option at least for the near future. An independent inquiry is a necessary precondition to obtaining the social licence from Canadians to support this development.

Introduction¹

IT HAS BEEN almost 18 months since the oil train derailment and explosion in the early morning of July 6, 2013 that took 47 lives and devastated the community of Lac-Mégantic.² The disaster caused a massive breach of public confidence in the government's ability to ensure public safety in the face of surging volumes of crude oil being transported by rail in Canada.

There have been a number of investigations into the accident. A criminal investigation by the Sûreté du Québec resulted in three low-level employees being charged in May 2014 with criminal negligence causing death. The company, Montreal, Maine & Atlantic Railway (MMA) was also charged – though not its CEO or directors. MMA is now bankrupt and the company that took over its assets, Central Maine and Quebec Railway, bears no liability for the accident. The investigation is ongoing.

The Transportation Safety Board's (TSB) August 2014 final report is the most comprehensive account of the accident thus far. It found that both Transport Canada and MMA shared responsibility, though its findings downplayed the role of regulatory failure as a contributing factor. Many questions remain unanswered.

The Quebec coroner's report of October 2014, which called Lac-Mégantic an avoidable accident, made a number of recommendations to reduce the risk of such events in the future.

A study by the House of Commons standing committee on transport, infrastructure and communities has a much broader mandate – to examine the transportation of dangerous goods and safety management systems across all modes of transportation. Under tight government control, it is not expected to shed new light on regulatory breakdowns within Transport Canada. Its final report is scheduled for release February or March 2015.

Internal Transport Canada investigations are, as far as we know, still underway. The department's Transportation of Dangerous Goods investigation is seeking to determine if there is any criminal liability with respect to the misclassification of the crude oil on the Lac-Mégantic train. Another internal investigation is looking into the process within Transport Canada that enabled MMA to operate its unit oil trains with a single operator.³ If there are any results from these investigations they have not been made public.

A class action lawsuit filed in a Quebec court on behalf of the citizens of Lac-Mégantic is still waiting authorization from a judge to proceed. The action cites 53 defendants including Transport Canada, which is charged with gross negligence regarding its role and responsibility for regulatory oversight of MMA's operations.

The families of 41 of the Lac-Mégantic victims are pursuing wrongful death suits in a U.S. court in Maine, where bankruptcy proceedings are also underway. The bankruptcy trustee is seeking to draw in a large number of the companies involved in order to reach a settlement that would avoid lengthy litigation. The goal is to raise \$500 million. In the meantime, a partial settlement fund of \$200 million has been filed in Québec and US courts, which must be approved by courts in both countries. Proceeds from this fund will be divided (proportions to be determined) amongst all affected parties – the wrongful death victims, the citizens of Lac-Mégantic who make up the class action, and the Québec government. The bankruptcy trustee decided to proceed in spite of the shortfall, which is due to three of the companies involved refusing to contribute to the Fund. Canadian Pacific, Irving oil, and World Fuels are denying responsibility for the accident. If these companies do not contribute the remaining \$300 million, lawsuits against them will resume.

The federal government has, from the beginning, denied any responsibility for the accident, stating that culpability rests with the three MMA employees and the company they worked for. Government spokespersons state that the rules were there but they were broken. But as *RailwayAge* magazine correspondent David Thomas wrote, “any safety regime that relies on human infallibility is delusional. Effective safety systems expect and anticipate human fallibility; they don't make perfect behaviour a critical dependency.”⁴

Immediately after the accident, Transport Minister, Denis Lebel, was replaced by Lisa Raitt. Several of the senior bureaucrats responsible for transportation safety and security, rail safety and dangerous goods transportation have been replaced. Others continue in their jobs.

On the question of where the buck stops, the transport minister appears to have dodged a bullet. The government changed the definition of ministerial responsibility three years ago.

The 2007 guidelines issued by the PCO read, “Ministers are individually responsible to Parliament and the Prime Minister for their own actions and those of their department, including the actions of all officials under their management and direction, whether or not the Ministers had prior knowledge.” They were changed in 2011 to read, “Ministerial accountability to Parliament does not mean that a Minister is presumed to have knowledge of every matter that occurs within his or her department or portfolio, nor that the minister is necessarily required to accept blame for every matter.”⁵

The government would like the TSB report to be the final word on Lac-Mégantic and has resisted calls for an independent inquiry. It would like the public focus to be on the improvements to rail safety it has made in its quest to restore public confidence in safely moving oil by rail. However, the TSB report is not the end of the story but rather the end of a chapter in a story as yet unfinished.

As the chronology accompanying this report documents, it is a story of a dysfunctional regulator, subordinated to the government’s economic priorities, whose capacity and independence deteriorated to the point where the probability of a catastrophic accident went from being highly unlikely to being a virtual certainty – not a matter of if but when.

It is the story of a powerful rail lobby that exerted its enormous influence, over union objections and resistance from within Transport Canada, to make sure MMA could operate massive oil trains with a single operator; that was able to write its own rules, and weaken existing regulations, in its rush to get booming Bakken and oilsands-derived oil to market, with little interference from a compliant regulator.

It is equally the story of a government that turned a blind eye to the potentially catastrophic consequences of the monster surge in oil-by-rail shipments as it single-mindedly pursued its “energy superpower” ambitions; that, in the name of deficit reduction, starved Transport Canada’s regulatory resources, disabling its capacity to cope with the oil-by-rail boom.

At its heart, this is a tale of greed, hubris and rigid ideology.

The regulatory failure underlying the Lac-Mégantic disaster should be seen against the backdrop of a transformation in relations between government and the public service under the Conservative government.

The firing in 2007 of Linda Keen, the president of the Canadian Nuclear Safety Commission who defied a government order she determined would subordinate public safety to government priorities and industry interests, “put a chill through the federal system,” according to former auditor general Sheila Fraser in an interview with journalist Michael Harris.⁶

It sent a message to senior public servants, including heads of so called independent agencies, that if you step out of line, if you challenge or criticize the government or are offside with its agenda, you will be fired and publicly pilloried, or your appointment will not be renewed, or your agency will be eliminated. It sent a message that the role of regulatory and advisory bodies is to support the government's agenda. It created a climate of fear — a warning that those who criticize do so at their peril.

Prominent casualties include former parliamentary budget officer Kevin Page, Statistics Canada head Munir Sheikh, veterans ombudsman Pat Stogran, the National Round Table on the Environment and the Economy, the National Council of Welfare... The list goes on. A number of deputy ministers took early retirement rather than succumb to the new normal in government public service relations.

Virtually all senior public service positions are by now appointees by the Conservative government, which has severed the checks and balances between itself and the public service, according to a well-placed source.

“The co-optation of the public service has made the issue of political interference largely redundant since the traditional independence of the public service has been broken. Its new role is to execute the will of the government without question — to carry out government business like good loyal soldiers,” the source said. “At the apex of the public service, the Privy Council (PCO) no longer provides a buffer between the political level and the bureaucratic level. It has been thoroughly politicized.”⁷

Decisions are made based on ideological preconceptions, “gut feelings” and industry demands. Arms-length policy advice or evidence-based analysis is disregarded. As a former Public Works civil servant wrote, “No longer do public servants speak knowledge to power: they are expected instead to pander to known already-made decisions and biases.”⁸

This government has used its power of appointment, its power to restrict budgets, and its unprecedented control over and suppression of information, and centralization of decision-making to subvert the independence of government agencies including regulatory agencies and advisory bodies.

Ultimately, Lac-Mégantic is a story about a political culture that sees regulation as an impediment to job creation by business rather than an indispensable instrument to serve the public good. It sees government's top priority as serving business, and thus, even with the regulations in place, lets businesses oversee themselves. The climate of austerity provides a convenient cover for cutting capacity to develop regulations, monitor compliance and enforce the rules where necessary.

The Transportation Safety Board Report

AT THE PRESS conference accompanying the release of the TSB's final report, in her last act as chair, Wendy Tadros issued a withering indictment of Transport Canada. She said MMA was, "a company where unsafe conditions and unsafe practices were allowed to continue. Which begs a question: Who, then, was in a position to check on this company... to make sure safety standards were being met? Who was the guardian of public safety? "That's the role of government; to provide checks and balances. Oversight. And yet this booming industry – where unit trains were shipping more and more oil across Canada, and across the border – ran largely *un-checked*."⁹

Her statement contrasted starkly with remarks from Transport Minister Raitt following the TSB press conference. Raitt dodged the question of why MMA was allowed to operate given what Transport Canada knew about the company. Instead, she emphasized her department's measures to improve rail safety since the accident.

"We need to remember that in terms of safety, the government puts the rules in place. The companies are expected to follow the rules. The company did not follow the rules," said the minister, contradicting the TSB chair's assertion that employee responsibility is the last line of defence in railway safety; it is not a substitute for management supervision and government oversight.

The statement from Tadros was much blunter than the language of the report itself, specifically its findings on the *causes and contributing factors*

to the Lac-Mégantic accident.¹⁰ Of the 18 such factors listed, only the last three related explicitly to regulatory failure: two of them (17 and 18) pinned the blame on Transport Canada's Quebec office, and only one factor (16) implied that Transport Canada headquarters did not provide adequate oversight of unspecified "significant operational changes" at MMA. They are listed as follows:

16. "Despite being aware of significant operational changes at [MMA], Transport Canada did not provide adequate regulatory oversight to ensure associated risks were addressed."
17. "Transport Canada Quebec Region did not follow up to ensure that recurring safety deficiencies at [MMA] were effectively analyzed and corrected, and consequently, unsafe practices persisted."
18. "The limited number and scope of safety management system audits that were conducted by Transport Canada Quebec Region, and the absence of a follow-up procedure to ensure [MMA's] corrective action plans had been implemented, contributed to the systemic weaknesses in [MMA's] safety management system remaining unaddressed."

Curiously, the analysis in the body of the report suggests that regulatory failure played a significantly larger role in the accident than indicated by the *findings as to causes and contributing factors*. As one source told me, "MMA was kicked in the ass. Transport Canada was slapped on the wrists."

There was no mention in any of its *findings* of the absence of a global evaluation by Transport Canada of the enormous surge in oil transport by rail, or about the woefully inadequate regulatory resources at the department. A number of regulatory breaches were downgraded to *findings as to risk* and *other findings*. They included misclassification of the highly volatile Bakken crude oil, which greatly magnified the destruction and loss of life, unsafe tank cars that punctured and spilled their contents, and imprecise rules for brake application and train securement. The lack of Transport Canada audits of company safety management systems (SMS), which is discussed in more detail below, was also listed in *findings as to risk*.

Most curious of all was that Transport Canada's decision, despite MMA's appalling safety record and repeated protestations from the department's Quebec office, to allow the company to operate its unit oil trains with a single crew member, did not appear in the report's *findings as to causes and contributing factors*. Instead, it appeared in *findings as to risk* (5 and 6) and *other findings* (1).

How could this be? The absence of a second crew member to verify the application of hand brakes or to discuss the locomotive oil leak, clearly removed a vital safety defence thereby contributing to the accident.¹¹ The same can be said for Transport Canada’s decision to allow MMA to proceed with single-person train operations (SPTO), and its approval of the industry’s 2008 re-write of the Canadian Rail Operating Rules (CROR), which permitted SPTO without ensuring an equivalent level of safety.

And why were single-person crews deemed by the TSB to be a causal factor in the 1996 Quebec North Shore and Labrador Railway (QNS&L) accident but not in this case? Briefing notes prepared for the transport minister right after the 2013 accident and obtained by *Enquête* conceded that enabling MMA to operate with a one-person crew “could have contributed to the accident and magnified its consequences.”

The following passage from the 2014 TSB report appears to provide the rationale for not including SPTO as a *cause or contributing factor* to the accident:

On the whole, it could not be concluded whether SPTO contributed to the incorrect securement of the train or to the decision to leave the locomotive running at Nantes despite its abnormal condition. However, it is clear that MMA’s implementation of SPTO did not address all critical risks, specifically how a single operator might deal with any abnormal conditions, the risks of single person securement, or the need for joint compliance. Moreover, TC (Transport Canada) did not develop an oversight plan to ensure that MMA implemented SPTO in accordance with MMA’s risk assessment. Despite being aware of significant operational changes at MMA, TC did not provide adequate regulatory oversight to ensure that the associated risks were addressed.¹²

Regardless of the merits of the rationale for shifting these breaches to the category of *risk* as opposed to *causes and contributing factors*, it was an effective communication tactic, turning the media spotlight away from these critical areas of regulatory failure. It raises the question of what role, if any, the minister’s office and the PMO played in influencing the TSB findings. Or whether the board simply went easy on regulatory failure at Transport Canada because it did not want to antagonize the government — a consequence of the “chill effect” referred to earlier by Canada’s former auditor general.

The final report of the TSB made only two new recommendations. The first was that that Transport Canada should audit safety management systems (SMS) in depth and more frequently, a recommendation already made by the auditor general’s November 2013 report. It did not raise any ques-

tions about potential flaws in the SMS system itself: for example, about the dangers SMS becoming a substitute rather than an additional safety layer, about the relationship between the SMS auditing functions and the inspection functions in the rail safety regime.

Transport Canada has pledged (once again) to ensure the proper implementation and enforcement of safety management systems including hiring 10 additional SMS auditors though with no firm commitment to hire additional on-the-ground inspectors to police the rules. It has also been training inspectors for a dual role as auditors, but this has resulted in a reduction in unannounced on-site inspections since Lac-Mégantic – an essential component of the rail safety regime – according to Christine Collins, president of the Union of Canadian Transport Employees.¹³

According to lawyer and certified locomotive engineer, Wayne Benedict, reinstatement of a robust inspection system is unlikely because it is both cheaper for government and preferable to the railways who want minimal interference from government, and are averse to imposing expensive safety and environmental rules upon themselves.¹⁴

The second TSB recommendation was that the department should adopt the recent U.S. National Transportation Safety Board (USTSB) recommendation that trains parked on main lines on a grade be restrained by derails and other physical devices. It should be noted that Transport Canada issued an emergency directive in July 2013 to the effect that trains carrying dangerous goods should not be left unattended on the main track. In November 2013, the Railway Association of Canada (RAC) proposed instead a set of enhanced securement rules, *which would expressly allow trains carrying dangerous goods to be left unattended on the main track*. Transport Canada approved the industry change at the beginning of January 2014, reversing the earlier directive.

Unifor’s rail safety director, Brian Stevens, told the *Toronto Star* that the TSB recommendations, “appeared deferential to the rail industry’s desire to avoid the delays and lost revenues that would be involved in a complete shut-down each time a train is left unattended, or require any train to be parked in a secure rail yard when not in use.”¹⁵

Two months later the Quebec coroner reported on the circumstances of the deaths of the 47 victims that fateful night in Lac-Mégantic. Calling it an avoidable accident, the coroner made a number of recommendations, including the following:

- Transport Canada should clarify the rules regarding hand brake application.
- Trains carrying dangerous goods should not be left unattended on the main track. This prohibition should remain in place until companies have demonstrated that they have put in place additional physical defences to prevent trains from moving.
- The threshold for risk assessments, speed restrictions, and other conditions required for railways on key routes carrying dangerous goods – currently 10,000 carloads per year – should, as also recommended by the TSB, be lowered.

Transport Canada Actions and Industry Responses

TRANSPORT CANADA, UNDER the leadership of Lisa Raitt, has taken a number of actions to improve rail safety, largely in response to recommendations made in the TSB and auditor general's reports.

The department modified the 2008 CROR General Rule M to require a minimum of two operators on trains carrying dangerous goods. It ordered — after years of urging by Canadian and U.S. transportation safety boards — the immediate removal of the 5,000 highest risk DOT-111 tank cars and the elimination of the remaining 65,000 legacy DOT-111 cars by May 17, 2017. Irving Oil has voluntarily committed to using only upgraded tank cars for transporting oil to its New Brunswick refinery, but the fact remains that for another three years it will be legal to ship volatile Bakken oil in these unsafe tank cars.

In July 2014, Transport Canada, in step with its U.S. counterpart, began a formal consultation on enhanced new safety standards for DOT-111 tank cars, including thicker steel requirements, and top-fitting and head shield protection. The department committed to bringing in enhanced testing protocols for crude oil and targeted inspections from the wellhead to the refinery to verify the accuracy of dangerous goods classifications. It has also pledged to resume research on dangerous goods cargo that had been discontinued in 2012.

Transport Canada issued an emergency directive in April 2014 ordering speed restrictions on key routes used for transporting crude oil — that companies hauling more than 10,000 carloads of dangerous goods a year along key routes should not exceed speeds of 50 miles per hour (80 km/h).¹⁶ In its response to the directive, the TSB recommended lowering the 10,000-car threshold, noting that MMA had operated underneath it.

It ordered the companies to do route planning along key routes, including that they conduct and submit risk assessments and prepare emergency response assistance plans (ERAPs) for these routes. However, neither is required to be made public for reasons of commercial confidentiality. Mayors of several cities, including most recently Toronto and Mississauga, have said they want oil and other dangerous goods passing through their heavily populated communities to stop entirely.

A TSB recommendation that companies should be planning alternate routes to try to avoid transportation of dangerous goods through densely populated or vulnerable areas, is seen by the industry as unrealistic given the linear nature of the country and the lack of alternate routes. It should be noted that neither CN nor CP properly assessed, or were required by Transport Canada to assess, the risk to safety of tearing up their Ottawa Valley lines that would have avoided populated areas in transporting crude oil.

Transport Canada also issued regulations requiring railways to share with municipal officials information about dangerous goods passing through their communities though not in real time. Companies are required to provide annual reports on the type and volume of dangerous goods passing through their communities, broken down by quarter. Moreover, municipalities must sign legal commitments that they will not make this information public. US DOT regulations, on the other hand, require this information — specifically Bakken crude — to be shared with state emergency responders and made public in real time. It has done so over company objections on the grounds of security and commercial sensitivity.

Transport Canada has finally taken steps to implement a long-standing recommendation of the TSB, namely to clarify the number of hand brakes that need to be applied in relation to the weight of the train and the slope of the track, and to develop a test for operators to ensure that enough braking power has been applied. It also implemented the TSB recommendation to require physical defences such as derails.

Recommended back in 2008, and enabled by amendments to the Railway Safety Act in May 2013, Transport Canada introduced a Railway Operating Certificate (ROC) in November 2014, giving the department new power

to shut down a company's operations without resorting to court action. The department says companies can obtain their ROCs with minimal so-called red tape consistent with Conservative regulatory policy. Companies have to fill out a single form, to be submitted by January 1, 2017, which Transport Canada estimates should take an hour to complete.

To obtain an ROC, each company is required to conduct a risk assessment, and the CEO must attest that the company meets the "highest level of safety." However, the risk assessment does not have to be submitted to Transport Canada (or an outside expert) for evaluation and approval. Nor will signatory CEOs be held to account for their attestations.

The backgrounder in the *Canada Gazette* states: "Transport Canada would only cancel or suspend the ROC in extreme cases where there is company-wide or chronic non-compliance or where their operation poses a serious risk to safe railway operations."¹⁷ It begs the question: Would MMA have been shut down with ROCs in place? Or is this simply window dressing that would have made no difference?

Amendments to the Railway Safety Act in May 2013 also enabled another enforcement tool, *administrative monetary penalties*. Regulations proposed that same month allowed for fines ranging from \$5,000 to \$50,000 for individuals, and from \$25,000 to \$250,000 for corporations. These proposals — made by the Transportation of Dangerous Goods (TDG) directorate in 2009 — still have not been implemented, likely due to resistance by the companies.

While Transport Canada's safety improvement measures in the aftermath of Lac-Mégantic constitute a step in the right direction, they are far from adequate. The incoming TSB chair Kathy Fox, said as much in releasing the Board's 2014 *Watchlist* in late November 2014. Back on the list "of those issues posing the greatest risk to Canada's transportation system" were safety management systems, which had been removed from the previous *Watchlist* (2012)

Also on the 2014 *Watchlist* was transport of flammable liquids by rail, which the TSB says poses a great risk to rail safety. In a backgrounder, the board states its concern that, "current railway operating practices, combined with the vulnerability of the tank cars used to transport such products, are not adequate to effectively mitigate the risk posed by the transportation of large quantities of flammable liquids by rail."¹⁸ The TSB renewed its call for alternative route and risk mitigation planning and stronger tank cars carrying crude oil and other dangerous goods.

Ironically, the same day the TSB released its 2014 *Watchlist* calling for more regulations, Treasury Board President, Tony Clement was before a

House of Commons committee defending his Red Tape Reduction Act, which entrenches in legislation the government's 2012 regulatory policy. The legislation includes, among other measures, the one-for-one rule under which departments may only create a new rule or regulation if they are prepared to eliminate at least one other. Clement boasted that the rule had reduced by 19 the net total of regulations during 2012–13.

Also, in November 2014, the TSB initiated a campaign urging transportation industry whistleblowers to come forward under its SECURITAS program to confidentially report unsafe practices or share safety concerns. This suggests that TSB has lost confidence in the effectiveness of existing Transport Canada and company whistleblower protection programs.

The measures Transport Canada *has* undertaken to improve safety, beg the following questions: Will these measures be properly implemented, enforced and resourced? Or will they be too vague and easily circumvented? Will they over time be weakened, watered down or overturned under industry pressure? Will they be transparent and open to outside scrutiny, or will they be hidden behind a wall of secrecy?

The question of resources is critical. There is no indication that the Rail Safety and Transportation of Dangerous Goods Directorate budgets will be increased let alone returned to former levels. On the contrary, a Reuters investigation found that their budgets will be cut by a further \$600,000 within the next three years. Moreover, it found that as a result of budget cuts, retirements and lack of wage parity with the private sector, 15 percent of the jobs in these two divisions remain unfilled, including 8 of 19 professional engineering positions within TDG.¹⁹ It bears noting that the total TDG budget is less than the Department of Natural Resources' 2013–14 advertising budget largely to promote the oilsands.²⁰

Neither the rail nor oil industries have acknowledged any responsibility for the accident. In general, companies (with some exceptions) continue to push back on any new regulations that conflict with their commercial interests. Examples include speed restrictions on key routes carrying crude oil, timelines for eliminating legacy DOT-111 tank cars from service, and prohibitions on leaving tank cars unattended.

An October 2014 CBC investigation found that companies are strongly resisting new rules to prevent crew fatigue, calling government meddling “a dangerous proposition.”²¹ Specifically, they are challenging research by Transport Canada that found high levels of exhaustion among freight train operators and proposed new limits on scheduling to help reduce fatigue — limits that are already in place in the U.S. For example, TC research

found that for a worker to be routinely awake for 17 to 19 hours is equivalent to them being drunk. (The MMA operator was awake for 17 hours leading up to the accident.) Clinton Marquardt, a fatigue specialist who worked on the Lac-Mégantic disaster, is quoted in the story saying that it's time for rail companies to be forced to put their employees' biological needs for sleep ahead of profits.

Canadian Pacific and other companies charged, are denying any obligation to help pay for the cleanup costs of the contaminated site as ordered by the Quebec environment ministry. And defendants are aggressively fighting the class action lawsuit on behalf of the victims' families and the community of Lac-Mégantic. The oil industry has resisted measures requiring them to obtain liability insurance for rail accidents involving their cargo.

There has been no suggestion from any quarter, either by industry or by government, that oil-by-rail traffic should be slowed, at least until the proposed safety measures have been fully implemented.

On the contrary, investments in oil loading facilities in Alberta and Saskatchewan are expanding rapidly. New port facilities are being built for exporting crude oil, for example on the New Brunswick side of the Baie de Chaleur at Belledune.²² The rail line along which this oil will be transported, runs down through the pristine Matapedia Valley of Gaspé. Mayors of towns along the route from Rivière du Loup to Matapédia are calling for a moratorium on oil traffic pending independent examination and consultation.

Between late-2011 and mid-2013, Canadian oil shipments by rail grew from 100,000 barrels per day to about 300,000 barrels per day.²³ The Canadian Association of Petroleum Producers estimates current rail loading capacity at around 800,000 barrels per day (bpd) and expects this to expand to 1.4 million bpd by 2016.

CN expects its shipments of crude oil to increase from 130,000 carloads this year to 200,000 carloads in 2015, and 300,000 by 2016. CP's oil shipments have increased fourfold since 2012, the majority from North Dakota Bakken. These too are projected to grow from 120,000 carloads in 2014 to 200,000 carloads in 2015, and 300,000 by 2016.

CP executives at a recent shareholders meeting forecast a doubling of earnings by 2018, one-third of which are projected to come from increased crude oil shipments. Its forecast is based on the assumption that it will be able to run more trains that are longer, heavier and going at faster speeds. The company is investing in oil-to-rail transloading terminals in Western Canada, and upgrading its tracks to accommodate the increased oil traffic to east and west coast refineries and ports.

Thus, it is not surprising that Hunter Harrison, the CEO of CP, responded to Transport Canada's speed restrictions by accusing government regulators of over-reacting to an accident that was caused by human error, "because of one person's behavior," though he did not specify whether he meant the locomotive engineer or the CEO of MMA.²⁴

The oil industry is also pushing back against a proposal of the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration to eliminate the use of legacy DOT-111 tank cars for transporting packing group I (PG I) crude oil by October 2017, and their use for PG II oil by October 2018.

The American Petroleum Institute (API) claims that timeline is not feasible, and is asking for four years to retrofit older cars and an additional three years to upgrade cars built after 2011. The Railway Supply Institute wants legacy tank cars to remain in use until 2020, saying that only one-third of the old DOT-111 tank cars can be modified by the proposed 2017 deadline.

The American Fuel & Petrochemical Manufacturers (AFPM), representing U.S. oil refiners, released a study that contradicts the finding of Canadian and U.S. regulatory and safety advisory agencies, stating that "Bakken crude oil does not pose risks significantly different than other crude oils or other flammable liquids authorized for rail transport," and therefore "proves" that the oil train explosions are not due to the crude or to the quality of tank cars carrying the oil.²⁵

The API also opposes any mandatory measures to stabilize volatile Bakken oil before it is loaded onto trains, which involves removing flammable gases such as butane and propane, as is now done when Bakken oil is put into pipelines. Resistance is driven in part by cost considerations since removing these gases makes the oil less valuable to refineries. Neither Canadian or American regulators have as yet required producers to remove these gases from volatile crude. As a result, highly volatile Bakken oil continues to be transported in unsafe tank cars across the United States and Canada through heavily populated communities, compromising public safety.

Both governments announced in September 2014 a plan to deepen and institutionalize Canadian and U.S. rule-making under the bilateral Regulatory Cooperation Council — a plan that will result in "reducing the burden on business thereby boosting North American trade and competitiveness," according to the Canadian government's press release.²⁶

It is important that regulators in both countries work together to improve standards for the safe transport of crude oil and other dangerous goods in this integrated North American industry. However, the institutionaliza-

tion of bilateral rulemaking gives the industry on both sides of the border a new vehicle to jointly influence rail transport regulations out of the glare of public scrutiny, potentially in ways that compromise public safety. For example, the US lobby, the Association of American Railroads, is pushing back against proposals by the regulator to prohibit single-person crews (SPTO). How long will the Canadian regulator be able to resist the pressure to remove its post-Lac-Mégantic rule prohibiting SPTO for trains carrying dangerous goods, especially with a government that equates regulation with a “burden on business?”

Summary of Regulatory Failures

ONE CANNOT PINPOINT a single regulatory failure that led to Lac-Mégantic. Rather, multiple failures interacted with each other in mutually reinforcing ways, and their effect was cumulative, to the point where they created the conditions for a perfect storm. The following compilation, derived from the accompanying chronology, updates my list of the regulatory breakdowns that led to Lac-Mégantic. It incorporates new information from the TSB's final report, as well as information from the previous CCPA reports and other sources.

1. Transport Canada failed to act on repeated warnings over many years from the TSB (and its U.S. counterpart) that so-called legacy DOT-111 tank cars were unsafe for transporting hazardous products, notably because of “a high incidence of tank integrity failure” during accidents. All of the 72 tank cars on the Lac-Mégantic train were this old (pre-October 2011) DOT-111 model. None had head shields, jackets or thermal protections. Sixty three tank cars derailed, punctured and spilled six million litres of crude oil — 90% of the their contents.
2. Transport Canada and the U.S. Federal Railroad Administration (FRA) failed to heed warnings from within the PHMSA as early as the fall of 2011 and in the months preceding the accident, about the high volatility of Bakken crude. Both regulators failed to mandate,

as recommended in 2012 by the US NTSB, the transport of high-volatility oil (PG I and II) only in upgraded tank cars. The Lac-Mégantic cargo was PG II crude oil.

3. In 2011, Transport Canada's TDG directorate identified the rapid increase in the transportation of oil by rail as an issue requiring greater oversight and inspections. However, these inspections did not extend to the verification of the contents and classification of crude oil being transported or imported.
4. Transport Canada failed to verify the volatility of the Bakken oil from North Dakota, either en route or at the Irving refinery. It was being regularly misclassified as lower-volatility oil at the North Dakota loading facility. Without these tests, the misclassification continued to escape detection. The high-volatility oil on the MMA train that spilled and exploded greatly magnified the destruction and loss of life.
5. Transport Canada failed to do its own evaluation of the inherent risk of the enormous increase in transport of crude oil on Canada's railways, or the specific risk associated with Bakken crude, in order to mandate measures to mitigate the risk.
6. Resources in the Transportation of Dangerous Goods and Rail Safety directorates were, and are, woefully inadequate to cope with increases in crude oil traffic. The lack of human and financial resources was noted as far back as 2007 by the government's own Rail Safety Act review. In fact, resources were cut and vital expertise on the transportation of dangerous goods was lost precisely at the time that oil-by-rail transport was increasing exponentially. There were only 16 TDG inspectors for rail at the time of the accident, and 101 inspectors in the rail safety directorate. Those numbers had not changed in the 10 years preceding the accident.
7. Transport Canada failed to oversee the major change in MMA's cargo (Bakken oil in unit trains) to ensure the company did a risk assessment and took appropriate mitigation measures. (SMS regulations did not obligate MMA to advise Transport Canada of these changes.) Nor did the department verify that MMA did a risk assessment of leaving these trains unlocked and unattended on the main track on a steep grade at Nantes. (MMA did not conduct either of these risk assessments.)

8. The Canadian Transportation Agency failed to properly monitor changes in the risk profile of MMA's cargo — crude oil is a dangerous good — and its impact on insurance coverage. Regulations in place did not require that an increase in the risk profile of a company's cargo should lead to an increase in insurance coverage. Thus, MMA had only \$25 million worth of coverage for an accident whose overall costs are estimated at between \$500 million and \$1 billion.
9. Transport Canada allowed the industry lobby, the RAC, to redraft the CROR in 2008, over the objections of the unions, enabling companies to implement SPTO for freight trains (via the introduction of General Rule M) without needing an exemption, or without needing the kind of rigorous conditions applied to QNS&L railway in exchange for granting permission for SPTO. (Back in 1996 Transport Canada had asked RAC to develop rules governing SPTO for its approval. It never submitted these rules.) It approved this major operating change without requiring the RAC to do a risk assessment, and without doing its own risk assessment, to ensure an equivalent level of safety as with two-person crews. Transport Canada's cozy relationship with the regulation-averse rail industry.
10. There is substantial documentation of the industry's successful resistance to new regulations to deal with the huge increase in the transportation of dangerous goods, and its advocacy for the removal of existing regulations dealing with the transportation of dangerous goods in the lead-up to Lac-Mégantic.
11. Transport Canada's 2012 commissioned study by the National Research Council concluded that, "reducing the train crew to one person without appropriate operational changes and technological intervention diminishes safety."²⁷ The department did not heed the study's advice to conduct a two-year pilot project of SPTO on an agreed upon route complete with monitoring and evaluation.
12. There were serious deficiencies in Transport Canada's oversight of MMA's SMS, including the limited number and scope of department audits, the lack of follow-up to ensure compliance, and a failure to impose penalties when the company would not implement its corrective action plans. The Minister does not appear to have ordered any enforcement measures that would have jeopardized MMA's continued operation, despite the company's appallingly poor safety rec-

ord. Many Quebec inspectors felt the resources devoted to SMS audits were wasted since there was little that could be done if the company was not conforming to its SMS.

13. MMA's poor record of regulatory compliance, the poor condition of its equipment and track, and the lack of adherence to operating procedures, as well as its insufficient SPTO training to ensure that locomotive engineers understood and applied rules to safely secure trains, should have raised alarm bells at Transport Canada headquarters that allowing MMA to operate SPTO trains greatly heightened the threat to public safety.²⁸ Transport Canada HQ repeatedly ignored the warnings from its Montreal office and allowed MMA to begin SPTO with virtually no operating conditions in place to ensure a level of safety equivalent to that which existed with two persons.
14. Longstanding flaws with rail SMS regulatory oversight and enforcement were documented in a 2006 internal Transport Canada audit, a 2007 rail safety review panel, and two auditors general's reports (2011 and 2013). The reviews exposed a huge gap between the theory and practice of SMS; companies have, in practice, been left largely to regulate themselves.

Responsibility for the regulatory failures outlined above ultimately rests at the top. This is where the tone and expectations, guiding rules and procedures, budgets – the regulatory culture – are established. Here lies the responsibility for successive budget cuts that greatly restricted the department's ability to cope with the rapid expansion in oil-by-rail transportation. The Conservative government's industry-friendly regulatory policy, embodied in its April 2012 *Cabinet Directive on Regulatory Management* (CDRM), forces departments to repeal at least one existing regulation for every new regulation proposed to Treasury Board. The one-for-one rule sets a progressively lowered ceiling on the number of regulations without regard for whether regulations removed will compromise safety. Secondly, while lip service is paid to health, safety and the environment, short-term costs to business (so-called red tape) are, in practice, the sole test for determining whether a proposed regulation is accepted. Finally, significant regulatory proposals will not generally move forward without the nod from the Prime Minister's Office.

Conclusion

THE CONSERVATIVE GOVERNMENT has sought to control the narrative and obfuscate the full extent of the regulatory failure and corporate negligence behind the Lac-Mégantic disaster in its attempt to restore public confidence that the vast and continuing increase in oil transportation by rail can be done safely.

It has sought to reframe Lac-Mégantic as a lesson learned on the path to fulfilling the promise of oil as essential to Canada's prosperity, jobs and growth. Incessant government and oil industry television ads carry the implicit message that regulatory or tax measures that impede the production and transportation of oil threaten the wellbeing of the whole country.

The government would like the TSB report to be the final word on Lac-Mégantic. But there are too many unanswered questions, too many loose ends. The worst rail disaster in modern Canadian history warrants nothing less than an independent judicial commission of inquiry.

An independent inquiry is necessary to bring all the disparate elements together and to put all the facts on the table; to compel key government and industry players to address, in a public forum, the questions left unanswered by existing investigations; to lift the veil on the root causes of the disaster, which powerful interests would like to remain obscure.

Why have only three low-level employees had to take the fall for the accident? Why have the transport minister and senior government officials, the company CEO and its directors, oil and rail industry executives and lobbyists, who all looked the other way in the face of the growing risk, evaded

responsibility? An inquiry is necessary to ensure that the betrayal of public trust, for which the people of Lac-Mégantic paid the price, is not compounded by a failure of justice — a failure to hold anyone else to account.

We need to know how and why the regulatory system broke down. We need to shine light on the inner workings of Transport Canada and its regulatory culture — systems of accountability, processes and procedures, how decisions were made and by whom. We need to know why Transport Canada was unable or unwilling to shut down, or otherwise sanction, MMA for its poor safety performance. We need to know why the regulator was starved for resources to cope with the quantum leap in oil transportation by rail.

We need to know the nature and extent of regulatory capture by industry at Transport Canada. How did the railway companies come to have such extraordinary influence over the rules — compared to the workers' representatives and communities? How did they come to operate largely unchecked by regulatory oversight? How was the oil industry able to undertake such an enormous increase in the transport of oil by rail without red flags being raised by government regulators?

We need to know the nature of the relationship between Transport Canada and the central regulatory body, Treasury Board, and beyond that, with the PCO and PMO. We need to know if regulations and other measures that could have reduced the chances of a Lac-Mégantic-type disaster were blocked higher up.

We need to know why Transportation Safety Board recommendations and external reviews were repeatedly ignored by Transport Canada. Is the TSB sufficiently independent? Should its mandate be strengthened? Should its scope be broadened? Should be able to assign blame? Should it have the power to ensure compliance with its recommendations?

We need to be assured that robust whistleblower protections are in place so that employees who come forward with safety concerns will not be harassed and threatened.

We need assurances that the transportation safety regulatory and advisory bodies are adequately resourced and sufficiently independent; that regulatory budgets will not be sacrificed on the altar of fiscal austerity; that the people who fill key positions are eminently qualified and not compromised by political and industry connections, not hindered by political or industry pressure.

We need to lift the secrecy around safety management systems. We need assurances that they are an additional safety layer, not used as a rationale for diluting the essential role of inspection and oversight. We need assur-

ances they will cease to be a mechanism for de facto industry self-regulation, that companies will not be given the freedom to make rules that trade off costs against public safety.

The people of Lac-Mégantic need to know why the rail safety measures implemented over the last 18 months were not in place at the time of the accident. If they had been, the probability of the accident happening would have been significantly reduced.

The people of Lac-Mégantic, and indeed all Canadians, need assurance that the rail safety improvements are sufficient to prevent another such tragedy. They need to know that over time there will be no backsliding, no watering down or circumvention of Transport Canada's public safety mandate.

With new pipeline projects — east, west and south — stalled by political and legal obstacles and by popular resistance, transportation of oil by rail is emerging as a last resort option. An independent inquiry is a necessary precondition to obtaining the social licence from Canadians to permit the transportation of oil by rail to proceed as expected.

We cannot afford to let the myth of corporate self-regulation exposed in Lac-Mégantic — the notion that corporations are naturally “good citizens” that should be left alone to act in the public interest — be resurrected by the narrative of technological lessons learned, mistakes corrected, on Canada's path to becoming an energy superpower. We need to heed the message of Susan Dodd's book, *The Ocean Ranger, Remaking the Promise of Oil*, and replace the cycle of public forgetting with a cycle of remembering, so that such disasters will not happen again.

Appendix

A Disaster in the Making: Timeline of Events Leading Up to Lac-Mégantic

- **March 2001:** Safety Management Systems (SMS), a new feature of the railway regulatory regime, comes into force. The system is intended to combine government-approved company safety practices and rule-setting with strong regulatory oversight.
- **October 2002:** Throughout 2002, privately held U.S. company Rail World Inc. buys up three railways in Maine and Quebec and combines them, in October, into Montreal Maine & Atlantic (MMA). Rail World's controlling shareholder is Edward Burkhardt. Shortly thereafter MMA embarks on a drastic cost-cutting exercise.
- **January 2003:** Transport Canada conducts a pre-audit of MMA's SMS and finds it does not meet regulations, identifying numerous areas of non-compliance.
- **April 2003:** Transport Canada orders MMA to provide a corrective action plan and revised SMS, which the company does in September 2003.
- **2003:** When MMA discusses the implementation of single-person train operation (SPTO) in Canada, Transport Canada advises MMA that it should consider the Quebec, North Shore & Labrador (QSN&L) railway model put into place after a 1996 accident. A Transporta-

tion Safety Board (TSB) investigation at the time found that without a comprehensive analysis of its impact and measures to ensure an equivalent level of safety, SPTO was a causal factor in the earlier accident. Transport Canada allowed QNS&L railway to proceed with single person train operations (SPTO) — granting exemptions from 18 operating rules — subject to 69 conditions. Between 2004 and 2008 MMA does not pursue SPTO because it considers adherence to these 69 conditions unattainable.

- **September 2006:** An internal Transport Canada audit finds “incomplete” and “inconsistent” reports from inspections related to dangerous goods, and estimated non-compliance rates from inspections in the Quebec region at 54% and 59% from 2003 to 2005. The Department agrees to fix flaws uncovered in its inspection process, management oversight and accountability gaps. The audit report also sets deadlines to address most of the problems within a year or two, to which the department agrees.
- **December 2006:** Chief of marine transportation security regulatory affairs, Ian Bron, resigns from the department. On his way out, Bron submits a report to the minister and deputy minister in which, noting that “TC has consistently favoured efficiency over safety/security,” he expresses concern that TC executives “were implementing a system of regulation that was effectively a rubber stamp checklist. Paperwork was being examined, but no inspectors were on the ground doing proper tests of the system to make sure they worked.”²⁹
- **November 2007:** The Railway Safety Act review panel finds that Transport Canada was not assessing the implementation and effectiveness of company safety management systems. It also concludes that, “Transport Canada...was not provided with sufficient human and financial resources and the appropriate skill sets at the outset of the safety management system program.”³⁰
- **2008:** The industry lobby, the Railway Association of Canada (RAC) completes a comprehensive redrafting of the entire Canadian Rail Operating Rules (CROr) over the objections of the unions. (RAC had been asked by Transport Canada in 1996 to develop rules governing SPTO for its approval. It never submitted these rules, producing only internal guidelines for its members.) Among other things, the rewrite introduces General Rule M, which allows railways to imple-

ment SPTO, eliminating the need to get an exemption from 18 operating rules, as was required in the wake of the QSN&L derailment in 1996, or the need to be reviewed in advance by Transport Canada. Transport Canada does not conduct — or require the railway industry to conduct — a risk assessment of the safety impact of these revised CROR rules to ensure an equivalent level of safety to two-person crews. In 2008, Transport Canada approves the RAC's changes to the CROR.

The new CROR rules also fail to address the TSB's longstanding complaint that Transport Canada had not defined the term "sufficient" in its rule 112 regarding the application of handbrakes to secure trains.

- **January 2009:** The 2009-2010 federal budget allocates an additional \$44 million over five years to Transport Canada for rail safety initiatives such as enhancing its regulatory oversight and enforcement capacity and conducting research. Only the first two years of these funds are disbursed. Also this month, a Transport Canada inspection finds that MMA's certified car inspectors are not qualified to perform single car airbrake tests.
- **February 2009:** A TSB investigation report (Hagersville-R09T0057) warns about one-person crews: "When only one crew member is left to complete train securement tasks at the end of a work shift, the risk for runaway equipment is increased because there is no opportunity for other crew members to identify and correct any errors."
- **2009:** The Transport Dangerous Goods (TDG) directorate initiates the development of a system of administrative monetary penalties to enable it to issue fines for non-compliance of the legislation or regulations, as an option to criminal prosecution. The system has yet to be implemented.
- **March 2009:** Its interest renewed with the introduction of General Rule M, MMA meets with Transport Canada, along with the RAC, to announce its intention to proceed with SPTO in Canada as it is already doing in the U.S. Transport Canada decides to commission a study by the National Research Council because it lacks the tools to evaluate SPTO, and it believes that the industry in general is interested in moving in this direction. This research is completed in March 2012.

- **May 2009:** Transport Canada issues a notice to MMA of non-compliance with various CROR rules including improper train securement at Nantes going back to 2005.
- **June 2009:** MMA submits its proposal for SPTO, along with a risk assessment, to Transport Canada. The company advises that it would introduce SPTO on a 23-mile (37-km) segment between the U.S. border and Lac-Mégantic. In its risk assessment, MMA claims a single-person train crew, contrary to findings of previous TSB investigations, is more, not less, attentive when working alone. It offers no scientific evidence or analysis to substantiate this claim.
- **July 2009:** Transport Canada's Montreal office expresses concern about repeated deficiencies in the company's operations including lack of consultation with the employees in its risk assessment, issues with rule compliance, problems with its remote control operations, and issues with fatigue management and track maintenance.
- **2009 to 2013:** There are about 1,320 TDG inspections performed for rail in Canada during this period, of which 12 are in Quebec, and three of these performed on MMA. (Quebec does not have TDG inspectors dedicated to rail.)³¹ At the time of the accident there are 31 TDG inspectors in Canada. Of these, 16 are trained and qualified to conduct TDG inspections on rail. During this period, railway companies increase their annual transport of crude oil in Canada from 500 carloads to 160,000 carloads.
- **March 2010:** Transport Canada conducts a SMS audit of MMA because of numerous safety violations during inspections and the need to ensure that processes are in place to correct them, including MMA's plan to implement SPTO. The audit report's most significant finding is that the SMS, which MMA had submitted to Transport Canada in 2003, had not been implemented. None of the employees and managers interviewed had seen the SMS manual, and it hadn't been translated into French. Other deficiencies noted are lack of an internal audit process, lack of employee training, and missing qualifications.
- **April 2010:** Transport Canada's audit report is sent to MMA with the requirement that MMA submit a corrective action plan. MMA submits its plan at the end of May 2010.

- **May 2010:** Transport Canada and the U.S. Federal Railroad Administration (FRA) complete a joint safety audit of MMA's U.S. operations focusing on SPTO, especially fatigue management and risk mitigation. The report expresses concerns about employee fatigue, the efficacy of company oversight and rules compliance, and lack of an emergency response plan. It also asks that an emergency plan be put in place prior to the implementation of SPTO.
- **May 2010:** MMA begins its SPTO test operation, going as far as Nantes without adopting any of the 69 conditions applied to QNS&L railway.
- **August 2010:** The TSB adds the Safety Management Systems to its Watchlist because railways (and other modes) are not always identifying and mitigating risks through their SMS, and TC audits are not always effective.
- **October 2010:** Transport Canada reviews MMA's corrective action plan and notes that only some of the findings were addressed. Transport Canada does not follow up to ensure compliance.
- **February 2011:** Long-standing calls for the replacement of the old DOT-111 tank cars continue to be resisted by oil and the tank car leasing companies. Internal briefing notes prepared for the Transport Minister after the 2011 election warn the government that the industry's lobbying against stricter safety regulations was "counter to the public's expectation for strict regulation and zero risk tolerance...The current safety oversight system is vulnerable to increases in traffic as the existing suite of policy instruments has limitations and diminishing returns that need to be addressed"³²
- **Early 2011:** Transport Canada's Montreal office continues to document its concern about MMA's ability to operate safely as evidenced by repeated regulatory violations and to remind MMA that it needs to produce a proper risk assessment and related SMS documentation.
- **2011:** The TDG directorate identifies the rapid increase in the transportation of oil by rail as an issue requiring greater oversight. It increases inspections of crude oil transloading sites. However, these inspections do not include the verification of the contents and classification of crude oil being transported or imported.
- **2011:** Transport Canada creates an SMS Audit, Enforcement and Risk Evaluation Group. (At the time of the Lac-Mégantic accident, enforce-

ment programs for SMS regulations had not been developed; nor had audit follow-up procedures been instituted.)

- **March 2011:** As part of the government's austerity initiative, the Rail Safety Directorate budget is cut by 19% between 2010–11 and 2013–14, and then frozen at \$34 million. (The TDG directorate's annual budget of about \$14 million has been frozen since 2010. There are no plans on the books to increase it until 2016–17 at the earliest.) By contrast, Natural Resources Canada's advertising budget for 2013–14 was over \$16 million.
- **October 2011:** A Transport Canada inspection of MMA notes the lack of proper handbrake securement.
- **Fall 2011:** The U.S. FRA is aware of the dangers of Bakken crude. In a document entitled *North Dakota: The Next Hazardous Materials Frontier*, inspectors note that some companies are mislabeling the oil as less flammable than it actually is. They also observe that the pressure to ship is causing some companies to ship in tank cars that are 'out of specification.' The report determines that pressure to ship in those cars outweighed the risk of failure during transportation, or the risk of discovery by the FRA.
- **November 2011:** The Association of American Railroads (AAR) asks Canadian and U.S. regulators to mandate that crude oil with PG 1 and PG II volatility be transported in DOT-111 tank cars that meet post-October 2011 upgraded standards.
- **December 2011:** A report of the environmental commissioner in the auditor general's office castigates Transport Canada for its inability to adequately enforce its rules protecting the public against the threat from major spills of dangerous goods, including oil. It notes that many of its concerns were raised by the 2006 internal Transport Canada audit. For example, deficient regulatory oversight practices had yet to be corrected. The audit's review of inspections finds that government officials had identified weaknesses in more than half the cases. But in almost three-quarters of those cases there was no evidence of corrective action having been taken.
- **December 2011:** MMA informs Transport Canada that it is planning to extend SPTO to Farnham, passing through Sherbrooke, Magog and other communities. Transport Canada responds that this is a

significant change to its operations and therefore MMA requires a new risk assessment.

- **Early 2012:** MMA submits a revised risk assessment that does not address the risks of a lone operator performing tasks previously performed by the second crew member (the conductor), for example securing a train and leaving it unattended at the end of the shift. It does not consider whether persons working alone may be subject to fatigue and cognitive degradations, whether scheduling changes are needed to mitigate fatigue, what additional training should be considered, and what alleviation measures are needed to mitigate the risk. MMA management simply assumes that single train operators would perform multi-faceted tasks previously performed by two persons. Without any scientific evidence, and contrary findings of TSB investigations, the company again claims that SPTO is inherently safer than two-person operations.
- **January 2012:** Transport Canada issues a letter of concern to MMA stating lack of training by employees to perform inspections and brake tests.
- **January 2012:** Transport Canada's Montreal office again balks at MMA's renewed request, according to email correspondence obtained by *Enquête*. "We consider that this major change in the operations exposes workers and surrounding communities to greater risks," it reads. Then MMA-Canada CEO Grindrod writes to the rail industry lobby (RAC) that, "It seems we are facing more obstacles by Transport Canada. The Montreal office has been opposed to this from the beginning." A senior official at RAC writes back to Grindrod: "Leave it to me Robert; let me make some calls." Meanwhile, at the Montreal office, a Transport Canada official worries, "I want MMA to explain how it can have the necessary discipline to run its trains with one person, because it is precisely this lack of discipline that has led to our concerns and actions these last years."
- **February 2012:** Transport Canada issues a notice regarding numerous infractions at the rail traffic control office (RTC) at Farnham, Quebec. Some RTCs were not familiar with parts of the CROR. Nor was there a process to ensure compliance with CROR.
- **February 2012:** Two directions are issued to MMA by a Transport Canada health and safety officer under the Canada Labour Code Part II for failure to protect employees from workplace hazards.

- **February 2012:** Transport Canada meets with MMA and the RAC at the department's Montreal office. A senior Transport Canada official advises MMA that it wasn't necessary for it to approve the shift to single person train operations because of General Rule M. MMA needed only to comply with relevant rules and regulations. He notes as well that both CN and CP were interested in remote control operations at MMA. The Montreal office continues to resist SPTO.
- **February 2012:** Following the 2009 Cherry Valley, Illinois derailment, the U.S. Pipeline and Hazardous Materials Safety Administration (PHMSA) makes a formal recommendation to regulators to restrict the transportation of crude oil with PG 1 and PG II volatility to the post-2011 upgraded tank cars, and recommends even more enhanced design requirements for these cars. Despite these recommendations, neither Transport Canada nor the U.S. regulator (FRA) mandates the use of upgraded DOT 111 tank cars for the transportation of crude oil with a higher volatility classification. (The oil on the Lac-Mégantic train had a PG II volatility.)
- **March 2012:** Transport Canada professional engineer Jean-Pierre Gagnon receives notice that his position would be affected by workforce downsizing. (He retired from government in March 2013.) At the time, he was working on a review of rail tank cars, including DOT-111s. Five other engineers in the union (the Professional Institute of the Public Service), who worked with Gagnon, receive notice that their jobs are affected by budget cuts and three retire.
- **March 2012:** Transport Canada issues a notice to MMA that the handling of rolling stock disregarded the protection of workers. Also this month, the National Research Council report commissioned by Transport Canada concludes that, "reducing the train crew to one person without appropriate operational changes and technological intervention diminishes safety." Among its recommendations are that Transport Canada, together with the companies, should identify a suitable route to evaluate SPTO, and then conduct a two-year pilot test program, complete with detailed monitoring and evaluation. The report is submitted to Transport Canada four months before MMA begins SPTO operations. Transport Canada never acts on this recommendation. (MMA told NRC researchers that its SPTO operators worked a maximum of six-hour shifts when in fact their shifts averaged 10–12 hours.)

- **April 2012:** The union agrees to change its collective agreement as long as MMA promises no job losses. The union had vigorously opposed SPTO during negotiations, but was told by the federal mediator that the decision regarding SPTO was outside of the purview of collective bargaining. It was, he said, Transport Canada's decision to make. Also this month, Transport Canada issues a letter of insufficient action citing deficiencies in MMA's response to its notice.
- **April 2012:** And the government's new regulatory policy, the *Cabinet Directive on Regulatory Management* (CDRM), takes effect. It embodies the government's view of regulations as "red tape," and thus primarily a cost to business rather than a legal mechanism to protect the public interest. The CDRM goes beyond previous regulatory policy in several ways, including by incorporating the so-called one-for-one rule, which mandates that every new regulation proposed by departments and agencies must be offset by the removal of an existing one. (In January 2014, Treasury Board president Tony Clement introduced legislation, The Red Tape Reduction Act, formalizing the one-for-one rule. The accompanying press release boasted that Canada was the first country in the world to introduce such legislation and said that there was a net reduction of 19 regulations overall during 2012–13.)
- **May 2012:** A Transport Canada inspection finds trains left without performing a hand brake effectiveness test.
- **May 2012:** An internal Transport Canada memo obtained by Greenpeace Canada says the department had, "identified no major safety concerns with the increased oil by rail capacity in Canada, nor with the safety of tank cars that are designed, maintained, qualified and used according to Canadian and U.S. standards and regulations."³³
- **June 2012:** The TSB removes rail SMS from its 2012 Watchlist. (It puts them back on the list in late November 2014.)
- **June 2012:** MMA begins hauling unit oil trains. A month later MMA begins operating these trains with a single operator without providing advance notice to Transport Canada as it had committed to doing. The company undertakes no job-task analysis, nor any analysis of potential hazards associated with those tasks. MMA does not abide by its own risk assessment commitment to decrease train length from

100 cars to 50 cars for SPTO trains. Nor does it fulfill its commitment to improve track conditions enabling trains to increase speed, thereby allowing crews to complete their tour of duty in a timely manner.

Despite the warnings from its Montreal office, numerous safety violations, systemic deficiencies and non-implementation of the company's SMS, and unlike with QNS&L, Transport Canada allows MMA to proceed with SPTO with virtually no conditions. Nor does it direct the Quebec office to conduct specific audits or additional inspections of its activities. Although SPTO was a significant operational change requiring reassessment of all risks, Transport Canada failed to ensure the risks to the public safety were adequately addressed.

MMA also does not do a risk assessment, as it should have, when it begins hauling crude oil in unit trains and parking its trains unattended on the steeply graded main track at Nantes. Thus, additional lines of defence for these major operational changes are not considered and its ability to manage safety risks is compromised. Transport Canada does not follow up to ensure that this is done.

- **July 2012:** The U.S. FRA publishes a report based on a series of cognitive task analyses conducted between 2009 and 2011.³⁴ The FRA finds that conductors and locomotive engineers work together as a single unit to monitor the operating environment outside the locomotive cab, to plan activities, solve problems, and identify and mitigate risk. The conductor supervises train operation for efficiency and safety. His or her role is to understand the impact of various factors (e.g. restrictions due to train length and weight) to ensure safe operation. The report finds that operating where there is a steep grade can significantly add to the complexity of the conductor's duties and thus to cognitive demands.
- **August 2012:** Under the newly established Canada-U.S. Regulatory Cooperation Council (RCC), a bilateral memorandum of co-operation is signed on the safe transportation of dangerous goods. Its goals include the elimination of gaps and the harmonization of regulatory differences where possible.
- **October 2012:** Transport Canada's Montreal office conducts a second SMS audit of MMA, which finds the company had not reported four accidents. (Further examination by the TSB reveals that MMA had not reported 22 accidents from 2007 to 2013.) This audit is conducted

on a limited set of SMS elements. Transport Canada's Montreal office does not follow up to ensure that a corrective action plan is implemented. Nor does this audit review the findings of the 2010 audit, since it is deemed outside of its scope. Many of the SMS deficiencies that come to light, including its defective risk assessment processes, are never resolved. The Montreal office suggests the lack of audits is due to insufficient staff and resources, and insufficiently qualified auditors. Many inspectors feel the resources devoted to SMS audits are wasted since there is minimal regulatory action that can be taken when a company does not conform to its SMS.

- **November 2012:** Réjean Simard, a retired Transport Canada specialist in emergency response plans for transportation of dangerous goods, tells Radio Canada's *Enquête* program (February 2013) there was no congruence, at least before he retired at the end of 2012, between the resources available in the TDG directorate and the huge increase in the transport of oil. He says Transport Canada expertise in the transportation of dangerous goods was disappearing with staffing cutbacks, citing the loss of its leading specialist in tank cars as an example. Simard says he pleaded with his bosses to include crude oil as a dangerous good requiring an emergency response plan, but to no avail.
- **November 2012:** MMA begins hauling large quantities of Bakken oil in unit trains to the Irving Oil refinery in St. John, New Brunswick. Between November 2012 and the night of July 5, 2013, MMA hauls 67 trains and a total of 3,830 tank cars laden with Bakken oil. The classification of the crude oil is not verified through testing, either by Irving or by Transport Canada, either en route or at the refinery. A warrant by a TDG inspector to search the offices of Irving after the accident indicates that Irving typically received Bakken crude with classification PG III, the least volatile liquid. However, the company sent back the empty tank cars, which contained crude residue, with the most volatile PG I classification. The warrant also claims that Irving had access to a November 2012 test, conducted in North Dakota, showing the crude should be designated PG I.
- **January–June 2013:** Records filed with the Commissioner of Lobbying indicate that the RAC's lobbying efforts sought "to assure [regulators] that current regulations for dangerous goods transportation are

sufficient.” (In post-accident filings, the RAC removes its claim that current regulations were sufficient.) CP Rail representatives, according to the lobby records, meet with MPs and bureaucrats, including advisors to the Transport Minister, on subjects including, “Participating in the review of Rail Service in Canada by Transport Canada with regard to...Transport Canada’s review of freight rail service in Canada, advocating for no additional regulation.”

- **January 2013:** MMA sends Transport Canada its SMS corrective action plan in response to the October 2012 audit.
- **March 2013:** A November 2013 *Globe and Mail* investigation discovers that about four months prior to the accident, U.S. regulators raised concerns that some oil being shipped by rail from the Bakken region of North Dakota was highly explosive and unusually corrosive. Transport Canada officials told the *Globe* that it was not aware of these concerns.
- **April–June 2013:** Transportation of petroleum products generates almost \$100 million in revenue for CN in the second quarter 2013 — a 150% increase over the previous year, driving up overall profit growth by 14% to \$717 million in this quarter. CP’s profits more than double to \$252 million during this same period.
- **May 2013:** Appearing before the Senate committee on energy, environment and natural resources, CN’s manager of safety and regulatory affairs, Sam Berrada, is asked whether Transport Canada should hire more inspectors. He replies, “There is no further requirement for Transport Canada to do any more than what they currently do.”³⁵
- **May 2013:** Amendments to the Railway Safety Act enable Transport Canada to impose administrative monetary penalties (AMPs) for safety violations. It also enables Transport Canada to issue Railway Operating Certificates (ROC) to all federally regulated railways, which could be suspended or revoked for safety violations. (Regulations that would implement the AMP system have still not been put in place, and the government has just begun to implement ROCs.)
- **May 2013:** An inspection of MMA by a Transport Canada health and safety officer notes a hazard for an employee working alone due to the lack of immediate assistance by a peer. Under Section 25 of the Canada Labour Code (Part II) employees must be informed of pos-

sible risks, trained on precautions and shown the proper procedures to complete a task. A month later a Transportation Canada inspection finds that MMA employees performing safety inspections are not properly qualified.

- **June 2013:** A CBC investigation (October 2014) discovers that the RAC had asked then Transport Minister Denis Lebel to remove the CROR rule 7.1(a), which requires certified rail car inspectors to do detailed examinations of brakes, axles, wheels etc. on tank cars carrying dangerous goods before they are loaded. (The request was withdrawn after the accident.)
- **June 2013:** The federal auditor general's three-year report on Transport Canada's rail safety management system regime is completed but will not be published until November 2013. Among its many findings are the following: Transport Canada audits do not provide a minimum level of assurance that railways have implemented adequate and effective safety management systems; the department does not take enforcement action to require railways to maintain adequate and effective safety management systems, even when deficiencies are identified that could affect safety. SMS audit reports do not identify whether company SMS have been effectively implemented; and there is no follow up by inspectors to ensure corrective action plans submitted by companies in response to SMS audit reports have been implemented.
- **July 6, 2013, 1:15 a.m.:** A train owned by Montreal, Maine & Atlantic Railway, which is hauling 72 tank cars laden with Bakken oil from North Dakota, derailed in Lac-Mégantic. Its cargo spills and explodes repeatedly. Forty-seven people are killed, 2,000 others are evacuated, and the town centre is destroyed.

Notes

- 1** This is the third in a series of reports by the CCPA on the Lac-Mégantic disaster. The previous two reports, both by Bruce Campbell, are: “The Lac-Mégantic Disaster: Where Does the Buck stop?,” October 2013; and “Willful Blindness? Regulatory Failures Behind the Lac-Mégantic Disaster,” August 2014.
- 2** A Lac-Mégantic firefighter who committed suicide three months after the accident is being treated in the wrongful deaths lawsuit as the 48th victim.
- 3** Testimony of Laureen Kinney, assistant deputy minister for safety and security at Transport Canada, to the House of Commons standing committee on transport, infrastructure and communities, June 12, 2014.
- 4** David Thomas, “Safety-driven railway realignments,” *RailwayAge*, June 10, 2014. Link: <http://www.railwayage.com/index.php/blogs/david-thomas/safety-driven-railway-realignments.html>.
- 5** Gloria Galloway, “Tory changes to accountability rules leave Harper blameless in Duffy affair,” *Globe and Mail*, November 28, 2013. Link: <http://www.theglobeandmail.com/news/politics/tories-2011-guidelines-wouldnt-make-pm-accountable-for-wrights-actions/article15643130/?cmpid=rss1>
- 6** Michael Harris, *Party of One: Stephen Harper and Canada’s Radical Makeover* (Toronto: Penguin, 2014), 421.
- 7** Personal communication.
- 8** John Read, “What’s in a Word?,” *Canadian Government Executive*, January 24, 2014. Link: <http://www.canadiangovernmentexecutive.ca/category/item/1461-whats-in-a-word%3F.html>
- 9** Opening remarks from Wendy Tadros, TSB chair, on the release of railway investigation report R13D0054, August 19, 2014. Link: <http://www.bst-tsb.gc.ca/eng/medias-media/discours-speeches/2014/08/20140819.asp>
- 10** Transportation Safety Board, Railway Investigation Report R13D0054, 130. Link: <http://www.tsb.gc.ca/eng/rapports-reports/rail/2013/r13d0054/r13d0054.asp>
- 11** The TSB report found that engineer Tom Harding’s understanding of CROR 112 (on hand brake application) was weak. On previous trips, when engineer Harding was paired with a conductor,

application of hand brakes varied between the minimum nine and 15. (On the July 5, 2013 trip he only applied seven hand brakes.) The TSB report also noted that a slight degradation of cognitive function could have affected the engineer's ability to solve the problem of the abnormal mechanical condition of the locomotive. The Bangor RTC could not see the problem, and there was no qualified crewmember to deal with the smoke condition and potential consequence of not taking any action.

12 Ibid., 118

13 Personal communication

14 Sandra Rubin, "From Pipelines to Rail," *Globe and Mail – Report on Business*, November 2014, 20–21.

15 As paraphrased by Allan Woods in his article, "Lax safety measures to blame for Lac-Mégantic tragedy, safety board says," *Toronto Star*, August 19, 2014.

16 This emergency directive expired on October 23, 2014 but has been extended to April 2015. The U.S. regulator proposed speed restrictions of 40 mph or less but industry lobbying may have prevented this.

17 Railway Operating Certificate Regulations, in *Canada Gazette*, Vol. 148, No. 24, November 19, 2014. Link: <http://www.gazette.gc.ca/rp-pr/p2/2014/2014-11-19/html/sor-dors258-eng.php>

18 Transportation Safety Board of Canada, "Transportation of flammable liquids by rail," part of the 2014 *Watchlist*. Link: http://tsb.gc.ca/eng/surveillance-watchlist/rail/2014/rail_2.asp

19 Mike de Souza, *Canada rail safety jobs vacant as budget cuts bite*, Reuters, Dec. 08 2014. <http://ca.reuters.com/article/topNews/idCAKBN0JM1HM20141208?sp=true>

20 Alex Boutilier, "Ottawa's advertising contracts reach nearly \$500 million over past five years," *Toronto Star*, December 14, 2014. http://www.thestar.com/news/canada/2014/12/14/ottawas_ad_contracts_reach_nearly_500_million_over_past_five_years.html

21 John Nicol and Dave Seglins, "Rail companies fight new rules to prevent crew fatigue," CBC, October 8, 2014. Link: <http://www.cbc.ca/news/canada/rail-companies-fight-new-rules-to-prevent-crew-fatigue-1.2785581>

22 The loading capacity of the Belledune port will be 120,000 barrels per day.

23 Grant Robertson, "Why oil is chugging through your town," *Globe and Mail – Report on Business*, November 2014. Link: <http://www.theglobeandmail.com/report-on-business/rob-magazine/why-oil-is-chugging-through-your-town/article21353637/>

24 Eric Atkins, "New TSB rules would not have prevented Lac-Mégantic disaster, says CP Rail head," *Globe and Mail*, October 3, 2014. Link: <http://www.theglobeandmail.com/report-on-business/new-rules-would-not-have-prevented-lac-megantic-disaster-says-cp-rail-head/article20901298/>

25 Matthew Phillips, "Bakken Crude Is Volatile, but Train Operators Have Made Mistakes too," *Bloomberg*, May 16, 2014. <http://www.businessweek.com/articles/2014-05-16/bakken-crude-is-volatile-but-train-operators-have-made-mistakes-too>

26 Government of Canada, "Canada-United States Regulatory Cooperation Council Joint Forward Plan," August 29, 2014. Link: <http://pm.gc.ca/eng/news/2014/08/29/canada-united-states-regulatory-cooperation-council-joint-forward-plan>

27 National Research Council, Centre for Surface Transportation Technology, *Identification and Evaluation of Risk Mitigating Countermeasures for Single-Person Train Operation*, TP15176E, March 2012.

28 Although MMA's SPTO plan called for four hours of training for locomotive engineers, in actuality it consists of a 20-minute briefing in the manager's office. This training was usually delivered within the hour preceding the engineers' first SPTO train departure. (QNS&L has a 1,000-hour training program for its SPTO drivers on iron ore trains.)

29 Interview with the *Hill Times*, June 23, 2014

30 Cited Transportation Safety Board report op. cit. 83.

31 Cited TSB report op. cit., 97

32 Cited in Mike De Souza, *Transport Canada safety record back under microscope following Ottawa Crash*, Canada. Com posted on September 18, 2013. <http://o.canada.com/news/national/passenger-train-collisions-with-vehicles-on-safety-watchlist-since-2010>

33 Cited in *Canadian Press*, "Rail safety advocates urge new rules for high-risk cargo," July 29, 2013.

34 Hadar Rosenhand et. al., *Cognitive and Collaborative Demands of Freight Conductor Activities: Results and Implications of a Cognitive Task Analysis*, FRA, July 2012

35 Testimony, May 23, 2013, cited, Senate Committee on Energy, Environment and Natural Resources, *Moving Energy Safely*, August 2013, 38.



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