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Queen of the North—plenty of blame for management

~ Patrick Brown

BC Ferry CEO David Hahn described the sinking of *Queen of the North* two years ago as the result of 'human error'. The errors to which he referred were made by the two people on the bridge in the fourteen minutes before the ferry slammed into Gil Island in the middle of the night, sinking soon after, with the loss of two lives.

But a careful reading of the Transportation Safety Board (TSB) Final Report on the incident, released this past week, reveals that there were plenty of errors to go around, and they weren't all made by the Officer of the Watch, responsible for navigation, and the apprentice Quartermaster, who was at the helm.

The Final Report has been heavily criticized for failing to reveal the reasons why they did not make a normal course change at Sainty Point as the ship entered Wright Sound on its southward journey, and why they failed to notice that the ship was off course until trees appeared directly ahead. The Report clearly identifies these as human errors, and it does give reasons which critics found vague—that they were distracted by 'a sudden squall', a 'personal conversation', and the disappearance of a nearby fishing vessel from the radar.

But the report also roundly criticizes BC Ferries for practices which ensured that these errors remained undetected for the final fourteen minutes. Not only, says the Report, should there have been a third person on the bridge, but the chart plotter screen should not have been dimmed, and off-course alarms available on various pieces of navigational equipment had either been disabled, or were never fitted in the first place. And when, at the last moment, a switch from automatic to manual steering might have enabled *Queen of the North* to avoid Gil Island, the changeover did not happen due to confusion over the correct procedure to be followed with recently installed new switchgear.

As a final comment on the actual navigation and control of the ship, the TSB cites, with clear disapproval, a 'less than formal' working environment on the bridge of *Queen of the North*: 'The accepted principles of navigation safety were not consistently or rigorously applied. Unsafe navigation practices persisted which, in this occurrence, contributed to a loss of situational awareness by the bridge team.'

The phrasing of this last comment bears the stamp of most careful consideration by the editors of the TSB Report.

These practices, along with what the TSB identifies as inadequate training of officers and quartermasters in the operation of navigational and control equipment on the bridge, and ineffective safety audits under BC Ferries' Safety

Management System, can only have existed with the approval, or at least the acquiescence, of management: 'BC Ferries does not ensure that all employees are fully competent to perform the duties expected of them, therefore placing the vessel, its passengers, and crew at risk.'

These comments are clearly intended to apply not only to *Queen of the North*, but to the entire fleet. Whether or not this is fair may be open to question, particularly given recent claims by management that new training programs have done much to alleviate the situation. However, in support of this finding, the TSB cites the findings of previous investigations into incidents with *Bowen Queen* (2002) and *Queen of Surrey* (2003). Once again, the TSB's wording bears the stamp of great care in drafting.

The Report goes on to comment on 'abandon ship' procedures, passenger manifests, ship stability standards on older vessels, the closing of watertight doors, the need for Voyage Data Recorders, and the inadequacy of action by the company to address the risk posed by crew who may be impaired by alcohol or drugs (but the Report makes no specific connections between impairment and the accident).

The Report, in its findings, has taken care to distinguish situations where BC Ferries has met the requirements of applicable regulations, which the TSB admits are not always clear or adequate. However, the Report makes it clear that the management responsibility to ensure safety in the operation of a public ferry system should override the mere adherence to regulations, and its criticisms of the corporation have their roots in this point of view.

Detecting Human Error on the Bridge

In ascribing the cause of the accident to 'human error' to the bridge team (the Fourth Officer, who was on the bridge as Officer of the Watch, the Quartermaster-in-Training, who was at the helm, and the Second Officer, who was in the Officers' lounge) BC Ferries CEO David Hahn was, in effect, allocating blame. Clearly, then, human errors can and do occur, and they are normally detected by a combination of human management and technological monitoring.

In the case of ship navigation and control, the primary human checks are a combination of staffing and procedures. In this case, staffing should have included a third person on the bridge, particularly in view of the fact that the person acting as Quartermaster was unqualified. This left only one person in a position to confirm that the ship was following its proper course, and he (the Fourth Officer) was under the impression

that he had ordered the requisite course change at Sainty Point and that his order had been carried out. (The Report concluded that he had failed to do this.) Had the third member of the team, the Second Officer, been on the bridge, the chances of detecting that the vessel was off-course would have been immeasurably improved.

Formal procedures, particularly as regards communications among the bridge team, and the giving and confirmation of execution of orders, are an important part of error prevention. Verbal procedures cannot be confirmed afterwards unless there are voice recordings; the TSB expressed its regret that these were not available (as they would have been with a Voyage Data Recorder). This type of formal discipline, similar to that employed both in naval vessels and on aircraft, is traditional in the command of ships because clarity is essential in situations where the consequences of error are potentially disastrous; thus the TSB's serious criticism that the 'working environment' on the bridge was 'less than formal'. Again, the TSB's wording is cautious in the extreme.

Navigational Equipment on the Bridge

Safety in the operation of any vessel is best achieved through an effective combination of trained personnel and appropriate technology. The TSB had severe reservations about the navigational equipment on the bridge.

The Electronic Charting System (ECS), which would normally display the waters, islands, and navigational hazards in the area, plus the actual position and course of the vessel, had a monitor (CRT or TV) which was so bright that it interfered with the bridge team's night vision. As a result, it had been dimmed by the crew to the point that it could not be read. Its cross-track alarm, which would have alerted the crew to the fact that the ship was off course, was turned off (by whom it is not clear). Its navigation-danger alarm, which would have alerted the crew to the increasing proximity of Gil Island, was not operational because the electronic chart in use did not support the software to operate it.

Alarms available with other navigational equipment, such as radars, 'were not set up or enabled'. (It is almost as if such technological safeguards had been deliberately neglected.)

Clearly, the use of available technology to detect human error was not felt important by the officers and crew of the vessel, or management for that matter. Despite this, the bridge team did not, according to the Report, carry out normal manual navigational checks, such as plotting the course, speed, and location of the vessel, and identifying fixed navigational aids.

Switching from Automatic to Manual Steering

One further piece of equipment was relevant to the accident: the switching system that altered control between the autopilot (which ensured the vessel continued in a straight line on whatever course was set) and manual steering. This had been

altered during a refit immediately prior to the fatal voyage. Prior to refit, the change from automatic to manual could be accomplished with a single switch located at the aft steering station. After the refit, the change required operation of two switches, one at each steering station. The Quartermaster on duty was unfamiliar with this procedure and this led to a problem with the changeover when the trees on Gil Island came into view.

As proof of the confusion, the Report says: 'various B-Watch deck crew (who normally took turns steering the ship) provided investigators with four different explanations as to the interaction between the forward and aft steering station switches and which specific functions were available at various switch settings.'

It is hard to imagine a more damning indictment of the inadequacies of training and staffing tolerated by BC Ferries management.

BC Ferries' Response

A recent press release from BC Ferries lists a number of actions taken since the March 2006 sinking of *Queen of the North*. These include a comprehensive safety review carried out by former BC Auditor General George Morfitt (which found many of the same inadequacies in training and procedures as identified by the TSB). Major training programs have been instituted and partially carried out: Voyage Data Recorders are being installed throughout the fleet, new alcohol and drug policies have been implemented, new sign-off procedures have been implemented to confirm that navigational watch officers are familiar with new equipment, four new Safety Officer positions have been introduced, new procedures to ensure watertight doors are always closed at sea.

In addition, on northern routes, two more navigational officers have been added to each watch, and a new check-in policy has been implemented which enables complete passenger manifests to be kept.

The press release says, 'Customer and employee safety is the number one priority of BC Ferries.'

CEO David Hahn has since suggested that deck officers should all be made 'exempt' personnel; that is, transferred from union membership to management. No explanation has been offered as to how this would ameliorate the deficiencies identified by the TSB.

What's Next

A number of individuals have indicated their intention to sue in civil court to recover damages resulting from the sinking of *Queen of the North*. It has been claimed in the press that such lawsuits would not only enable the public to determine in more detail what transpired on the bridge during that last fourteen minutes, but also enable possible criminal responsibility to be determined. The TSB Final Report makes it clear that all levels of BC Ferries' management share the responsibility for the sinking. ☞

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