



REASSESSMENT OF THE RESPONSE TO MARINE SAFETY RECOMMENDATION M96-07

Shore-based fire-fighting capabilities (training)

Background

In the early morning hours of 31 December 1994, a fire broke out in the conveyor belt system of the *Ambassador* during the unloading of a cargo of rock phosphate. The fire subsequently spread to the vessel's accommodation, and the combined efforts of the ship's crew and several shore-based fire departments were required to bring the fire under control before it was fully extinguished, some 28 hours later. There was no damage to harbour installations, no serious injury and no reported pollution as a result of the fire.

The Board determined that, when the conveyors were stopped, a section of one of the conveyor belts ignited, probably because the belt was in contact with an overheated roller. The roller probably overheated due to a bearing failure or to being jammed with refuse which ignited after contacting the overheated bearing.

The Board concluded its investigation and released report M94M0057 on 9 October 1996.

Board Recommendation M96-07 (November 1996)

In the last 10 years, there have been 386 occurrences involving fires or explosions on board ships in Canadian ports; approximately 32 per cent of these occurred in the winter months. Some 20 per cent of all the occurrences happened in ports under Ports Canada's jurisdiction; the remainder occurred in smaller locations under Transport Canada's Harbours and Ports or in Department of Fisheries and Oceans (DFO) harbours. Shortcomings in the fire-fighting capabilities of some ports and harbours were evident in these occurrences. For example, an inadequate water supply and a lengthy distance to the fire hydrant hampered the fire-fighting efforts in freezing temperatures on an out-of-control fire in the loop conveyor belt system of the *Algosoo* undergoing repairs at Port Colborne, Ontario, in 1986 (Report CCG MCI-442). Three years later, in September 1989, again at Port Colborne, it took the local fire department some 12 hours to fight another conveyor belt fire on board the *H.M. Griffith* (CCG MCI-540).

In July 1991 in Vancouver Harbour, British Columbia, a fire destroyed the Kitsilano Canadian Coast Guard Base and four vessels (TSB Report No. M91W0003). The fire response craft at the scene were not equipped to fight a fire of a large magnitude. Nor did the city water line have adequate pressure; it subsequently broke while being used to fight the fire. In the recent occurrence at Belledune, New Brunswick, inadequate knowledge of shipboard fire-fighting techniques, by both the ship's crew and shore-based fire brigades, led to confusion.

While most vessels are equipped with an on-board, self-contained fire-fighting system, capable of mitigating the danger posed by fires at sea, these same vessels can have their fire-fighting capability severely limited in port, as much of their main and auxiliary equipment is not running and/or readily available. It is not just the vessels that are vulnerable to extensive damage by shipboard fires when in port; vessel fires at dockside also present a serious hazard to port facilities and installations (as evidenced in the occurrence at Kitsilano).

Within ports and harbours, the responsibility for providing an emergency response plan, including fire-fighting assistance for vessels in port, generally rests with the port management. These plans often rely on municipal fire departments for fire-fighting support, many of which do not have personnel properly trained to fight shipboard fires. The Board believes that, with the ever-present risk of on-board fires, a well trained and equipped fire response team is essential in order to minimize the consequences of an out-of-control fire in the close confines of a port or harbour. Therefore, given that some Canadian ports and harbours appear to lack the proper facilities and resources to effectively contain shipboard fires occurring within their jurisdiction, the Board recommends that:

The Department of Transport, in collaboration with ports and harbour authorities, take measures to ensure that shore-based fire brigades expected to support on-board fire-fighting, receive appropriate training.

TSB Recommendation M96-07

Transport Canada's response to Recommendation M96-07 (February 1997)

The Canadian Association of Fire Chiefs (CAFC) is, among other tasks, responsible for the standards and training of shore-based fire brigades.

The Minister of Transport notes the recommendation. This recommendation will be addressed in conjunction with M96-06. The Department will review and assess the situation and take steps to rectify any identified deficiency.

Board assessment of the response to Recommendation M96-07 (March 1997)

The response indicates that the Canadian Association of Fire Chiefs (CAFC) is responsible for the standards and training of shore-based fire brigades. As such, Transport Canada (TC) will contact the CAFC to "assist in an audit to identify any risks and take the necessary steps to mitigate them". In addition, TC proposes to issue a Ship Safety Bulletin to domestic ship operators and agencies for foreign vessels on operational readiness for cold weather conditions. However, there is neither a specific implementation plan nor a schedule for any of the intended actions, nor was any additional information available to TSB staff when they contacted TC officials following the response.

Given that no assurance has been provided that the stated actions will take place in the near future, the responses to all three recommendations (recommendations M96-06, M96-07, and M96-08) can only be assessed at this time as having **Satisfactory Intent**.

Board reassessment of the response to Recommendation M96-07 (November 2006)

TC's update, dated November 2006, indicated that training, equipment requirements and the setting of work criteria for municipal fire departments is a provincial/municipal responsibility and TC has no intention of entering into this area. TC hopes that as a result of the survey conducted, the smaller fire departments will recognize the advantage in preparing themselves to respond to the types of emergencies that may take place in their communities, as a result of ships that frequent a port and/or port facilities, in or near their area of jurisdiction/responsibility. TC is willing to participate with national/provincial associations in an effort to promote on what the advantages are, when fire departments have the training and equipment, to respond to shipboard emergency incidents.

As of 31 October 2006, only 83 ports of Transport Canada's original inventory of 549 ports from across the country had not yet been divested to other interests. The Port Divestiture Program was designed to let local interests acquire public ports in their areas. Since the inauguration of the program, which is now in its tenth year, 84 per cent of public ports have been transferred or otherwise removed from Transport Canada's original inventory. Consequently, the ultimate responsibility for ensuring that shore-based fire departments receive the appropriate training lies with the various jurisdictions under which the divested ports now operate. The change agents identified in the recommendation are no longer appropriate. The response is considered "Satisfactory in Part."

Further action is unwarranted as the change agents identified in recommendation M96-07 are no longer appropriate. TC has stated that the training, equipment requirements and the setting of work criteria for municipal fire departments is a provincial/municipal responsibility and TC has no intention of entering into this area. Hence the residual risk associated with the training aspect of the safety deficiency identified in recommendation M96-07 will remain **Satisfactory Intent**.

The file was assigned an **Inactive** status in 2006.

Transport Canada's response to Recommendation M96-07 (November 2014)

In its response in 2014, TC indicated that 18 ports are now operated as Canada Port Authorities (CPAs). CPAs are federally incorporated, autonomous, non-share capital corporations that operate at arm's length from the federal government. CPAs are not Crown corporations under the meaning of the Financial Administration Act. CPAs operate their core activities - those activities related to shipping and navigation - as agents of the Crown. However, there is no directive power under the legislation that allows the federal government to direct or influence the actions of the respective CPAs. Each is governed by a board of directors nominated by port user groups and various orders of government. Each operates according to business principles and has the authority and flexibility to determine strategic direction and make commercial decisions. CPAs are expected to be accountable and open to Canadians. TC therefore recommends that the recommendations be sent directly to the individual Port Authorities.

CPAs (18 in total; <https://www.tc.gc.ca/eng/programs/ports-canadaportauthorities-1107.htm>) are entirely responsible for administering, managing and operating, on a stand-alone basis, the

port for which they are accountable. All questions pertaining to the administration, management and operations of a port should be addressed directly to appropriate port authority.

Transport Canada Marine Safety and Security (TCMSS) has no authority or responsibility vis-à-vis the ports and its regulations are made for the ship crew to be able to fight a fire at sea, not to be dependent on shore installations. The only equipment that TC is responsible for is the shore connection on board the vessel, but again it is an obligation for the ship TCMSS does not have authority to ask the ports to have compatible equipment or even have equipment.

In addition, when the recommendations were last assessed, fire safety at ports was part of the *Boat and Fire Drill Regulations*. It is no longer part of these regulations. It was removed at the urging of the port authorities as it was a duplication of their efforts.

Ports owned by Transport Canada: TCMSS does not believe that these recommendations should apply to the few small ports that are still owned by Transport Canada (TC). TC currently owns 50 public ports and public port facilities. Budget 2014 announced the creation of a new Port Transfer Asset Program, in which TC expects to divest the remaining ports under its administration. By removing itself from the ownership and operation of these ports, the onus will be on the new port operator, if applicable.

Of the 50 facilities currently operated by TC, 41 are operating as commercial facilities. The 50 facilities can be categorized as follows:

- 10 facilities have more than 10 vessel visits per year;
- 4 have between 5 and 10 vessel visits per year;
- 24 have fewer than 5 vessels visits per year;
- 3 are classified as non-facilities such as breakwaters or canals; and
- 9 have reached the end of their useful operating lives and have been closed and are no longer used.

As a result of the changes in operating conditions and increased preparation for fire services in the past 8 years, TC's position is that the ultimate responsibility for ensuring that shore-based fire departments receive the appropriate training lies with the various jurisdictions under which the divested ports now operate. The smaller fire departments where these facilities are located have come to recognize the advantage of preparing themselves to respond to the types of emergencies that may take place as a result of ships frequenting the ports.

Since 2006, the residual risk identified in the recommendations has been drastically reduced. Therefore, TC believes that these recommendations should be considered fully satisfactory for the 50 small ports still owned by TC, which will be divested in the near future.

Transport Canada's updated response to Recommendation M96-07 (February 2015)

Follow-up information provided by Transport Canada (TC) indicated that the 50 Canadian ports and port facilities under its responsibility will soon be divested and that the onus for firefighting safety will be on the new port operators.

TC also provided information that had been previously given to the TSB in 2002, which indicated that some firefighting awareness sessions were provided to the ports in 2001, and that a series of courses were given by two consultants on behalf of TC to make community fire departments aware of the differences of fighting fires onboard a vessel. A total of 49 presentations, which were completed in 2002, were given across Canada at various locations including Canada Port Authorities, public ports, and fire and town officials. As well, TC provided the community fire departments with International Fire Fighting Shore Connection for combating fires on board foreign flagged vessels that may not have North American standard hose connections.

TC also reiterated the categorization of the 50 facilities currently under its responsibility. There was no change.

Subsequently on 01 April 2015, the Board changed the status of this recommendation to **Active**.

Board reassessment of the response to Recommendation M96-07 (March 2016)

When the recommendation was issued in 1996, Transport Canada (TC) had regulatory authority over most of Canada's ports, but had begun to transfer port facilities ownership and operations to interested parties. In 1998, control of 18 ports was effectively given to individual Canada Port Authorities (CPA). These ports were deemed critical to Canada's domestic and international trade and accounted for a large portion of the total international and domestic cargo handled in Canada. Although the CPAs fall under federal legislation, they operate as fully commercial self-sufficient entities with no federal funding and are independent of TC. Of the original 549 ports under TC's responsibility, TC's response indicated that only 50 ports/port facilities remain to be transferred, and that the onus for firefighting safety will be on the port operators.

Over the past 20 years since the recommendation was issued, there have been 228 reports to the TSB of fires on board vessels secured at Canadian ports. Of these, 56 occurred at ports now under the authority of the CPAs. Follow-up information obtained from the CPAs indicated that 7 of the 18 ports where these fires occurred had trained firefighters available to help with firefighting. One CPA indicated that the most recent training had been provided in 2006. Another CPA indicated that it was creating a new fire emergency training structure, which will include a mock-up of ship spaces, to be used to train the local fire department to respond to shipboard fires. The types of training that have been undertaken included ship-familiarization visits for shore-based firefighters, ship-firefighting practices, and joint ship-shore firefighting exercises. Five CPAs indicated that no training in responding to shipboard fires had taken place, and 3 CPAs did not indicate whether the local shore-based firefighters had received any training. One of the CPAs indicated that local firefighters had not received training and noted

that, in the event there was a shipboard fire, the firefighters would not be allowed to enter the ship. Two CPAs did not respond to the TSB's request for information.

The remaining 172 fires occurred at ports other than those under CPA authority. Some of these include ports that have yet to be transferred by TC. Most of these ports have limited commercial activity when compared to the CPAs and the local shore-based firefighting resources may be limited. In some cases a volunteer fire service may respond. Of the 50 ports/port facilities soon to be transferred, 9 have been closed or are no longer used, 24 have fewer than 5 vessel visits per year, and 4 have between 5 and 10 vessels visits.

Vessels are equipped with on-board, self-contained firefighting systems that are designed to mitigate the danger posed by fires at sea. However, while in port, a vessel's firefighting capability may be limited as trained crew may not be on board, and the main or auxiliary equipment may not be running and/or readily available. In port, a vessel's firefighting capability is complemented by shore-based fire brigades. However, if shore-based responders have not received training in shipboard fire-fighting techniques, they may not appreciate the specific challenges of fighting a fire on board a vessel. These challenges include the accumulation of water used to fight a fire on a vessel and its negative effect on the vessel's stability, the presence of enclosed spaces, and large cargo holds. As such, there is a risk that the use of shore-based fire brigades who have not been specifically trained may result in an ineffective response. Furthermore, when the roles of the shore-based fire brigade are not clearly defined, there is a risk that their response may be uncoordinated.

There has been a jurisdictional change over the ports, and the responsibility for the port operations now lies with the port operators. Although some ports have taken measures to improve the response capabilities of shore-based firefighters, other ports have yet to take such measures. Therefore, the safety deficiency associated with the recommendation has been reduced at some ports, but may still exist at other ports.

Therefore, the assessment rating has been changed to **Satisfactory in Part**.

Next TSB action

Noting the responsibility for fire-fighting now rests with port operators, the Board will take into account the effectiveness of the port's response to a ship-based fire in future investigations.

This deficiency file is **Closed**.