



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.



CANADIAN TRANSPORTATION RESEARCH FORUM
LE GROUPE DE RECHERCHES SUR LES TRANSPORTS AU CANADA

PROCEEDINGS OF

SEVENTEENTH ANNUAL MEETING

CANADIAN TRANSPORTATION RESEARCH FORUM

Volume 1

MONTREAL, QUEBEC

MAY 26, 27 & 28, 1982

Compiled by: R. Lande
&
K. Tansey

Conflicts in the Movement of
Dangerous Commodities

Presented to
The Canadian Transportation Research Forum
held in Montreal, Que.
May 26-28, 1982.

by

Mr. J.K. Leslie
Assistant Chief of Transportation
CP Rail
Montreal, Que.

CONFLICTS IN THE MOVEMENT OF
DANGEROUS COMMODITIES

Not very long ago, in fact in the mid 1960's, a majority of thinking people in North America believed that immediate action needed to be taken by the regulatory agencies responsible, to curb air and water pollution.

Hundreds of organizations, ranging in size from a few cottage owners banded together, to the large well established health, nature and wild life organizations, began petitioning governments at the municipal, state and provincial and federal levels for stringent regulations to curb the emission of noxious gases from automobiles, garbage dumps, industrial plants and apartment buildings. They also demanded a stop to the dumping of polluting effluent from paper mills, factories and sewage from municipalities into the waterways and lakes of Canada and the United States.

The regulatory agencies responded.

Today the requested legislation is in place and in most jurisdictions is being actively enforced.

The results of the regulatory and enforcement effort have not been exactly what many of its supporters expected. The number of supporters of anti pollution has decreased in the United States to the point that legislation and regulations are now being approved that relax the recently installed standards.

Why in a period of about 10 years has there been such a change in public opinion?

GREATER PUBLIC SAFETY VERSUS ECONOMIC EFFECTS

The answer lies principally in two words - Economic Effects.

It was not difficult for people to support regulations curbing air and water pollution when there was no specific price to pay for them. Gradually however there came a general realization that the anti pollution regulations involved the use of more expensive unleaded gasoline, catalytic converters which raised automobile prices, scrubbing equipment in factory smokestacks which raised the cost of products in those factories and sewage treatment plants which resulted in increased in real estate taxes.

Now there was a direct price to pay for pollution control and many supporters of the movement became less enthusiastic.

This recitation of changed perspective of pollution control illustrates perhaps the greatest conflict that will be experienced in striving for more safety in the transportation of dangerous commodities.

Many will support stringent measures aimed at providing more safety until the cost of those measures becomes perceived as a directly related additional expense. In the case of dangerous goods it is somewhat more difficult to visualize the connection between safety measures and direct additional

expense but, for example, tanks of propane for household use will become more expensive as special and more costly handling of loads of liquefied petroleum gas in safer but more expensive tank cars and trucks is required.

Increased transportation tariffs will inevitably follow, if with some time lag, regulations which result in increased cost of transportation. This will occur because the transportation companies must recover their costs to survive, and «user pay» for service rendered is a well accepted principle in the transportation business.

LARGE VERSUS SMALL MUNICIPALITIES

There are at least two aspects - one economic and the other philosophical - of the conflict between large and small municipalities in the transportation of dangerous goods.

At the time of the Mississauga accident in November, 1979 there was a little noticed aftermath. The accident caused the normal flow of railway traffic from southwestern Ontario to stop for nine days.

That interruption caused some concern about delivery of raw materials to the paper-mills in Northern Ontario located in Marathon, Terrace Bay, Red Rock, Thunder Bay and Dryden. These paper-mills are the principal reason for the existence of the communities in which they are located. The stoppage of rail traffic through Mississauga, if it had gone on much longer could have resulted in shutting down of the mills and loss of employment in the communities in Northern Ontario.

The philosophical conflict between large and small communities is always there on most public issues. One sees it during discussion of such diverse problems as the building of airports, storing nuclear wastes and the provision of public transportation.

In the discussion about transportation of dangerous commodities there is general acceptance of the notion that such goods must be transported somehow since they are essential to the commerce of the country. Building on that premise it has been suggested that where such an alternative is available, dangerous goods might be routed around the major population centres. This involves diversion, and an unnatural diversion, of such traffic from movement through larger to transportation through smaller communities. Those living in the smaller communities naturally question why they should be exposed to whatever hazard is involved, in order to relieve those in the bigger population areas from that same hazard. Are citizens of St-Thomas, Ont. and Taber, Alta. less important than those who live in London, Ont. and Calgary, Alta.

Presently there is a struggle of this nature going on in British Columbia.

The cities of Vancouver and Coquitlam do not wish to have rail carloads of explosives, sulphur dioxide, liquefied petroleum gas, chlorine and other dangerous commodities held in rail yards, which are close to office buildings and shopping centres. Some of these cars require movement by water to final destination and have to be accumulated for connection with the barges that will move them on the last leg of their journey. Others are accumulated waiting-unloading into storage tanks in the Vancouver area.

CP Rail has been searching for a location short of, but close to Coquitlam and Vancouver, in which to accumulate these dangerous commodities. Cars in such a facility would move directly to the barge slip as necessary to make a close connection with the barges.

The accumulation area would be fenced, lighted and made secure. A number of locations have been investigated. One could not be used because it is the site of a proposed fish hatchery.

The most recently examined site near Harrison Mills is vigorously opposed by the citizens of the District of Kent in which Harrison Mills is located.

A suitable storage site must be found, since it remains a requirement that dangerous commodities cannot be held in rail yards for more than 48 hours. This is an impasse, perhaps a forerunner of other similar conflicts, that must be resolved.

CONFLICTING GOVERNMENT JURISDICTIONS

Cities will examine steps that might be taken, and for which they have authority, to reduce the risk in allowing transportation of dangerous commodities through their jurisdiction. Generally they do not have the right to regulate the railways. They may however regulate the movement of trucks on city streets.

The steps that might be taken could include a requirement that trucks carrying dangerous goods move through a city over a particular route that the fire department is well equipped to protect. Or the movements might be restricted to certain hours. Or both.

If movements are restricted to the hours between midnight and five in the morning for example, the trucks involved require temporary collection points on the edges of the city where they can wait for the authorized movement hours. If the natural collection points at the side of the principal highways entering the city are close to facilities such as regional schools, senior citizens homes or prisons there is going to be a difference of viewpoint between city and province or city and suburb.

Many people think there is risk in the transportation and storage of nuclear waste material. There are nuclear power generating stations in Ontario that have been operating for some time and others are being built and planned. The next station to become operational is at Lepreaux, just outside Saint John, N.B. These stations generate nuclear waste material that remains radioactive, and on exposure dangerous to public health for tens of years.

The present practice is to store this waste material in pits beside the generating stations. However for stations, like the one at Pickering, Ont. outside Toronto, that have been operating for some time, it is becoming a problem to store the amount of material that has accumulated.

One plan is to package this nuclear waste material in impregnable long lasting containers, transport it to earthquake free areas with the right geological characteristics, and bury it. In time the material will lose its radioactivity and its potential danger will disappear.

These are only a few places that meet all of the requirements for nuclear burial sites. The municipalities with the nuclear waste material want a decision on site selection so that burial can begin. Those jurisdictions that include the likely sites, and the communities through which the nuclear waste material must pass to get to those sites even when large population centres are not involved, are reluctant to be selected.

This conflict is now among Ontario jurisdictions, but may expand to provincial governments as a province without a burial site seeks to use one already established in another province.

TRUCK VERSUS RAIL MOVEMENT

There are 22 principal railway companies operating in Canada. Except for BC Rail they are subject to regulation by the Canadian Transportation Commission. Such regulation and oversight is relatively simple.

On January 29th, 1982 the C.T.C. issued an order requiring the railways beginning March 1st to perform gateway inspections on the cars in trains carrying certain special dangerous commodities before entering certain cities. Just one month later as ordered the arrangements were in place and the C.T.C. requirements were being met.

Contrast this with the situation in the trucking industry, which for the most part is regulated by the provinces. There are 10 provinces and the trucking regulations differ from province to province. There are some 1,500 common carrier trucking firms and in addition many hundreds more contract and private truck companies.

Installing a regulation such as gateway inspections in 30 days or so in the trucking industry would be impossible. First the 10 provinces would have to agree that such an arrangement was required, and as has been observed in other areas, agreement amongst provinces is not reached easily on any subject. Then the trucking companies would have to be told of the requirement and they in turn would be required to instruct their employees. Finally the oversight and enforcement staff would have to be selected and trained.

Railways and trucks compete for traffic. The potential conflict here is that additional regulation of the railways which is relatively easy to arrange, aimed at reducing public risk, may raise the cost of rail transportation of dangerous commodities to the point where truck rates are more attractive to shippers.

In this event not only the railways would be losers. The difficulty and perhaps the practical impossibility in arranging similar safety practices for all trucking operations, could result in a reduction in public safety.

SHIPPERS VERSUS TRANSPORTATION COMPANIES

The transportation companies, whether the mode is truck, air, marine or rail, would prefer to have the dangerous commodities entrusted to their care, packaged in containers that are impossible to breach. They would then like to have the packages loaded in a way that they cannot shift or become dislodged.

Obviously there is an expense to the shipper in such arrangements. Equally obviously there is a problem for the transportation company if the dangerous goods are not properly packaged and blocked when loaded.

Not too long ago an arsenic based compound, used in the manufacture of agricultural pesticides, was shipped from England to Western Canada. This dangerous commodity was placed in drums, similar to a common oil or gasoline drum and the drums were placed without blocking or restraining devices in a container for intermodal movement by ship and rail through the Port of Montreal.

During transit the drums were damaged due to shifting and the arsenic compound spilled causing widespread concern. The transportation of this product has been prohibited in Canada until a satisfactory method of packaging and loading it has been devised.

Developing a satisfactory solution will bring to light the conflicts there are between shippers and transportation companies, between transportation modes and even the different commodity classifications and regulations between countries.

FREIGHT CAR LEASING VERSUS RAILWAY COMPANIES

This conflict is similar to that between shippers and transportation companies. The Railway companies would prefer handling railway tank cars built to standards that would make them impregnable even in the most serious railway accidents. The freight car owners on the other hand wish to keep the cost of the cars down so the leasing costs to their customers, who are usually shippers, are minimized.

When a requirement for higher capacity tank cars arose, what is known as specification 112 and 114 type tank cars were approved by the railways and regulatory authorities. It is these types of tank cars that have been involved in the spectacular and sometimes disastrous BLEVE's (Boiling Liquid Expanding Vapour Explosion) that have occurred in North America during the past 10 years.

As a result of the BLEVE's these types of tank cars are being retrofitted with top and bottom couplers to prevent them from separating from the adjacent cars in event of derailment, with head shields to reduce the chance of the tank being punctured by other railway cars, and with thermal insulation to keep the tank car shell from melting and rupturing if it becomes involved in and exposed to fire.

These improvements in the tank car specification are expensive and will result in higher lease costs for shippers. In retrospect however perhaps the improvements should have been included in the original specification when the cars were designed. Had this been done the economic effects would have been felt at the time the decisions to lease the cars were made.

UNITED STATES VERSUS CANADIAN VERSUS
INTERNATIONAL REGULATIONS

Some 25,000 rail cars loaded with dangerous commodities are delivered each year across the United States - Canada border. There is a similarly large volume of trucks handling dangerous commodities that move between the U.S. and Canada.

Canada is fortunate in having busy sea ports on the Atlantic and Pacific oceans and along the St. Lawrence River Seaway system. Dangerous commodities to and from the countries of the world flow through these ports.

In this commercial activity lies still another conflict.

While Canadian and United States dangerous commodity classifications and the regulations governing their transport have historically been quite similar, each is dissimilar to international classifications and regulations.

Anyone with just a passing exposure to dangerous commodity regulation will agree that the regulations are voluminous, complicated and often difficult to understand partly due to the need for frequent referencing of other parts of the rules. The Canadian railway regulations for the movement of dangerous commodities fill an 8" x 11" book, one and one quarter inches thick, over 650 pages in all.

Several hundreds of thousands of transportation employees are required to understand and become familiar with three sets of similar but different regulations of this size and complexity. This requirement stems from the arrangements made between the U.S. and Canadian regulation agencies which have agreed that the U.S. will respect the Canadian regulations in return for Canada respecting the U.S. regulations.

So there is a conflict between the regulations desired by each country, the need for reciprocal acceptance of these rules, and the difficulty in having all concerned understand what is required by the different sets of rules.

S U M M A R Y

There are many conflicts in the movement of dangerous commodities. This paper has touched briefly on some of them. Its purpose is to highlight these conflicts and to suggest that reducing the hazard in moving such dangerous goods is not something that all can support all of the time - like motherhood. Any reduction in hazard involves resolving, or perhaps just reducing, the conflicts that have been discussed.

Resolving these conflicts requires avoidance of extreme and precipitous action. The movement of dangerous commodities is a complex matter. Careful thorough discussion is required before action is taken if Solomon like results are to be obtained.

MONTREAL, QUEBEC.
APRIL 1st, 1982.