



STAFF ASSESSMENT OF THE RESPONSES TO MARINE SAFETY RECOMMENDATION M05-06

STRUCTURAL FIRE PROTECTION

Background

On the morning of 12 May 2003, while en route from Horseshoe Bay, British Columbia, to Langdale, British Columbia, the *Queen of Surrey*, with 318 passengers and 137 vehicles on board, suffered a diesel oil fire on its No. 2 main engine. The engine room was evacuated and sealed, and carbon dioxide (CO₂) gas was released into it. Although immediate failure of the CO₂ distribution manifold allowed some of the gas to escape, enough reached the engine room to extinguish the fire. The vessel was then towed to the Langdale ferry terminal, where the passengers disembarked. There were no fatalities.

The Board issued the safety recommendation on 9 February 2006.

Board Recommendation M05-06 (9 February 2006)

There are currently 118 Canadian-registered passenger vessels over 500 gross tonnage [Retrieved 30 August 2005 from the Transport Canada Vessel Registration Query System]. The Board is aware that BCFC has fitted the engine room deckheads (and bulkhead penetrations) of the *Queen of Coquitlam*, *Queen of Cowichan* and *Queen of Oak Bay* (sister ships to the *Queen of Surrey*) with A-60 structural fire protection, and intends to upgrade other similarly deficient vessels in its fleet when they undergo their mid-life refits. The Board, however, is concerned that, because of a lack of regulatory requirements for such protection, there may be other Canadian-flagged vessels with insufficient structural fire protection around high fire risk compartments. While upcoming changes proposed to the regulations will incorporate provisions for adequate structural fire protection, existing vessels may not be modified to suit, thus exposing the vessel, crew, passengers and the environment to undue risk. The Board, therefore, recommends that:

The Department of Transport require Canadian passenger vessels over 500 gross tonnage to meet a standard of structural fire protection that ensures a level of safety equivalent to SOLAS-compliant vessels.

Response to M05-06 (9 May 2006)

The Minister of Transport, Infrastructure and Communities agrees with the intent of this recommendation. The proposed *Fire Safety Regulations* will require that new passenger vessels over 150 gross tons will meet and in some areas exceed *Safety of Life at Sea* (SOLAS) *Convention* standards for structural fire protection. The proposed regulations will also address modifications made to existing vessels. As a result, any major modification will have to comply with the most recent requirements for structural fire protection.

All Canadian-registered passenger vessels built after 1979 were required to comply with the *Equivalent Standard for Fire Protection of Passenger Ships, TP 2237*.

The report indicates, in the background to this recommendation, that there are currently 118 Canadian-registered passenger vessels over 500 gross tons. Transport Canada records have identified 53 vessels of the 118 that were built before 1979. Of these 53 vessels, 14 have had or will have their structural fire protection upgraded. Some of these 14 vessels are owned by the British Columbia Ferries Services Inc. and will have their structural fire protection upgraded. Transport Canada considers that of the remaining 39 passenger vessels, several have the appropriate fire protection and therefore there is a diminishing number that represent an acceptable manageable risk.

Nonetheless, Transport Canada will further review the status of these remaining vessels to confirm that the risk is low, and if necessary Transport Canada will amend the proposed *Fire Safety Regulations* accordingly.

Board Assessment of Response to M05-06 (31 October 2006)

The TSB investigation discovered that TP2237 standards are optional and compliance with these standards or the existing *Hull Construction Regulations* was left to the vessel owner's discretion. An example of this are the five 'C' Class ferries built by BC Ferries (of which the *Queen of Surrey*, built in 1981, is one) which did not comply with TP 2237 and therefore did not have adequate structural fire protection.

While upcoming changes proposed to the *Fire Safety Regulations* will incorporate provisions for new vessels and older non-compliant vessels undergoing major modifications, the remaining vessels may not be modified, thus exposing the vessel, crew, passengers and the environment to undue risk.

TC's planned action or the action taken will reduce, but not substantially reduce or eliminate the deficiency.

Therefore, the assessment is assigned **Satisfactory in Part**.

Response to M05-06 (June 2008)

TC's update, dated June 2008, indicated that the proposed *Fire Safety Regulations* will require that new passenger vessels over 150 gross tons will meet and in some areas exceed *Safety of Life at Sea (SOLAS) Convention* standards for structural fire protection. The proposed regulations will also address major modifications made to existing vessels and any major modification will have to comply with the requirements for structural fire protection.

All Canadian-registered passenger vessels built after 1979 were required to comply with TP 2237, *Equivalent Standard for Fire Protection of Passenger Ships*. Transport Canada will review the status of these remaining vessels to confirm that the risk is low, and if necessary Transport Canada will amend the proposed *Fire Safety Regulations* accordingly. The proposed *Fire Safety Regulations* are expected to be pre-published in Part I of the *Canada Gazette* in the fall 2008.

Board Assessment of Response to M05-06 (September 2008)

No substantial change to address the safety deficiency since the last assessment. Follow-up information indicated that the proposed *Fire Safety Regulations* are expected to be pre-published in Part I of the *Canada Gazette* in the Fall 2009.

Therefore, the assessment of the response remains at **Satisfactory in Part**.

Response to M05-06 (November 2009)

TC's update, dated November 2009, indicated that the proposed *Vessel Fire Safety Regulations* will require that new passenger vessels over 150 gross tons meet, and in some areas exceed, the SOLAS Convention standards for structural fire protection. The proposed regulations will also address major modifications made to existing vessels which will have to comply with the requirements for structural fire protection. All Canadian-registered passenger vessels built after 1979 were required to comply with the Equivalent Standard for Fire Protection of Passenger Ships, TP 2237.

TC will review the status of these remaining vessels to confirm that the risk is low, and if necessary Transport Canada will amend the proposed *Vessel Fire Safety Regulations* accordingly. The proposed *Vessel Fire Safety Regulations* are anticipated to be pre-published in Part I of the *Canada Gazette* in the spring 2010.

Board Assessment of Response to M05-06 (May 2010)

TC has yet to determine whether the proposed *Vessel Fire Safety Regulations* will be amended to address those remaining vessels built before 1979 and to which the current regulations do not apply. However, TC has indicated that the proposed *Vessel Fire Safety Regulations* will require that new passenger vessels over 150 gross tons meet, and in some areas exceed, the SOLAS Convention standards for structural fire protection. It is now anticipated that the proposed regulations will be pre-published in the *Canada Gazette*, Part I, in the summer of 2010.

Therefore, the assessment of the response remains at **Satisfactory in Part**.

Response to M05-06 (December 2010)

TC's December 2010 update indicated that the proposed *Vessel Fire Safety Regulations* will require that new passenger vessels over 150 gross tons meet, and in some areas, exceed the SOLAS Convention standards for structural fire protection. The proposed regulations will also address major modifications made to existing vessels and they will have to comply with the requirements for structural fire protection. All Canadian-registered passenger vessels built after 1979 were required to comply with the *Equivalent Standard for Fire Protection of Passenger Ships*, TP 2237.

A review of TC records indicated that there are 36 ferry and passenger vessels built before 1979 that have an active status. Of these, 10 are passenger vessels and not subject to risk of fire on car decks. Of the remainder, a large number have been or will be upgraded to current requirements for structural fire protection through mid-life refit, or will be withdrawn from service.

Accordingly, TC considers the risk to be low, and that no amendment to the proposed *Vessel Fire Safety Regulations* is required. The proposed *Vessel Fire Safety Regulations* are anticipated to be pre-published in Part I of the Canada Gazette in the second quarter of 2011.

Board Assessment of Response to M05-06 (May 2011)

TC has determined that the structural fire protection provisions of the proposed *Vessel Fire Safety Regulations* will not be amended to include certain non ro-ro passenger vessels built prior to 1979. Regardless of whether a passenger vessel is equipped with car decks or not, the risk of fire spreading through bulkheads and decks exists. The Board remains concerned that, because of a lack of regulatory requirements for such protection, there continues to be other Canadian-flagged passenger vessels with insufficient structural fire protection around high fire risk compartments.

Transport Canada has stated that they will not be taking action to include vessels built before 1979. Therefore, the assessment of Transport Canada's response remains **Satisfactory in Part**.

Response to M05-06 (December 2011)

The proposed *Vessel Fire Safety Regulations* will require that new passenger vessels over 150 gross tons meet, and in some areas exceed, the Safety of Life at Sea Convention standards for structural fire protection. The proposed regulations will also address major modifications made to existing vessels, which will have to comply with the requirements for structural fire protection. All Canadian-registered passenger vessels built after 1979 were required to comply with the *Equivalent Standard for Fire Protection of Passenger Ships*, TP 2237.

The Hull Construction Regulations already require passenger vessels to have A 60 rated insulation between the engine room, accommodation spaces and other spaces such as control stations. Ro-ro ferries did not require fire protection on the deck head above the engine room in way of car decks, however, as these were interpreted as open spaces until the publication of the *Equivalent Standard for Fire Protection of Passenger Ships*, TP 2237.

A review of Transport Canada inspection records indicates that there are 91 passenger vessels of more than 500 gross tonnage that are in active service (or will be shortly) in Canada (e.g. holding a passenger vessel inspection certificate in 2010 or after). Fifty-five of these were built or rebuilt after 1979. Of the remaining 36, seven are passenger vessels and not subject to risk of fire on car decks. Of the remaining 29, a large number either have been or will be upgraded to current requirements for structural fire protection through mid-life refit, or will be withdrawn from service.

Transport Canada will continue to work with the owners and the Canadian Ferry Operators Association to monitor the status of the fleet and to verify that structural fire protection is upgraded when a major modification is made.

Accordingly, Transport Canada considers the risk to be low and given the above information that the recommendation is met, and that no amendment to the proposed Vessel Fire Safety Regulations is required. The proposed Vessel Fire Safety Regulations are anticipated to be published in the *Canada Gazette*, Part II, in the 1st Quarter of 2012.

Board Assessment of Response to M05-06 (March 2012)

TC has determined that the structural fire protection provisions of the proposed *Vessel Fire Safety Regulations* will not be amended to include certain non ro-ro passenger vessels built prior to 1979. Regardless of whether a passenger vessel is equipped with car decks or not, the risk of fire spreading through bulkheads and decks exists. The Board remains concerned that, because of a lack of regulatory requirements for such protection, there continues to be other Canadian-flagged passenger vessels with insufficient structural fire protection around high fire risk compartments placing passengers, crew and vessels at risk.

Since TC has restated that they will not be taking action to include and regulate vessels built before 1979, the assessment of the response remains as **Satisfactory in Part**.

Next TSB Action

The deficiency file is assigned a **Dormant** status.