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MORFITT SAFETY REVIEW RELEASED
BC Ferries and BCFMWU endorse report

VICTORIA – BC Ferries today released a comprehensive safety review by former B.C. Auditor General George L. Morfitt. The 70 page report makes 41 recommendations on safety enhancements at BC Ferries.

The detailed safety review also states the following conclusion in its summary overview:

“We concluded from our review that, overall, the company is operating a safe coastal ferry transportation system. The company directors, management and staff are highly committed to operational safety, both for the travelling public and for BC Ferries personnel. Nevertheless, there are a number of areas identified in this report where safety and related administrative processes and procedures should be strengthened.”

In releasing the report, BC Ferries President and CEO David L. Hahn and BC Ferry and Marine Workers’ Union President Jackie Miller both endorsed the report. “We are working together to implement its recommendations.”

Mr. Hahn thanked Mr. Morfitt and his team for the excellent and thorough review of operational safety at BC Ferries. He restated BC Ferries’ commitment to implement all of the various recommendations in the report, as he pledged when the company first commissioned the report last year.

Mr. Hahn said customer and employee safety is the number one priority at BC Ferries and, in an effort to ensure we continually live up to this commitment, BC Ferries will be conducting a similar comprehensive operational safety review every five years at a minimum.

The report entitled, “Safety and BC Ferries: A review of Operational Safety at British Columbia Ferry Services Inc.” is available at www.bcferrries.com.

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Safety and BC Ferries



A Review of Operational Safety at British Columbia Ferry Services Inc.

Report by
George L. Morfitt, FCA
January 2007

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Introduction

Purpose of the Review

Operational safety at British Columbia Ferry Services Inc. (BC Ferries) refers to the use of practices to ensure the safety and protection of passengers, employees and property from danger arising from the operation of a vessel in the marine environment or from related operations within the terminal facilities. The risks faced by BC Ferries include:

- injury or death to persons and damage to property;
- legal liability to BC Ferries in the case of injury or death to persons or damage to property;
- damage to, or destruction of, a vessel or terminal; and
- loss of credibility and reputation resulting from a major operational safety incident.

BC Ferries has a declared commitment to providing safe, reliable and efficient marine transportation services. One of its core values is to ensure that the safety and security of customers and staff is a primary concern in all aspects of doing business.

I was commissioned by BC Ferries to conduct an independent review of the company's safety policies, procedures and practices in ensuring the safety of its passengers and crew, including the prevention of injuries.

In my review, I assessed the extent of BC Ferries' compliance with applicable Canada Shipping Act regulations, codes and standards and with the company's own Safety Management System. This report sets out my observations, conclusions and recommendations, all of which are intended to assist BC Ferries in its efforts to continuously improve its safety policies and programs.

Scope

This review examined:

- the systems and procedures in place for the operation of BC Ferries' vessels and terminals;
- the systems and procedures in place to comply with the criteria and requirements of the Canada Shipping Act and its related regulations, codes and standards; and
- the systems in place for monitoring and improving current procedures.

Specifically, the focus was on BC Ferries':

- operational safety objectives;
- commitment to safety;
- organizational structure for safety;
- operational safety policies, procedures, audits, drills and inspections;
- crew qualifications and training;
- maintenance of equipment;
- historical safety record; and
- reporting on safety to the Board of Directors, senior executives and stakeholders.

The review criteria were based on the safety requirements of the Canada Shipping Act and the regulations, codes and standards stemming from that; the safety standards of BC Ferries; and good management practices.

The review did not include an examination of occupational health and safety matters that fall under the Workers' Compensation Act or of issues related to marine pollution, such as prevention, containment and clean-up. Neither did this review include an examination of circumstances relating to the sinking of the *Queen of the North*. That incident is under investigation by the Transportation Safety Board.

Review Procedures

This review was conducted over a period of five months by me and contracted professional staff under my direction. The services of a consulting firm with recognized expertise in marine safety management, were also retained.

Our work included:

- examining relevant documents, such as policy and procedures manuals describing the processes and activities followed at the various vessel and terminal locations;
- visiting all operational regions and spending time on 11 BC Ferries vessels and at 7 of its terminals to observe how safety-related activities are carried out;
- interviewing BC Ferries' directors, management, and operating staff at all levels including superintendents, senior masters, masters, chief engineers, officers and crews on vessels, and terminal directors, managers and terminal staff; and
- interviewing senior officials with Transport Canada, the Transportation Safety Board, and BC Ferries' external Safety Management System auditor, Lloyd's Register.

Review Summary

British Columbia Ferry Services Inc. (BC Ferries) manages a large and complex ferry system – one that operates 36 vessels and 47 terminals along the coast of British Columbia. The system annually carries in excess of 21 million passengers and 8 million vehicles on more than 186,000 sailings.

We concluded from our review that, overall, the company is operating a safe coastal ferry transportation system. The company directors, management and staff are highly committed to operational safety, both for the travelling public and for BC Ferries personnel. Nevertheless, there are a number of areas identified in this report where safety and related administrative processes and procedures should be strengthened. We have brought these to the company's attention and it has stated its commitment to addressing each of those areas in a timely manner.

Operational Safety Objectives

BC Ferries has made clear in all of its planning and reporting that the safety and security of its customers and employees is its first priority. Two of its performance goals are related to operational safety. However, the long-term strategic objective of ensuring a safe marine transportation system is not a separate goal within the company's business plans. We believe the company should have a strategic goal that pertains directly to that priority, with identified tactics, measures and targets related to achieving that goal.

Commitment to Operational Safety

In 1994, BC Ferries voluntarily adopted the International Maritime Organization's International Safety Management (ISM) Code. In keeping with the Code requirements, the company, in 1997, implemented a Safety Management System (SMS) that applies to all its activities ashore and onboard its ships. The objectives of the SMS are to ensure safety at sea, prevent human injury or loss of life, and avoid damaging the environment – in particular, the marine environment – and property.

It is important to point out the difference between a commitment to operational safety and a commitment to the SMS. Staff can be completely committed to operational safety without being completely committed to the SMS. However, the greater the commitment to the SMS is, the higher the level of assurance will be that critical safety-related issues are observed, reported and corrected in a timely manner.

While we found, overall, a high level of commitment to operational safety throughout the organization, we also heard concern from interviewees that support for the SMS was not practiced uniformly across the organization. Some believe that not all senior operating staff have "bought into" the SMS. Lack of understanding of the SMS and insufficient training in the system were also mentioned as being areas of concern.

To achieve improvements in operational safety and the SMS, we believe a number of steps be taken.

First, BC Ferries should carry out a comprehensive review of the SMS to determine areas where improvements to its implementation could be made. It should also provide orientation and training to increase knowledge and awareness of the SMS across the organization.

Second, for more efficient and effective functioning of the SMS, BC Ferries should strive to establish a organizational culture that is fully supportive, open, empowering and receptive. The vast majority of staff we interviewed perceives the organization to be supportive and say they feel comfortable bringing safety-related issues to their supervisors. However, a number of staff did not express the same level of comfort.

Third, BC Ferries and the British Columbia Ferry and Marine Workers' Union need to work cooperatively to improve safety and promote employee support for the SMS. During our review, we observed tension in the relationship between the company and the union. This situation is, in our view, largely dysfunctional and pose significant impediment to resolving operational safety issues and ensuring continuous improvements to the SMS.

BC Ferries has recognized the need for improving the SMS. It has recently created the position of Executive Director, Safety, Security, Health and the Environment, to provide more focus on operational safety and security and to consolidate all related areas. A responsibility of this role is to oversee all audits, inspections and certifications, and to monitor the effectiveness of the SMS. The person in this position has also been appointed the "Designated Person" under the ISM Code, responsible for the safe operation of vessels. As such, this individual has direct access to BC Ferries' President and Chief Executive Officer and to the company's Board of Directors.

We observed during our review that steps were already being taken and plans developed to make the necessary improvements in the areas noted above.

Identification and Management of Operational Safety Risks

Company-wide risk management clarifies the organization's strategic goals and ties them to the operational goals. It covers all major objectives and comprises all types of risk. However, although BC Ferries has recognized the importance of managing risk in the organization, the company has no formal risk identification and assessment process in place fleet-wide, and risk management is not formally integrated into the Safety Management System (SMS). The company is currently addressing this requirement.

There is a need to review the process now in place that enables individual crew members and terminal personnel to report any safety issues or concerns to the Designated Person. The company should ascertain whether the process is properly designed for optimal use by employees.

On-time performance is, appropriately, one of the company's goals and a key performance indicator being measured. At the same time, it is important that BC Ferries communicate to staff that, in making decisions around on-time performance, they must never compromise SMS requirements. This includes ensuring that there is adequate time for proper watch handovers and exercise of vessel clearance protocols across the fleet.

Several of the routes taken by BC Ferries' vessels lie within narrow or otherwise restricted waters. However, the route through Active Pass (where typically two Spirit-class vessels are transiting at the same time) is particularly strategic. We recommend that BC Ferries, as part of a formalized risk management process, undertake an assessment of the degree of risk associated with the current practice of BC Ferries' vessels passing simultaneously in Active Pass.

It is important that all safety incidents be reported on a timely basis so that they can be investigated and corrective action taken, and so that lessons learned can be distributed throughout the company. BC Ferries is taking steps to strengthen its investigation process, and

we recommend that the company provide accident/incident investigation training to key personnel to improve the effectiveness of these activities.

Operational safety deficiencies noted by internal and external audit and inspection processes are recorded in the Corporate Incident Management System (CIM), which keeps track of follow-up actions taken. There is also an Operations Safety Log that summarizes all of the items in CIM requiring follow-up and closure. The log is reviewed by senior management and monitored by the Designated Person on an ongoing basis. A summary of the log is also presented to the Safety, Health, Environment and Security Committee of the Board of Directors for review.

Staffing Vessels and Terminals with Qualified Employees

BC Ferries staffs terminals and vessels with qualified personnel who meet the regulatory requirements of the Canada Shipping Act. While the crew scheduling process appears, in general, to be functioning as designed, the input of personnel information and program controls needs to be improved to ensure that staff are not assigned to positions for which they are not qualified.

Both the number of staff trained and the number of training days they receive have increased year over year. However, there remains an unfilled training and orientation need for some staff, particularly staff hired to meet seasonal operating requirements.

Two areas where we believe BC Ferries could provide increased training are bridge resource management and crowd management and control.

BC Ferries already recognizes the need for bridge resource management training. The training the company provides to deck officers has increased substantially and further increases planned. BC Ferries should continue to accelerate the rate of bridge resource management training and provide refresher training to ensure the operating principles are instilled and practiced by deck officers in the operation of vessels. We believe such training should include fleet-wide bridge resource management risk identification or assessment. As well, there is a need to establish criteria for crew selection and assignment to promote greater cohesion and synergy among bridge crews for each watch and shift period.

BC Ferries should put greater emphasis on crowd management and control training and ensure that such training is provided fleet-wide. The company has a plan to provide initial training to all deck and catering staff over the next few years, but we feel that execution of the plan should be accelerated and refresher training also provided.

Also important is ensuring that staff are made familiar with each new work site and are given appropriate exposure to the intricacies of that site. Operating staff receive familiarization, but the quality of it varies significantly across the organization. BC Ferries would benefit from reviewing the familiarization process and ensuring that it is carried out uniformly across the organization, and that documented information provided in the familiarization process is standardized to the extent practicable.

Monitoring and Auditing of Safety Policies and Practices

BC Ferries uses a number of internal and external processes to monitor the extent to which company safety policies and procedures are carried out.

Internal processes include regular audits carried out by BC Ferries' Internal Safety Management System (SMS) Verification Audit Group, inspections by Superintendents of operations and Terminal Directors and Managers in their regions, and a general overview by the Executive Director, Safety, Security and the Environment. In general, we found that these processes are all being carried out as required, but some areas require both the internal safety audit function and the inspections by superintendents, and terminal directors and managers to be strengthened.

Transport Canada carries out annual inspections and certifications of vessels when they are in operation and at their annual refit. The focus of the inspections is the safety of vessels and the certification and qualifications of ships' crews. Each of BC Ferries' vessels currently in operation have a Safety Inspection Certificate. As at the end of November 2006, Transport Canada had 18 Safety Inspection documents citing deficiencies that required action by BC Ferries. None of these, however, compromises the safe operation of any vessel or was overdue for remediation.

The Lloyd's Register audits are carried out to ensure that BC Ferries remains in compliance with all provisions of the ISM Code. After successful completion of the audits, a Document of Compliance is issued for shore management processes and a Safety Management Certificate is issued for each vessel. BC Ferries currently has a Document of Compliance and Safety Management Certificate for each vessel. As at the end of November 2006, there were eight non-conformities that required action, one of which was overdue for remediation.

BC Ferries is required to undertake a comprehensive program of emergency fire and boat drills. According to Ships' Officers we interviewed, fire and boat drills are carried out as required. The vast majority of staff we interviewed also reported that employees were proficient in the performance of the drills. The one area of concern expressed by those we interviewed is the proficiency of some casual and seasonal employees who may miss regularly scheduled drills. There is a need to ensure that all operational personnel who have not participated in recent fire and boat drills be included on a regular basis. As well, the company would benefit from instituting a process of monitoring and evaluating fire and boat drills system-wide to ensure uniformity and standardization of crew skills and proficiency throughout the fleet.

Having the Right Emergency Equipment

Having appropriate emergency equipment, properly maintained, is essential in ensuring that the equipment function as required in an emergency. We were told by staff that BC Ferries' emergency equipment meets the requirements of both the Canada Shipping Act and the company. The consensus was that BC Ferries always buys the best equipment, with continuous improvement in mind. Emergency equipment is purchased when needed and is funded properly. Inspections of equipment are carried out by BC Ferries' Internal SMS Verification Audit Group, Transport Canada and the company's external safety auditor.

The vast majority of staff we interviewed also described the quality of maintenance of emergency equipment at terminals and on vessels to be "good" to "excellent."

Reporting on Performance

The Safety, Health, Environment and Security Committee of the Board of Directors provides governance oversight concerning the safety, health, environmental and security operations of BC Ferries. The Board is provided with regular reports on committee proceedings, and important safety issues are discussed in detail by the Board.

Safety and BC Ferries: A Review of Operational Safety

BC Ferries and the BC Ferry Authority issue a combined annual report that includes information about achievements related to each of the operational goals set out in BC Ferries' one-year business plan. However, the company should ensure that the annual report includes specific information on the extent to which it has achieved its operational safety objectives.

1 Background

1.1 The Company and Its Structure

BC Ferries was incorporated in April 2003 under the provincial Company Act. Ownership of the single-issued voting share is held by the B.C. Ferry Authority (BCFA), a non-share capital corporation established under the provincial Coastal Ferry Act (British Columbia). The provincial government of British Columbia is the holder of all of the preferred shares of BC Ferries, but has no voting interest in either the BCFA or BC Ferries.

BC Ferries has three wholly owned subsidiaries: Deas Pacific Marine Inc.; Pacific Marine Leasing Inc.; and BCF Captive Insurance Company Ltd. Deas Pacific Marine conducts a portion of BC Ferries' maintenance and refit operations.

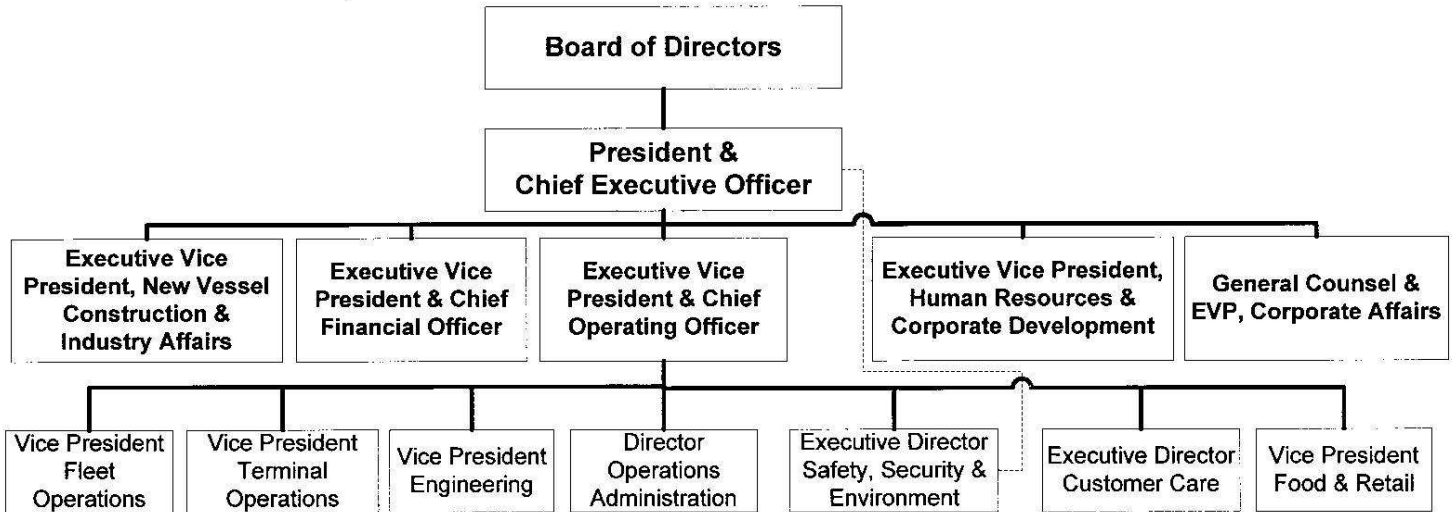
The appointment process and the composition of the Board of Directors of the BCFA is set out in the Coastal Ferry Act. The Board consists of nine members. The Board of Directors of BC Ferries, appointed by the BCFA, currently has 12 Board members.

The Office of the British Columbia Ferries Commissioner, established under the provisions of the Coastal Ferry Act, regulates price caps for designated ferry route groups, any service reductions, discontinuance of routes, and certain other matters.

Organization Chart

The organizational structure of BC Ferries senior management, shown in Exhibit 1, has been in place since April 2006. The organization of the Operational Safety area is discussed in more detail in section 3 of this report, "Commitment to Operational Safety." The President and CEO, reporting to the Board of Directors, is ultimately responsible for the effective functioning of the organization. Reporting to the CEO is the Chief Operating Officer, who oversees the four areas of BC Ferries' operations: Fleet Operations; Engineering; Terminal Operations; and Food and Retail Operations. All of these areas are responsible for the proper implementation and functioning of the Safety Management System.

Exhibit 1: Organization Chart of BC Ferries Senior Management



1.2 Operational Overview

BC Ferries operates a large and complex ferry transportation system under a long-term services contract with the Province of British Columbia. The system provides year-round vehicle and passenger transportation and related services to communities along the coastal waters of British Columbia. The company operates 36 vessels and 47 terminals on 25 routes, and manages nine other remote routes through contracts with independent operators. During the 2005/06 fiscal year, BC Ferries carried more than 21.7 million passengers and 8.5 million vehicles on more than 186,000 sailings. The service area stretches along the coast of British Columbia from Prince Rupert in the north to Victoria in the south, with routes classified in three categories:

- major routes – connecting Vancouver Island to the Lower Mainland of British Columbia through five major terminals: Tsawwassen, Swartz Bay, Horseshoe Bay, Duke Point and Departure Bay;
- northern routes – providing service to the Province's mid and north coast and the Queen Charlotte Islands; and
- other routes – consisting primarily of routes that connect the Gulf Islands and several other small communities to either Vancouver Island or the Lower Mainland.

BC Ferries' operations are divided into five regions: Southern Islands; Northern Islands; North Coast; Central Coast; and South Coast. Exhibit 2 illustrates the routes covered in those regions.

During the fiscal year ended March 31, 2006, BC Ferries had revenues of \$579 million, expenses of \$529 million, leaving a net income of \$50 million. It also had total assets of \$834 million, liabilities of \$659 million, and shareholders' equity of \$175 million.

BC Ferries has recently embarked on a major capital improvement program. Over the next decade, significant capital expenditures are expected to approximate \$1.2 billion relating to new vessel acquisition, vessel upgrades and component replacement, and terminals and other projects.

BC Ferries has entered into two key contracts with the government of British Columbia relating to its provision of ferry services:

- a Coastal Ferry Services Contract, which has a 60-year term that began April 1, 2003. It sets out the core ferry transportation services that BC Ferries must provide, and the service fees payable by the Province for such services. The fees are fixed over the first performance term of the contract, which ends March 31, 2008.
- a Master Agreement, under which BC Ferries has leased ferry terminal properties for a 60-year term that began in April 2003. Under this agreement, BC Ferries has been granted exclusive rights and obligations to use and develop those properties.

Vessels

BC Ferries' fleet consists of 36 vessels, with an average age of 34 years. These vessels differ significantly in size, characteristics and class (Exhibit 3). Vessel capacity ranges from 137 to 2,100 passengers and crew and from 16 to 470 automobile-equivalent units. Two of the vessels have recently been purchased and will be undergoing refit to make them available for operation in 2007. In addition, five new vessels are being built and will be going into service between 2007 and 2009.

BC Ferries has implemented an asset management strategy to monitor and analyze the lifecycle and related costs of its assets, including vessels and terminals, on an ongoing basis. All vessels are to be maintained to the standards regulated by Transport Canada, classification societies and other regulatory agencies.

Terminals

BC Ferries operates five major and 38 minor terminals under 60-year leases that began in April 2003, as well as four other minor terminals under different lease arrangements. The major terminals are: Tsawwassen; Swartz Bay; Horseshoe Bay; Duke Point; and Departure Bay.

As noted above, BC Ferries expects that significant capital expenditures will be required over the next decade to develop and upgrade ferry terminals.

Human Resources

BC Ferries has approximately 2,900 full-time employees. This is supplemented by up to 1,500 casual and seasonal staff who are hired to deal with the increased work load during the summer and at other times of the year when the demand for service increases.

Exhibit 2: BC Ferries' Routes



Exhibit 3:

BC FERRIES' FLEET

MAJOR VESSELS

Average Vessel Age 30.6 years

PASSENGERS • 450-2,052

CREW • 21-48

AUTOMOBILE EQUIVALENTS • 286-470



Spirit of British Columbia • 1993



Spirit of Vancouver Island • 1994



Queen of Alberni • 1976



Queen of Coquitlam • 1976



Queen of Cowichan • 1976



Queen of Esquimalt • 1963



Queen of New Westminster • 1964



Queen of Oak Bay • 1981



Queen of Saanich • 1963



Queen of Surrey • 1981



Queen of Vancouver • 1962

INTERMEDIATE AND SMALL VESSELS

Average Vessel Age 34.8 years

PASSENGERS • 133-977

CREW • 4-35

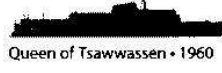
AUTOMOBILE EQUIVALENTS • 16-192



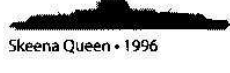
Queen of Burnaby • 1965



Queen of Nanaimo • 1964



Queen of Tsawwassen • 1960



Skeena Queen • 1996



Queen of Cumberland • 1992



Queen of Capilano • 1991



Mayne Queen • 1965



Bowen Queen • 1965



Powell River Queen • 1965



Kuper *



Quinsam • 1982



Quintsa • 1977



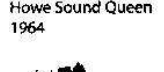
Klitsa • 1972



Kahloke • 1973



Kwuna • 1975



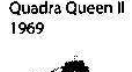
Howe Sound Queen
1964



Tachek • 1969



North Island Princess
1958



Quadra Queen II
1969



Tenaka • 1964



Nimpkish • 1973



Mill Bay • 1956

NORTHERN VESSELS

Average Vessel Age 34.0 years

PASSENGERS • 374-504

CREW • 26-40

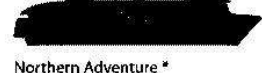
AUTOMOBILE EQUIVALENTS • 80-115



Queen of Prince Rupert • 1966



Queen of Chilliwack • 1978



Northern Adventure *

* Northern Adventure and Kuper entering service early 2007

2 Operational Safety Objectives

For BC Ferries to continue successfully achieving operational safety for its customers and employees it is essential that the company's vision, mission and values reflect its commitment to safety – and that safety-related performance objectives and targets be incorporated into the company's strategic and business plans. The extent to which these performance objectives and targets are pursued and achieved must then be monitored and reported, both to the BC Ferries Board of Directors and publicly.

2.1 Vision, Mission and Values

BC Ferries' corporate plans all make reference to the company's vision, mission and core values. While there is no specific reference to operational safety in the vision statement, the mission statement refers to providing "safe, reliable and efficient marine transportation [ferry] services." As well, the corporate core value first mentioned is "Safety: ensure that the safety and security of our customers and staff is a primary concern in all aspects of doing business."

2.2 Objectives, Initiatives, Goals and Targets

Strategic and Business Plans

The Board of Directors has approved three strategic and business plans: a 2003–2025 Strategic Plan, a 2006–09 (three-year) Business Plan, and a 2006–07 (one-year) Business Plan. The 2006–09 Business Plan has not been made public but is very similar in form to the one-year plan – although, unlike the former, it includes no performance measures or targets. The one-year business plan is a public document prepared to meet reporting requirements of the Coastal Ferries Act.

In the "Introduction and Purpose" section of each of the business plans, the statement is made that "As always, the safety and security of our customers and employees remain priority one."

The 2003–2025 Strategic Plan includes six strategic objectives, the first of which is to "ensure a safe, secure and environmentally responsible marine transportation system." Underpinning this objective are seven initiatives and five performance goals. Each performance goal has specified targets for the years 2003, 2008 and 2025, respectively. Two of the performance goals are directly related to operational safety:

- vessel and terminal incidents requiring investigations:
 - 2003: 35 incidents
 - 2008: 10% improvement
 - 2025: maintain or improve the 2008 level
- number of passenger injury claims per million passengers:
 - 2003: 2.4 claims per million
 - 2008: 5% per annum improvement
 - 2025: no passenger injury claims

The three- and one-year business plans make reference to the strategic plan's six strategic objectives. However, the business plans structure corporate strategies around four areas or goals deemed critical for success:

- productivity – to achieve a competitive advantage by operating efficiently and effectively;
- asset management – to have the right people with the right skills in the right jobs, and to operate world-class vessels and terminals;

- customer service – to achieve high customer satisfaction and loyalty; and
- financial management – to achieve corporate financial targets and to ensure having resources available to revitalize the fleet and facilities.

The long-term strategic objective to ensure a safe marine transportation system is not a separate goal within the business plans. Instead, it is integrated into two of the four goals set out in the plans: asset management and customer service.

The asset management goal includes a broad strategy and several “tactics” pertaining to the meeting or exceeding of safety and security regulations. Those tactics include:

- reviewing vessel and terminal evacuation plans and updating them where necessary (for this tactic, the three-year plan reads “complete vessel and terminal evacuation plans”);
- implementing lifesaving appliances and structural fire protection upgrades to vessels;
- continuing to enhance the corporation’s world-class safety programs; and
- implementing a comprehensive fleet-wide security plan.

Under this goal in the one-year business plan for 2006–07, the only direct reference to safety in the measures and targets that pertain to employees and infrastructure is the employee safety index.

The tactics established in connection with the customer service goal, other than a reference to new signage and improved public announcement systems at terminals, do not relate directly to safety. Under this goal, strategies and tactics in the one-year business plan do not make reference to safety. Nevertheless, there is a 2006–07 measure and related target described as a “customer safety index.”

In the corporate business plans, we found no reference to the performance goal included in the strategic plan regarding vessel and terminal incidents requiring investigations.

2.3 Operational Safety Incident Reviews

For internal management purposes, the Executive Director, Safety, Security, Health and Environment, prepares a monthly Operational Safety Incident Review. This document provides current information and statistics on safety incidents and the achievement of corporate safety goals.

Four safety goals are set out in the monthly review to reduce the number of:

- significant or major incidents requiring investigation;
- passenger safety injuries;
- employee time loss injuries; and
- engineering incidents that result in service disruptions.

The first three of these goals pertain to the goals included in either the strategic plan or the two business plans.

The safety and security of customers and employees is considered by BC Ferries as priority one. We believe the company should have in its business plans a strategic objective/goal that pertains directly to that priority, with identified tactics, measures and targets relating to the achievement of that goal. The inclusion of a few safety-related objectives within the four broad business plan goals does not appear to adequately address the stated strategic plan objective

relating to safety. Where safety is mentioned in the business plans, there is little link between the declared strategy and tactics and any stated measures and targets.

As well, the 2003–2025 Strategic Plan, while having a primary safety-related objective, presents a very narrow set of performance goals and targets, and none of them are closely aligned with those included in the corporate business plans.

Recommendations

BC Ferries should:

- ***ensure that each of the corporate strategic and business plans includes a strategic objective/goal that pertains directly to the safety and security of customers and employees, and that applicable tactics, measures and targets are developed in regard to the achievement of that objective/goal; and***
- ***reinforce that operational safety is the company's number one priority, and that at no time should any other company objective take a higher level of priority.***

3 Commitment to Operational Safety

Having full commitment to operational safety across the organization is an important element to achieving operational safety. That commitment has to start at the top of the organization. Management has to ensure that staff understand and buy into that commitment, and has to incorporate it in the activities and culture of the organization.

It is important to point out the difference between a commitment to operational safety and a commitment to the Safety Management System (SMS). Staff can be completely committed to operational safety without being completely committed to the SMS. However, the greater the commitment to the SMS is, the higher the level of assurance will be that critical safety-related issues are observed, reported and corrected in a timely manner.

As noted in Section 2, “Operational Safety Objectives”, BC Ferries makes reference to the importance of safety in its mission statement and corporate core values and in its strategic and business plans. In addition, its safety and environmental policy states that “safety of life, prevention of injury to passengers and employees, and protection of the environment shall always be given the highest priority in the operation of BC Ferries vessels and terminals.”

3.1 The Safety Management System (SMS)

Clearly, safety is being declared as the number one priority for the company. To achieve its safety objectives, BC Ferries voluntarily adopted the International Maritime Organization’s International Safety Management (ISM) Code in 1994. The Code provides an international standard for the safe management and operation of ships and terminals, and for pollution prevention.

The ISM Code requires development and implementation of a safety management system that addresses all of a company’s activities ashore and onboard its ships. The Code places responsibility for the safety of ships and the prevention of pollution within and throughout the company’s management structure. This makes the whole organization responsible for safety, not just a ship’s master or shore-based manager.

In meeting the requirements of the ISM Code, BC Ferries implemented a Safety Management System (SMS) in 1997.

In this section, we comment on BC Ferries’ general commitment to operational safety and commitment to the SMS.

The objectives of the company’s SMS are to:

- provide for safe practices in ship and terminal operations;
- provide a safe working environment;
- establish safeguards against all identified risks; and
- continuously improve safety management skills of employees, including preparing for emergencies related to safety and environmental protection.

The SMS takes into account the various codes, guidelines and standards of Transport Canada, federal and provincial environment ministries, the Workers’ Compensation Board of British Columbia, classification societies and other industry organizations. The system also defines the responsibilities and authority of all employees and the interrelationships and lines of communications between and among the different BC Ferries departments.

For the SMS to be in compliance with the ISM Code, the organization in question must:

- produce a written policy on safety and environmental protection and ensure all employees are aware of it;
- clearly define the responsibilities of all staff both ashore and aboard a vessel and ensure they are aware of their responsibilities;
- appoint a Designated Person ashore with the responsibility for monitoring safe operation of the vessels;
- set out a master's responsibility and authority;
- employ qualified people and provide them with instructions on how to carry out their duties and relevant training;
- develop appropriate plans for shipboard operations;
- prepare for all potential emergency situations;
- ensure that there is proper reporting and analysis of non-conformities, accidents and hazardous occurrences;
- ensure that there is proper maintenance of ship and equipment;
- control and manage all SMS documentation;
- conduct periodic audits of the system; and
- require external audits to be carried out to ensure that the SMS meets the requirements of the ISM Code.

Exhibit 4 provides an overview of BC Ferries' operations safety process.

In general, we have found that there is a high level of commitment to operational safety both by the Board of Directors and senior management. We also found that the majority of staff on the vessels and at terminals understand the message about safety and its importance, either completely or to a large degree. Some staff, however, understand the message to only some degree. Although BC Ferries is in full compliance with the ISM Code, not all operating staff believe that commitment to operational safety is practiced uniformly throughout the organization or that the level of buy-in to the SMS is as high as it should be. There are a number of reasons for this.

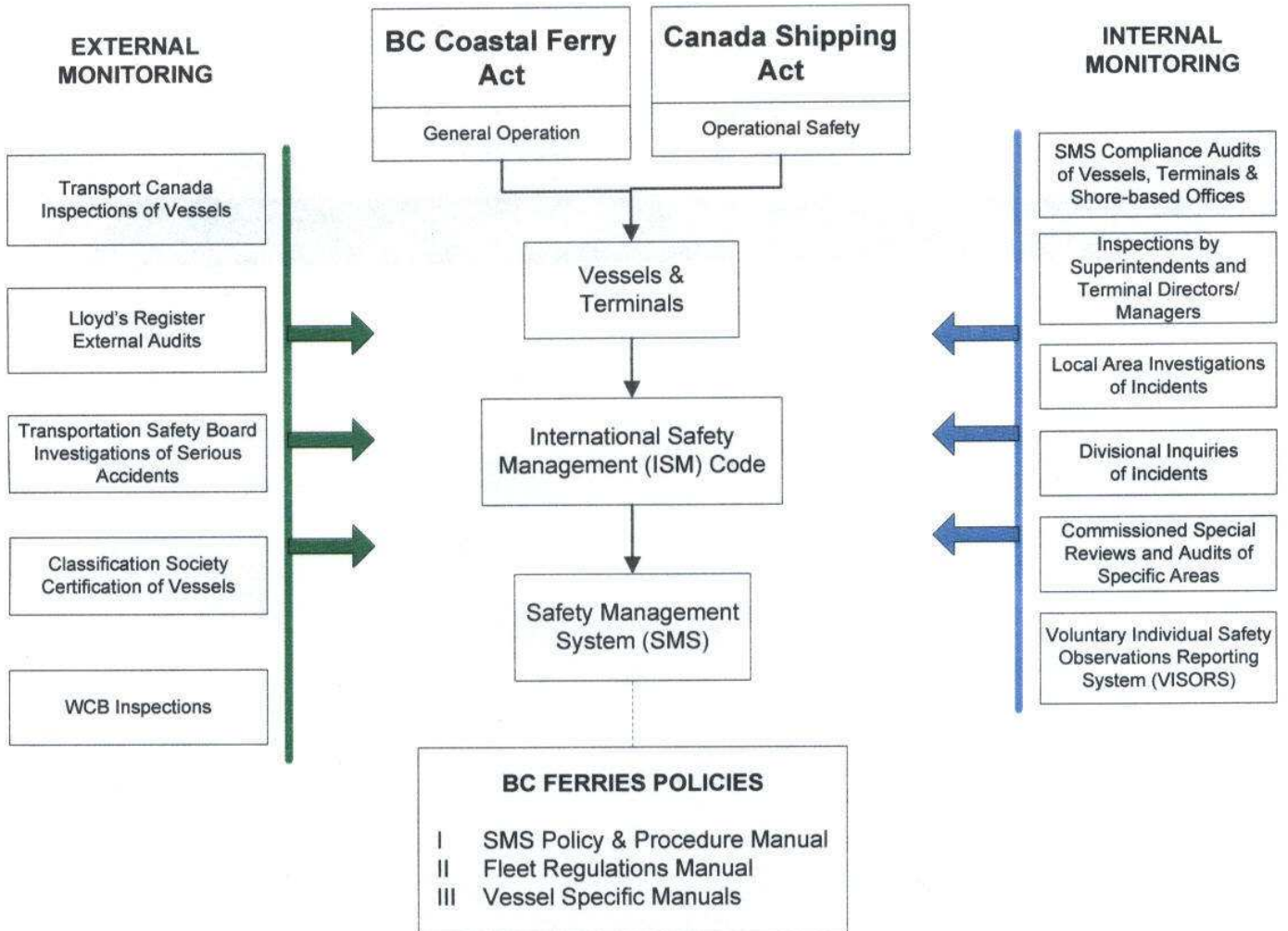
The SMS was implemented in 1997. At that time, it was a significant step by the company in dealing with the deficiencies noted by an external audit. Following implementation, training and orientation have provided to staff to familiarize them with the system. Nevertheless, though it has been nine years since the SMS was implemented, we found that there is not yet a high level of buy-in to the system by all levels in the organization.

When asked about the level of acceptance of the SMS, approximately half of management interviewees indicated that they and their operating staff have accepted the system completely or to a large degree. The other half of the management group indicated that they and their operating staff have accepted the system only to some degree or not at all. The level of acceptance was somewhat higher for ship and terminal staff.

Among the reasons given for there not being a higher level of acceptance in the organization were:

- not all senior operating staff seem to support the SMS;
- understanding of the SMS is not uniform in the field;
- not all masters have embraced the SMS and are therefore not effectively promoting it;
- training being provided about the SMS is insufficient; and
- ongoing review and discussion of the SMS are insufficient.

Exhibit 4: The Operations Safety Process



Clearly, there is a need by BC Ferries to focus more on ensuring that there is better buy-in to the SMS process throughout the organization. Without such commitment, the benefits of providing a consistent high level of safety remain challenging.

The first step is to achieve universal buy-in from the vessel masters and other senior operating staff. BC Ferries staff have to see and believe that management stands behind the SMS and is willing to commit the time and resources to ensuring that the system is operating efficiently and effectively across the organization.

An example of what a lack of buy-in by a master can lead to is illustrated in an investigation into the grounding of the *Monarch of the Seas* in the Netherlands Antilles in 1998. The incident caused no loss of life, but major vessel damage and minor pollution occurred. The Norwegian Maritime Investigator and the U.S. Coast Guard, in their joint report on the grounding (issued in April 2003), noted:

“The investigation revealed the primary reason for the master and crew’s decision not to adhere to SMS procedures centered on the master’s disregard for and lack of ‘buy-in’ to the formalized requirements of the ISM Code SMS. He voiced his displeasure for the sort of company oversight, bureaucracy and micromanagement that the SMS procedures represented. Without the master’s expressed support of the ISM procedures the crew unsurprisingly failed to embrace the newly established SMS and disregarded the established procedures, guidelines and job aids made easily accessible to them on the vessel’s bridge. This violation significantly contributed to the casualty because the intended benefits of the ISM Code SMS went unrealized and the defences established by the guidelines to prevent this sort of casualty, voyage passage planning, port entry and exit procedure checklists and vessel position fixing and navigation requirements, were not employed by the master and crew.”

We believe there has not been a consistent effort in BC Ferries to promote the SMS since its inception in 1997 when there was a strong initial push for acceptance by employees. BC Ferries has not taken the necessary steps to ensure buy-in to the SMS as being fundamental to operational safety.

3.2 Organizational Culture

Successful operation of the SMS is impacted significantly by the culture of the organization. Organizational culture is defined as the set of shared values, beliefs, norms and practices that guide an organization and are subscribed to by its members. While vision, goals and values are important to management, the issue is the degree to which they are accepted by people in the organization and play a role in the workplace. A strong organizational culture is one in which there is a vision that everyone understands. Everyone is working together because they understand what the goals are and how the organization is achieving them.

In the assessment of how well an organization functions, it is important to determine whether the organization is: supportive versus punitive; empowering versus controlling; open versus closed; and receptive versus impervious. If the culture of an organization is punitive, controlling, closed and impervious, gaining commitment to, and acceptance of, organization goals such as safety will be much more difficult.

In our assessment of the organizational culture of BC Ferries, we found that the vast majority of the employees felt the company was supportive (empowering, open and receptive) or neutral.

However, there were also a number who indicated it was punitive (controlling, closed and impervious).

We believe the present organizational culture is an issue that BC Ferries should consider in the context of the successful operation of its safety programs.

3.3 Consistency of Application of the SMS in the Organization

As noted previously, BC Ferries provides ferry services to a vast number of people and organizations throughout its five regions, on many vessels and at terminals. To ensure that these services are carried out at a consistently high level throughout the organization, BC Ferries must ensure that the SMS works uniformly in all regions. Customers are entitled to expect the same level of operational safety on all of the organization's vessels and at all terminals.

Taking into consideration the unique operational characteristics of BC Ferries' routes and vessels, we believe there are still many areas in the application of the SMS that could be improved by such fleet-wide actions such as:

- standardizing routine and critical operating procedures so that, no matter what ship one is on, procedures are undertaken the same way;
- using the same type of check lists and forms;
- ensuring more consistent execution of drills and other processes;
- using the same clearance procedures fleet wide;
- adopting good practices developed at one location and applying them across the organization; and
- adopting a standardized uniform program for shipboard and terminal employees to make them easily recognizable by passengers.

3.4 Management–Union Cooperation

To be successful in promoting the SMS and in achieving a high level of its acceptance throughout the company, it is important that BC Ferries and the British Columbia Ferry and Marine Workers' Union show a willingness to work together. During the course of our work, we observed considerable tension in the relationship between the company and the union that is, in our view, dysfunctional. It poses a significant impediment to resolving operational safety issues and continuously improving the SMS.

Recommendations

BC Ferries should:

- **carry out a comprehensive review of the Safety Management System (SMS) to determine which areas are functioning effectively and which areas need improvement;**
- **improve existing training and orientation processes to ensure they are sufficient to increase knowledge and awareness of the SMS across the organization, especially among vessel Officers and Terminal Directors and Managers to ensure they have "bought into" the SMS;**
- **direct the Internal SMS Verification Audit staff to monitor the level of buy-in to the SMS;**
- **consider adopting a standardized uniform program for shipboard and terminal employees to make them easily recognizable by passengers; and**

- ***work cooperatively with the British Columbia Ferry and Marine Workers' Union to continuously improve the SMS and operational safety.***

3.5 Policies and Procedures

BC Ferries has developed three levels of manuals to address the ISM Code requirements.

Level 1 is the SMS manual that describes the system and sets out the organizational structure, responsibilities, procedures and resources needed to provide compliance with mandatory requirements and good practices regarding:

- the performance of operations under normal and abnormal conditions;
- the maintenance of the condition of the ship and equipment; and
- the maintenance of the capability to handle emergencies.

Level 2 manuals provide policies and procedures (including relevant details) for conducting shore-based and shipboard operations to comply with the Level 1 policy manual (e.g., Fleet Regulations manual and Fleet Maintenance Standards manual).

Level 3 manuals focus on such topics as requirements for specific vessels, fleet routing and ramp operations.

We have found that the manuals provide good direction on operational safety and cover all significant areas, set out clearly the levels of authority for making decisions, and allow for staff to make appropriate decisions when required. All the manuals are widely distributed in terminals and on vessels and provide good direction for staff to be able to carry out their responsibilities.

As to whether the manuals contain the right level of information, about half of the staff we interviewed said the manuals were about right, about one-third felt that the manuals were too detailed and the rest felt the manuals were too general. Other comments we heard were that there are too many manuals; that it is difficult to be familiar with all of them; that they should be reviewed to ensure they are consistent with each other; and that some should be eliminated or shortened. As well, some interviewees felt that changes made to the manuals are not always communicated on a timely basis.

To ensure that SMS-related policy and procedure manuals are up-to-date, they are reviewed semi-annually and approved by a cross-departmental review team. The purpose of the review is to determine the adequacy of procedures for achieving intended objectives, and to identify and eliminate any conflicts or contradictions with other existing or planned documentation. As well, to ensure that there is continuing regulatory compliance, the manuals are checked to ensure that: there is no duplication or conflicts and contradictions between policies and procedures; policies and procedures are current and up-to-date for intended use; and procedures address all affected departments. Necessary changes are made after each semi-annual review and communicated across the organization. Should there be an immediate need to revise any policies and procedures, temporary directives may be issued until the next review is carried out.

The manuals are also reviewed by the BC Ferries Internal SMS Verification Audit Group and by its external auditors when the annual SMS audits are carried out.

We learned during our review that the human resources data base and the crewing operational area were modernized as electronic systems. They require current policies and procedures that clearly set out their roles and responsibilities relating to the effective functioning of the SMS.

Both areas have significant responsibilities in: ensuring that regulatory requirements are complied with in all training and certifications; assigning qualified staff to vessels and terminals; and providing information to masters so that they are satisfied staff who are assigned to the vessels meet regulatory and other requirements for safe operation.

Recommendations

BC Ferries should:

- **review all of its manuals to determine whether they can be consolidated to avoid duplication and to make them more user-friendly; and**
- **ensure that both the human resources data base and the crewing operational area have up-to-date policies and procedures that clearly set out their roles and responsibilities relating to the effective functioning of the Safety Management System.**

3.6 Organization of the Safety Function

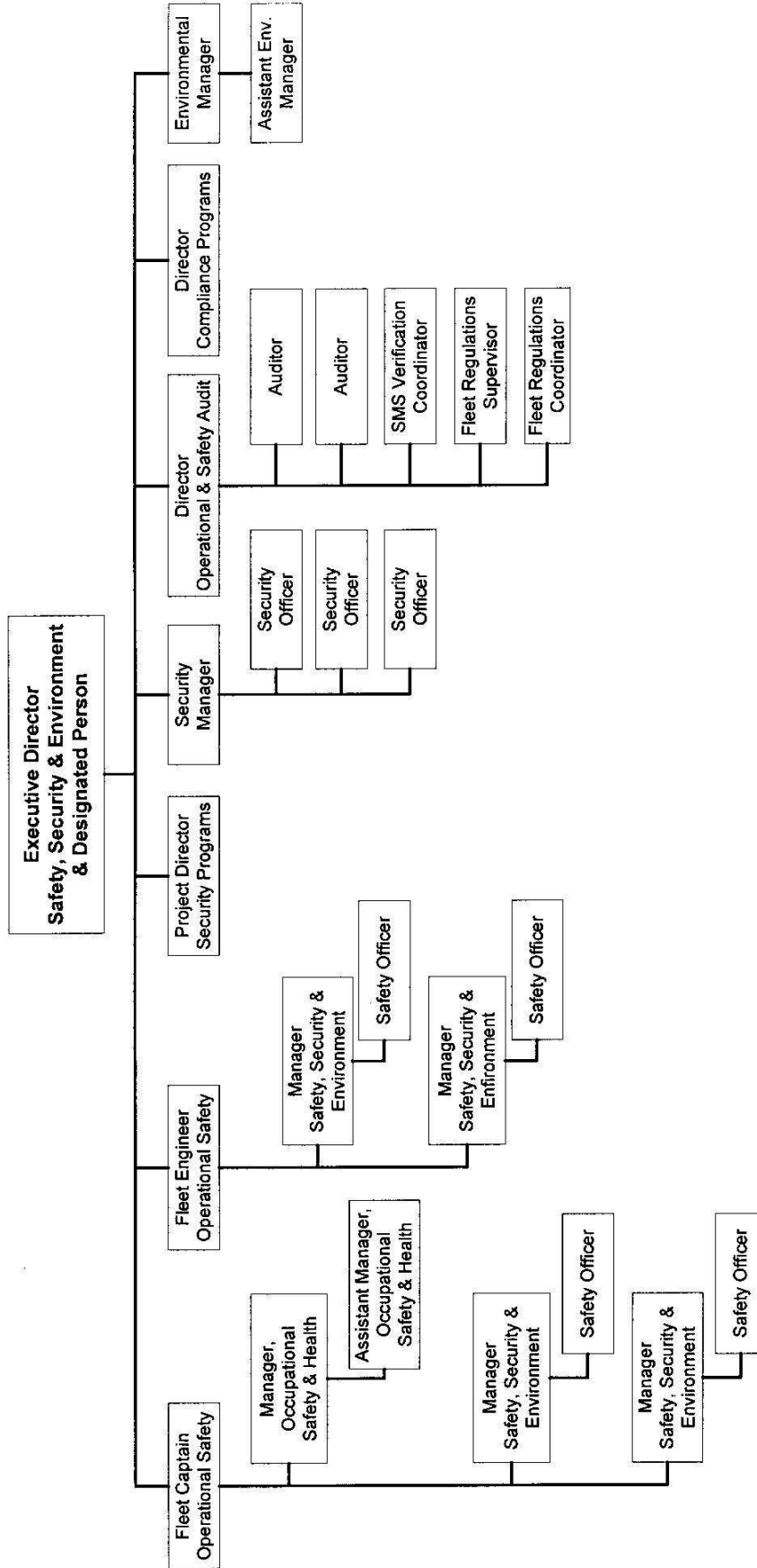
To ensure that operational safety is properly integrated into BC Ferries operations, the company's organizational structure must clearly assign to particular staff the responsibilities for sound implementation and monitoring of the SMS.

As noted previously, BC Ferries changed its organizational structure in April 2006. Exhibit 5 shows the current organization of the safety function. Under the new organization, a new position has been created - Executive Director, Safety, Security, Health and Environment (SSH&E). This position is responsible for:

- providing more focus on safety;
- consolidating all safety and security-related areas;
- overseeing all audits, inspections and certifications; and
- monitoring other areas for the effective functioning of the SMS.

Directly reporting to the Executive Director are: Fleet Captain, Operational Safety; Fleet Engineer, Operational Safety; Security Manager, Director; Operational & Safety Audit, and the Environment Manager. Four new manager positions have also been created to enhance the safety monitoring process. As well, a new position is in the process of being created to be responsible for overseeing local area investigations and divisional inquiries. We believe that the current organization clearly indicates a stronger company commitment to operational safety and should improve the SMS oversight process.

Exhibit 5: Organization Chart of BC Ferries' Safety, Security & Environment Department



3.7 Designated Person

According to the ISM requirements, a company must appoint a “Designated Person” – someone who is located ashore – to be responsible for the safe operation of the vessels. This person is the link between ship crew and shore management and must have both direct access to senior management and have sufficient resources and authority to carry out his or her responsibilities.

The Executive Director, SSH&E, was recently appointed as BC Ferries’ Designated Person. His job to:

- serve as a link between the shore management and the vessels in matters concerning safety and pollution prevention;
- oversee the monitoring of the safety and pollution prevention aspects of ship operations; and
- ensure that adequate resources and shore based-support are provided.

Specifically, the responsibilities and authority of the Designated Person are to:

- monitor various activities and operations throughout the fleet and ask questions of employees at all levels of the company in order to obtain objective evidence of the safety of the operation.
- monitor the safety and pollution prevention aspect of all operations;
- review the findings of internal investigations into accidents and incidents and make recommendations for corrective and preventive actions;
- report to senior management and the Board on all findings and trends;
- monitor safety concerns raised through the Voluntary Individual Safety Observation Reporting System (VISORS) and provide feedback; and
- advise senior management and the Board of potentially serious hazards, errors and omissions affecting the safe operation of vessels and terminals.

In addition, the Designated Person is to review the summary of audit findings and bring any concerns or persistent trends to the attention of the Executive Vice-President and Chief Operating Officer, Divisional Vice-Presidents and appropriate management personnel for action.

Where corrective action is not being implemented, the Designated Person is to investigate to determine the reason. Persons responsible for ensuring appropriate corrective action is taken are to notify the Designated Person when the corrective action has been completed. Where the lack of corrective action is persistent, the Designated Person is to notify the appropriate vice-president in BC Ferries.

As well, the Designated Person, in monitoring all VISORS reports must advise the CEO of any concerns not satisfactorily addressed. The CEO is responsible for directing the appropriate vice-president to address the issue.

We believe that BC Ferries is complying with the requirements of the ISM Code by recognizing the importance of the position of the Designated Person and assigning appropriate duties to it. Although the Executive Director, SS&E, reports administratively to the Chief Operating Officer, he has a direct line of communication to the President and Chief Executive Officer. The Executive Director also reports to the Board of Directors and attends the quarterly meetings of the Board’s Safety, Health, Environment and Security Committee.

3.8 Internal SMS Verification Audit Group

An important element of the ISM Code is an internal audit group whose main purpose is to verify the compliance of operational safety activities against the documented requirements of the SMS.

BC Ferries has established an Internal SMS Verification Audit Group to ensure that:

- the company remains in compliance with the ISM Code;
- non-compliances are identified; and
- non-compliances are corrected in a timely manner.

The group is headed up by the Director, Operational and Safety Audit, and is supported by one full-time auditor, a contract auditor, an audit coordinator, a Fleet Regulations supervisor, a Fleet Regulations coordinator, and other contract staff as needed. One of the group's duties is to audit all sites of the company that have a responsibility for operating and/or interfacing with vessels. The audits are normally conducted annually, but the interval between audits may be extended for a further six months. Audits must be conducted within the 12-month period preceding an external audit.

Where the auditors find non-conformity with the SMS, they issue a Corrective Action Request (CAR) form to the person responsible for the corrective action, along with an audit report that includes observations. A timeframe for taking the required action is set, and implementation of the corrected action is reviewed by the auditor at the next audit.

3.9 External ISM Audits

To ensure that BC Ferries remains in compliance with all provisions of the ISM Code, external audits are conducted by an organization (such as Lloyd's Register) authorized to issue a Document of Compliance. A Document of Compliance is issued to the company when it complies with the requirements of the ISM Code. A Safety Management Certificate is also issued to each vessel when its SMS meets the requirement of the ISM Code. This certificate attests that the vessel is being operated in compliance with the requirements of the ISM Code.

The Document of Compliance is issued every five years, with verification audits of it conducted annually. The Safety Management Certificate is issued every five years, and verification audits of it carried out twice during the five-year period.

When the auditors find areas where there is non-conformity with the ISM Code and SMS, they issue Non-Conformity Notes and Observations, and set a time limit for corrective action. The Non-Conformity Notes are then followed up by BC Ferries' Internal SMS Verification Audit Group and the external ISM audit group to ensure that appropriate action has been taken.

3.10 Transport Canada Inspections

Transport Canada also plays a significant role in regulating and monitoring BC Ferries operations. It conducts annual and periodic inspections of the company's vessels and observes emergency drills carried out. Where the inspections identify deficiencies, a safety inspection document is issued. These deficiencies are then followed up by BC Ferries' management to ensure that appropriate action has been taken.

Later in our report, we comment on the results of the above monitoring processes and the extent to which the requirements of SMS are carried out on the vessels and at terminals.

3.11 Customer Satisfaction Tracking

BC Ferries is also interested in obtaining information from its customers about operational safety. It has carried out Customer Satisfaction Tracking studies in 2003, 2004 and 2005. The studies are designed to track performance on satisfaction levels overall, as well as satisfaction levels with specific service attributes. The resulting satisfaction scores are published annually on the BC Ferries website. The survey also collects information about the overall safety of operations.

The 2005 survey concluded that “perceptions of the safety of the ferry operations continue to be quite strong on all routes, with no significant changes over the year.” A score of 4.2 out of 5 was received on both safety of operations and loading/unloading.

4 Identification and Management of Operational Safety Risks

BC Ferries is in the business of providing safe coastal ferry transportation services to its customers. In the course of its operations, it is exposed to many operational safety risks which it has to manage. A single event can inflict significant loss or negative media coverage upon the business that could have a major impact on how customers and other stakeholders view the organization. Managing those risks should therefore be an integral part of BC Ferries' business – not just a duty to satisfy laws and regulations.

The objective of risk management is to increase the value of the business by reducing vulnerability and negative surprises. Risk management is all about understanding risks and using them as opportunities in relation to meeting the organization's business objectives.

Company-wide risk management clarifies and ties the strategic goals to the operational goals, thereby strengthening an organization's ability to manage and control. Risk management covers all major objectives and comprises all types of risk. However, for the risk management process to become an efficient instrument for managing risks in the organization, the right risk management culture must be present throughout the organization. That is, managers and employees must think and act based on an understanding of risk and a desire to achieve, maintain and develop the risk profile of the organization in accordance with defined objectives. Risk management culture is built gradually by involving managers and employees at all levels of the organization. Such a culture is critical for the successful risk management.

It is also important for an organization to establish a risk management policy that states the rules, and provides guidance for the implementation and execution of risk management; and that specifies the scope and mandate of the risk management process. As well, it is important to have a sound risk management structure that clearly assigns the roles, responsibilities, authorities, rights and duties, and defines arenas and forums for treatment of identified risks.

There are a number of basic principles of effective risk management that should be followed. One is that risk factors must be handled at the lowest possible level of the organization to ensure an effective risk management process. Another one is that risk ownership must be placed with the area that benefits the most from treatment of the risk. And finally, risk management must be integrated with existing management systems to ensure goals are effectively achieved.

As we described earlier, BC Ferries' Safety Management System was structured on the International Safety Management Code about 10 years ago. The ISM Code was developed under the auspices of the International Maritime Organization and adopted in 1994. Since that time, the ISM Code has remained essentially the same, meaning that more recent developments around risk management are not addressed in the Code. Meanwhile, the application of risk management in the maritime industry has matured significantly and some agencies have adopted a much clearer application of risk management than is found in the ISM Code.

BC Ferries' SMS meets the requirements of the ISM Code, as certified by Lloyd's Register, its external safety auditor. However, we observed during our review that BC Ferries' SMS, as it applies to operational safety is not generally based on a risk management approach. While we observed various initiatives that incorporated some aspects of risk management, these initiatives are either in their formative stages or are being developed at a local level.

4.1 Risk Objectives, Identification and Analysis

BC Ferries has recognized the importance of managing risk in the organization. About three years ago, it created the position of Director, Risk and Insurance, to review risk within the organization and to deal with insurance-related issues. The Board of Directors has also taken an active interest in risk management and held a planning retreat to discuss what actions should be taken in that area. Following the meeting, it established a Risk Management Committee, chaired by the Chief Financial Officer and tasked it with reviewing risk management in BC Ferries. The Committee has started by applying the Enterprise-Wide Risk management model to identify major risks at the corporate level. A Corporate Risk Register has been prepared showing all major risks the organization is facing, and will be discussed at a future Board meeting.

Staff who we interviewed throughout the organization confirmed that no formal risk identification and assessment process is in place fleet-wide, and that risk management is not formally integrated into the SMS system or processes.

We noted, however, that in some areas fleet staff have taken the initiative to incorporate risk management in their operational safety processes. For instance, we noted that the Senior Master on one vessel has developed a series of shipboard procedures and standards that incorporate risk assessment and risk management processes.

For terminals, we noted that 20-year master plans are being developed for each terminal. Operational safety considerations, such as for ramp operations, traffic flow and other key issues are being identified and addressed, but a formalized risk assessment process is not generally used in the process. Despite this, positive results in terms of risk management are being achieved. For example, risks related to vehicle traffic are being reduced through the rearrangement of traffic patterns at the Swartz Bay Terminal.

Although no formal processes have been used to identify and deal with operational safety risks, many detailed procedures for dealing with risks exist in the SMS and related manuals for both shipboard and terminal operations (including maintenance). However, a risk-based approach was not used in the initial development of the content of these manuals, nor is it being used in the manual review process. With a risk-based approach, higher-risk issues would generally receive more attention, and have more strict requirements, standards, procedures and checklists, while lower-risk issues would generally have less detailed procedures, practices or guidelines.

Ships also have vessel-specific procedures, although these vary in degree of detail, from ship to ship. We saw no standards at BC Ferries that define critical operations and no systems requiring the development of ship-specific procedures, practices or checklists that are risk-based. We observed individual efforts on some vessels; however, we noted variations of these efforts even on sister ships. BC Ferries would benefit from having a formal process that identifies and distributes “best practices” from vessel to vessel.

Recommendations

BC Ferries should:

- ***continue to review its corporate-wide Corporate Risk Register and ensure that all significant risks have been identified;***
- ***prioritize individual risks as to the likelihood of each risk occurring, and develop strategies for mitigating the risks;***

- ***ensure that risk management is integrated into the Safety Management System at all levels of the operations;***
- ***develop the appropriate policies, structure, approach and support tools for managing risk; and***
- ***use information from within BC Ferries and the marine industry to ensure that best safety practices are incorporated into BC Ferries' operations.***

4.2 Voluntary Individual Safety Observation Reporting System

Another vehicle BC Ferries has established to detect areas of risk and concerns with operational safety issues is the Voluntary Individual Safety Observation Reporting System (VISORS). This process allows for individual crew members and terminal personnel to report directly on any safety issues or concerns. The issue is first raised at the local level by an employee bringing it to the attention of the local supervisors. If no action results, a VISORS report can be prepared, outlining the issues and providing background information. The report is then sent to the appropriate superintendent or manager who is required to take corrective action. If no corrective action can be taken, the Designated Person is notified. He or she is required to investigate and report to the CEO. The CEO then authorizes corrective action.

We found that staff generally feel that the VISORS is a useful vehicle for reporting safety concerns, although it is rarely used. Very few VISORS find their way to the Designated Person: 10 were submitted in 2006.

The reasons we were given for this limited use were:

- most safety issues are dealt with at the local level;
- VISORS is not widely known in the organization (several people we talked to had not heard of it);
- a VISORS submission reflects poorly on shipboard management and there is pressure against personnel using this process; and
- staff has to sign their names to the form, which many of them are reluctant to do.

We believe that VISORS is, in principle, a useful tool, in that it enables staff to take operational safety concerns not dealt with at the local level to the attention of management and eventually the Designated Person. However, the current process is not effective and should be rethought.

Recommendations

BC Ferries should:

- ***review the purpose of the Voluntary Individual Safety Observation Reporting System and determine whether the purpose for which the system was established can be met by other processes; and, if it cannot, then its current design should be reviewed with the intention of making it more useful; and***
- ***communicate the revised process throughout the organization and encourage its use.***

4.3 Specific Risks Inherent in BC Ferries' Operational Safety

On-time Performance

One of the areas that BC Ferries has placed more focus on is measuring how well it provides timely and efficient service to its customers. "On-time performance" has become one of its goals and one of the key performance indicators it measures. This indicator, like others, is used in measuring the performance of senior operating staff. Bonus payments are made based on the results of these indicators. The bonus plan involves the President and CEO and down to the Senior Master, Master and Terminal Directors and Managers. Information is collected for all vessels regarding their on-time performance and regular reports are prepared and distributed to illustrate how well the various vessels are meeting their on-time performance goals.

In our review, we set out to examine how staff views on-time performance measurement. We asked interviewees whether on-time performance has had a significant impact on operational safety.

We found that the majority of vessel staff did not think that the focus on on-time performance could impact operational safety in a negative way, but a significant number of staff (including ships officers) did. The latter cited masters putting too much focus on being on time and pushing so much that at times not all of the required processes were carried out. Instances were cited of masters not going through what staff considered to be the proper procedures and of pressure being put on ramp personnel to move faster.

We believe that it is prudent for BC Ferries, a provider of transportation services, to measure how effectively it is providing timely, efficient and reliable service to its customers. It is also good management to measure staff performance based on key performance indicators. Nevertheless, this has to happen while still observing the organization's mission, goals and values. At BC Ferries this also means ensuring that safety remains the number one priority at all times and that all the requirements laid down in the SMS are complied with. In other words, there should never be a conflict between on-time performance and operational safety.

BC Ferries also has to provide information and reports to the British Columbia Ferries Commissioner and the Ministry of Transportation to show to what extent the requirements of the contract with the Province are adhered to. This includes reporting quarterly on its on-time performance for each route, and on the number of overloaded sailings. As well, BC Ferries must submit its annual Customer Satisfaction Tracking Survey to the Commissioner.

BC Ferries has gone through significant changes during the last few years – changes that staff are still adjusting to. Because of the fact that performance in this area is linked to a bonus plan, some staff believe that on-time performance can impact safety. We believe that staff need to be reassured that the on-time performance objective has only a minor impact on the incentive-based compensation package.

Recommendation

BC Ferries should continue to communicate to operating staff that, in making decisions around on-time performance, operational safety will never be compromised.

Vessels Transiting Active Pass

BC Ferries' vessels travel through many areas where safety risks increase because of the challenges presented by the specific locations. One such situation that we observed is the maneuvering and timing required when two large vessels are passing in opposite directions through Active Pass. Current schedules typically place the two Spirit-class vessels in the Pass at the same time. Contributing to the risk of one large vessel operating in a narrow passage such as Active Pass is the situation where two vessels are making the transit at a combined closing speed of 30 to 35 knots, with two 90+ degree turns, and little room to maneuver if either ship has a major problem. The risk, in our view, arises from potential loss of steering control, loss of propulsion, electrical blackout, or human error. In addition, there is a potential risk of these vessels colliding with other commercial or pleasure marine traffic in the Pass.

A collision in Active Pass could have catastrophic results – on the travelling public, on the company, and on the economy of Vancouver Island.

We have had discussions with company officials about this situation. We were informed that BC Ferries recognizes that this passage presents the company with one of its highest risks. The company has, in its view, significantly mitigated these risks with: constant communication among BC Ferries' vessels transiting the Pass; the installation of Automatic Identification System electronic charts to determine relative positions of other vessels; redundancy in steering pumps to offset a catastrophic steering failure; the posting of anchor watch; and a stepped-up bridge watch team. We were also told that alternatives in routing and scheduling have been considered in the past. All of those options were deemed to present significant challenges to operational efficiencies and the quality of service provided to the travelling public.

Recommendation

BC Ferries should, as part of a formalized risk management process, undertake an assessment of the degree of risk associated with the current practice of allowing BC Ferries' vessels to transit Active Pass simultaneously.

Shift Handover

“Shift handover” is the process by which one operational group passes responsibility for an organizational function to another.

Handover procedures are described in Section 7 of Fleet Regulations under the heading “pre-departure tests and checks.” In that section, the company stipulates that:

“when the incoming watch assumes responsibility for an operating vessel, the previous watch shall hand over the vessel as ‘fit for service’ using a hand-over log, or a checklist as appropriate to the vessel, in conjunction with a verbal hand-over.”

From what we observed, the handover process from watch to watch with BC Ferries is extremely limited on most of the routes examined. In most cases, there is only a 5- to 10-minute window between watch changes in the middle of the operational day. Rapid handover procedures at watch change reduce the opportunity to transmit important and relevant operational and safety information to watch replacement personnel. Ideally, there should be complete sharing between watches, including verbal communication and written handover notes or crew change logs. We noted this occurring to a degree on some vessels. Tight scheduling and the desire to minimize overtime limit the amount of face-to-face interaction among deck

officers, supervisors, and crews at crew changes. These factors, in our view, limit the effectiveness of the handover process by reducing time available for discussions about operational and safety issues.

Recommendation

BC Ferries should review handover procedures and take appropriate action to ensure that consistent and proper watch handover occurs across the fleet.

Complacency

Complacency means self-satisfaction in a situation where a person is unaware of actual dangers or deficiencies. Complacency often occurs in environments where staff, in carrying out many routine tasks, fail to pay sufficient attention to what they are doing, thereby increasing the risk of a safety-related accident.

During our review, we discussed the work routines of crews on vessels and at terminals. Based on these discussions, we believe that the repetitious nature of some tasks at terminals and on vessels may contribute to complacency in the workplace.

BC Ferries has recognized complacency as being one of the major risks in its Enterprise-wide Risk Management model. The company has also included the matter for discussion by its Board of Directors.

Vessel Clearance Procedures

BC Ferries has described standardized clearance procedures in Fleet Regulations to “ensure the highest possible degree of safety for passengers, crew and vessel.” The requirements for proper clearance procedures are also contained in the ISM Code. Fleet Regulations stipulate the minimum bridge team requirements by vessel types and class, and set down the responsibilities of each crew member in the ship departure and clearance process.

We observed vessel clearance procedures between vessel and terminal operations to be very structured at major terminals. In some cases, checklists are used. However, we found that the practices applied in smaller terminals are not always as structured and, in some cases, are even informal. At unstaffed terminals, the process is left strictly in the hands of the Chief Officer.

We examined corrective action requests from the Internal SMS Verification Audit Group to determine if they had observed any deviations from policy during their audits. Since April 2005, when observations were formalized, there have been three instances in which clearance/departure procedures were not followed. In one case, deviation from policy resulted in all crew receiving a review of departure procedures to ensure they were aware of the clearance protocol.

We believe this greater focus on vessel clearance procedures by Internal SMS Verification Audit Group is a positive step to ensure proper protocol is followed in this critical area.

As we noted in section 3.3 above, “Consistency of Application of the SMS in the Organization”, there is a need for standardizing routine and critical operating procedures so that, no matter what ship one is on, procedures are undertaken the same way;

4.4 Incident Reporting and Investigation

BC Ferries' policy requires that employees report any cases they have observed where there is non-conformity with requirements of the SMS, as well as any accidents and hazardous occurrences. Accidents and hazardous occurrences include: damage to a vessel; death, injury or serious illness of a passenger or crew member; an event such as a fire, explosion or grounding; and oil spills or pollution.

The Fleet Regulations state clearly how and to whom these occurrences must be reported. All reported occurrences must then be reviewed by the applicable Master or site supervisor ashore and investigated as appropriate. Where necessary, corrective action must be taken to prevent a similar incident recurring.

We found that the process of reporting occurrences is in place throughout the organization. Incidents reported are evaluated by the Designated Person based on the level of severity of the event. Severity is rated as follows:

- Level 0 – A non-safety-related incidents or a near-miss incident that had the potential for a minor injury or damage. Superintendent is to review the report and initiate corrective action or a site investigation.
- Level 1 – A minor safety-related incident. Superintendent is to review the report and initiate corrective action or a site investigation.
- Level 2 – A significant safety-related incident or a near-miss incident that had the potential for major injury or damage. Superintendent is to review the report and initiate corrective action or a site investigation. Possibly results in a Local Area Investigation, as deemed necessary by the Designated Person.
- Level 3 – A major incident resulting in the death of a passenger or employee or in major damage to property or an asset. Possibly results in a Local Area Investigation or Divisional Inquiry, as deemed necessary by the Designated Person.

It is important that all incidents be reported on a timely basis so that they can be investigated, corrective action can be taken, and lessons learned can be distributed throughout the organization. We were informed that some near-misses and other incidents that could have resulted in an accident are not being reported to management and input into the system. The main reason given was the fear of discipline if the employee was directly involved in, or was the cause of, such an incident. Nevertheless, staff did tell us they believe that once incidents are reported, all severe ones are investigated.

The Investigation Process

The process for carrying out Level 2 and 3 investigations is clearly set out in Fleet Regulations. There is clear direction on who should be involved in the investigation, how it should be carried out, and how the results should be reported. All of these are requirements of the SMS. However, we heard concerns about the length of time it takes to complete the investigations and to produce the report. As well, we noted that limited accident investigation training has been provided to shipboard or terminal management. Such training is necessary to enable them to conduct initial investigations and provide effective information into the accident reporting process.

New procedures to track and close out Local Area Investigations and Divisional Inquiries in a timely manner have already been established.

In addition, BC Ferries has recognized the need for strengthening its investigation process. It is currently in the process of establishing a new position responsible for leading and directing Local Area Investigations and Divisional Inquiries. The person in the position would also be required to:

- ensure that accurate and consistent investigations and reporting of all incidents carried out on all vessels and at terminals;
- identify organizational incident trends;
- develop corrective actions to prevent reoccurrences; and
- track and report on external investigations conducted by regulatory bodies.

We believe that creation of the position will substantially strengthen the investigations process, ensure that lessons learned are analyzed and distributed across the organization, and ensure that the results of internal and external investigations are properly dealt with.

Recommendation

BC Ferries should provide key shipboard, regional operating superintendents, terminal and head office personnel with accident and incident investigation training to improve the effectiveness of these activities.

Statistical Information About Safety Incidents

Safety incidents are those reported at include severity Levels 1 to 3 (as described above). The number of safety incidents reported in all regions has declined over the last three fiscal years: 2004 – 605; 2005 – 576; and 2006 – 406.

Local Area Investigations are carried out for severity Level 2 and 3 incidents. The number of these investigations has also been on a downtrend over the last three years: 2004 – 30; 2005 – 21; and 2006 – 13 (to November 15, 2006).

Divisional Inquiries

Divisional Inquiries are carried out on major incidents – those resulting in the death of a passenger or employee or in major damage to property or an asset. Such incidents include groundings, ramp failures, vehicle incidents, deviations from track, and engine room fires. Table 1 shows the 15 Divisional Inquiries carried out from 2000 to 2006 and types of incidents.

All of the inquiries have been completed and reported, except the one into the sinking of the *Queen of the North*, which is believed to have resulted in two fatalities. That investigation was in progress at the time of our review.

Table 1: Divisional Inquiries, 2000–2006

Year	Type of Incident
2000	<ul style="list-style-type: none"> • Truck gasoline spill • Collision with pleasure craft
2001	None
2002	<ul style="list-style-type: none"> • Sewage incident • Grounding • Hard Landing
2003	<ul style="list-style-type: none"> • Engine room fire
2004	<ul style="list-style-type: none"> • Collision • Passenger injury • Vehicle accident • Vessel veered from track • Deviation from track
2005	<ul style="list-style-type: none"> • Engineering incident/injuries • Ramp incident • Grounding
2006	<ul style="list-style-type: none"> • Grounding and sinking

Investigations by the Transportation Safety Board

The mandate of the Transportation Safety Board is to advance transportation safety in the marine, pipeline, rail and air modes of transportation by:

- conducting independent investigations, including public inquiries when necessary, into selected transportation occurrences in order to determine their causes and contributing factors;
- identifying safety deficiencies, as evidenced by transportation occurrences;
- making recommendations designed to eliminate or reduce any such safety deficiencies; and
- reporting publicly on their investigations.

As part of its ongoing investigations, the Transportation Safety Board also reviews developments in transportation safety and identifies safety risks that it believes government and the transportation industry should address to reduce injury and loss.

Table 2 lists the eight incidents related to BC Ferries operations that the Transportation Safety Board has investigated since 1995. All of the investigations have been completed and reported except the last two – the grounding of the *Queen of Oak Bay* and the grounding and sinking of the *Queen of the North*. The Transportation Safety Board's reports of these incidents are expected to be issued early next year.

Table 2: Investigations carried out by the Transportation Safety Board of incidents that involved BC Ferries' operations, 1995–2006

Date of incident	Description of incident
November 7, 1995	Striking of the marina in Snug Cove by the <i>Mayne Queen</i> , Bowen Island
September 21, 1995	Accident aboard the <i>Queen of Cowichan</i> , Howe Sound
August 12, 1996	Grounding of the <i>Mayne Queen</i> off Piers Island
September 14, 2000	Collision between the <i>Spirit of Vancouver Island</i> and the pleasure craft <i>Star Ruby</i>
August 13, 2002	Malfunction of the Automatic Steering Control System for right angle drives, <i>Bowen Queen</i> , Gabriola Island
May 13, 2003	Engine room fire on the <i>Queen of Surrey</i> , Queen Charlotte Channel
June 30, 2005	Grounding of the <i>Queen of Oak Bay</i> at Sewell's Marina, Horseshoe Bay
March 22, 2006	Grounding and sinking of the <i>Queen of the North</i> , Gil Island

4.5 Dealing with Issues Arising from Audits and Inspections

The Operations Safety Log

Operational safety deficiencies that have been noted by internal and external audit and inspection processes are recorded in the Corporate Incident Management System (CIM). The system allows centralized management of corporate incidents, investigations, audits and claims. It also keeps track of the follow-up actions by the local areas responsible for addressing the issues raised, as well as of the related actions taken by head office. Items are added to the system as they are reported, and deleted if they have been satisfactorily addressed. The system also allows sharing of information, avoids duplication, provides for more timely reporting and closure processes, and provides historical information on incidents as required.

CIM keeps track of:

- Corrective Action Requests (CARs) resulting from the Internal SMS Verification Group audits;
- non-conformity notices resulting from the external SMS audit;
- observations from internal and external audits;
- safety inspection documents citing deficiencies from Transport Canada inspections;
- recommendations or remedial actions resulting from investigations;
- Transportation Safety Board recommendations;
- Voluntary Individual Safety Observation Reporting items;
- Health Canada Notices; and
- Workers' Compensation Board orders.

In March 2006, BC Ferries started an Operations Safety Log to summarize all of the items in CIM that require follow-up and closure. A monthly report is prepared and is distributed to BC Ferries management for their review and follow-up. All items remain on the log until dealt with. Each is then closed out by the creator of the item or the Designated Person. The log is reviewed by senior management and is monitored by the Designated Person on an ongoing basis.

At every quarterly meeting of the Safety, Health, Environment and Security Committee (Safety Committee, for short) of the Board of Directors, a summary of the Operations Safety Log is distributed and the status of the individual areas is reviewed.

Table 3 provides current and historical information about number of items and their status.

Table 3: ISM non-conformities, including CARs and Observations issued during the fiscal years 1998–2007

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007*
Total non-conformities	678	882	1009	938	975	1,187	1,131	1,226	679	484

* To November 20, 2006

Table 3 shows the total number of non-conformities has gone down substantially in the last two years. However, since there was no uniform system to collect the above information before 2004, we are not sure that the historical figures are comparable.

Our analysis of the above information showed that the CARs noted by BC Ferries' Internal SMS Verification Audit Group, more than half were overdue. Only one of nine items noted by the external auditor was overdue. Clearly, more focus needs to be placed on ensuring that fewer of the items become overdue and on clearing those that are.

We also noted that no severity rating is attached to the items at this time, although the individual items can vary substantially in terms of risk and the urgency for taking action. Attaching such ratings would help both senior management and the Safety Committee, know what safety risk is being posed by items not having been addressed. We believe that it would be useful to apply a severity rating to the items in the Operations Safety Log, similar to that applied to incidents: a rating of 0 to 3, with 0 being the least and 3 the most severe.

To get a sense of the make-up of the most current CARs items that required closure as at November 16, 2006, we asked the Internal SMS Verification Group to rate all of the 177 items on the list using the above rating. Their results showed that 70% of the CARs fell into the less severe categories (0 and 1) and 30% in the more severe categories (2 and 3).

We believe that the Operations Safety Log offers a good way for keeping track of all of the areas where non-conformities with the SMS have been identified and for ensuring that all of the issues are dealt with on a timely basis. We noted that considerable attention is being paid to reviewing the individual items and to ensuring that action is taken.

Recommendations

BC Ferries should:

- ***continue with its efforts to ensure that all of the items in the Operations Safety Log are addressed in a timely manner; and***
- ***apply severity levels to the items in the Operations Safety Log, to focus attention of senior management and the Safety, Health, Environment and Security Committee on the serious safety-related issues that must be dealt with.***

5 Staffing Vessels and Terminals with Qualified Employees

Any operational system such as marine transportation must ensure that it can operate safely and in compliance with relevant regulations, codes and standards and with any internal company requirements. In this regard, operational safety depends to a great extent on the marine transportation system having staff who are qualified – not only with tickets or certificates, but with competencies such as skill, knowledge and experience, and training for the exacting requirements of the system.

5.1 Statutory Requirements for Qualification

Personnel at BC Ferries must hold and maintain certificates of competency issued by Transport Canada. These statutory requirements and qualifications for vessel crews are laid out in the Canada Shipping Act and in regulations such as the Ships' Crews Food and Catering Regulations, the Crewing Regulations and the Marine Certification Regulations.

BC Ferries also refers in its SMS Manual to excerpts from various sections of the International Maritime Organization's International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (1995). These specifically apply to standards and guidance regarding marine and engineering watch-keeping qualification requirements. Similarly, the ISM Code, to which BC Ferries voluntarily subscribes, requires the company to ensure that all vessel masters are:

- properly qualified for command;
- fully conversant with the company's safety management system; and
- given the necessary support so that his or her duties can be safely performed.

It is also the responsibility of BC Ferries to ensure that each ship is manned with qualified, certificated and medically fit seafarers in accordance with national and international requirements that BC Ferries has voluntarily accepted.

Changes to the Canada Shipping Act

A number of changes to the Canada Shipping Act and regulations are expected to be introduced in early spring 2007. The proposed changes will have a significant impact on the qualifications and training required of BC Ferries shipboard personnel.

5.2 Type of Staff Needed for Vessels and Terminals

BC Ferries' Fleet Regulations require that the personnel assigned to vessels and terminals must only be those who have the required level of training, hold appropriate nationally recognized certificates, and are considered by BC Ferries to be competent to carry out their designated duties. Competency also is specific to a person's position and to the vessel or terminal to which he or she is assigned. A challenge for BC Ferries is that it operates a wide range of vessels with very different equipment, machinery, systems and operating characteristics. A master, competent on one class of vessel, for example, may require a significant amount of exposure to a different vessel before being fully qualified to operate it effectively. Thus, there is a requirement for competency as well as appropriate certification. Similarly, BC Ferries manages and operates a wide range of terminals with unique characteristics, such as varying traffic

patterns and flows, and different ramp designs and operations. These also require specific competencies.

For BC Ferries to operate its vessels and terminals in accordance with regulatory and company requirements, it requires qualified and certified deck and engine officers and deck crew. Catering staff must be qualified with Marine Emergency Duties certificates and food service qualifications. And terminal staff must have qualifications established through tenure, internal courses and qualifying exams. This applies to equipment (ramp) operators, cashiers and, at major terminals, tower controllers and terminal supervisors. In an emergency, there is greater probability that qualified personnel will respond quickly and effectively.

We found in our reviews that BC Ferries staffs both its terminals and vessels with qualified personnel who meet the regulatory requirements of the Canada Shipping Act.

5.3 Crewing in Operational Safety

Transport Canada determines the minimum number of crew for each vessel in the BC Ferries fleet according to the number passengers the vessel carries at any time. BC Ferries Fleet Regulations state that crewing levels must be established for all operational, non-operational and stand-by vessels.

As the number of passengers increases, crew size is adjusted upwards. This is referred to as “licensing.” For example, a vessel such as the *Spirit of Vancouver Island* would carry vehicles and passengers by licence type as shown in the following table:

	Number of passengers	Deck	Engineering	Catering
Licence A	2,052	12	5	31
Licence B	1,542	12	5	21
Licence C	0	Total crew of 15		

Thus, for a Spirit-class vessel, a total of 48 crew are required under a Licence A when the passenger count is 2,052 or less. A total of 38 crew are required for a Licence B when the passenger count is 1,542 or less.

BC Ferries operates five geographically distributed crewing offices for staffing vessels and terminals, with each crewing office responsible for a number of ships in its respective region. Each crewing manager has responsibilities that are ship- and terminal-specific, including the scheduling of employees, familiarization and orientation of new employees.

The crewing office ensures that each position on a vessel and terminal is staffed with the proper number of qualified and certified staff by day, watch and licence. Each vessel operates with two, three or four sets of crews (or “watches”). The company staffs these ships with personnel from three employee classifications:

- regular crews (scheduled, including staffing pool personnel);
- casual crews (on call 12 months of the year); and
- seasonal crews (on call from April 15 to September 15).

The crewing office at regional centres is responsible for scheduling terminal and vessel staff. The office’s function is to ensure that appropriate requirements such as clearances, certificates

and medical fitness are in place before personnel are assigned for duty. For vessels, a crew list is generated consistent with the licence that the vessel is operating under for the time period. If sufficient staff are not available for that licence, a sailing is either cancelled or a vessel is obliged to move to a lower licence (e.g., from A to B) – resulting in fewer cars and passengers carried on that run.

Regular crews have a watchkeeping schedule that is prepared at the beginning of the year. Vacancies created by employees who are not available for assignment to vessels and terminals because of vacation, sickness or other reasons are filled by employees from the staffing pool, casuals and seasonal.

- Staffing pool employees are permanent, but are not assigned to a particular vessel and are moved to vessels where needed. They are guaranteed 242 days of work per year.
- Casual employees have no guaranteed work schedule and are called when needed.
- Seasonal employees are hired during the peak traffic period from April 15 to September 15. These individuals perform functions such as catering and cleaning and allow the company to control and adjust work force levels according to crewing requirements and traffic demands. They also are on call.

BC Ferries has recently automated its scheduling process. Its scheduling program, Smart Staff, includes the qualification requirements for each vessel and each position on that vessel. The function of the program is to match only qualified staff with each position on a vessel for a watch. Identification of competencies required for a job are entered into a program that can track and flag non-compliance that is ship- and route/fleet-specific.

The source of crewing information is supplied by the Human Resources Management System database. It keeps personal information about current certification and training and flags staff whose certificates are about to expire or those who require upgrades to certification, training or clearance. The system tracks and monitors areas of importance and provides reports to management. Its role is mainly compliance. For example, it identifies specific position requirements such as the need for up-to-date medical certificates or for familiarization on a new vessel.

The crewing function is reviewed by BC Ferries' Internal SMS Verification Audit Group as well as by Lloyds' Register, its external SMS auditor.

Moving from a manual system to an automated process has significantly improved the scheduling process. For the system to work effectively, however, it is important that the information used is accurate and current and that the controls in the programs work as required and highlight any non-compliance cases. On the basis of BC Ferries' audits and the work we did in our review, we concluded that the program is functioning as designed. There were, however, a number of concerns brought to our attention.

- The Human Resources Management System database may not always be current, accurate and complete in terms of personnel information. We were informed that at times it can take months until the records are entered into the system because the information is not supplied by the supervisors and the employees to Human Resources on a timely basis. This may result in an employee being assigned for duty even though his or her certificate of competency has not been renewed. As well, people who are trained and certified for higher level positions but not entered into the database may or may not be available for specific assignments.

- Some controls in the system are not functioning as designed. The Internal SMS Verification Audit Group recently discovered in an audit that certain components of the scheduling program that show conflicts have been removed and, as a result, exceptions are not highlighted. A prime example is a lapsed certificate. A flag in the system is supposed to show when a certificate is about to expire, but the flag disappears as soon as the expiry date has passed. Another example noted was that qualifications may not be entered into the system. These may result in untrained employees being assigned incorrectly to vessels and terminals.
- Crewing personnel indicated that one of their biggest challenges is to ensure that qualified seasonal staff are available during peak summer periods. It was suggested to us that a significant number of seasonal employees do not return from the previous year. The result is a need to increase staff significantly on vessels during peak periods, with some vacancies being filled by seasonal personnel without all the required training. We note that BC Ferries has attempted to address some of these concerns by taking the interim step of decreasing the casual pool size to provide more work per individual by means of regular scheduling (see Section 5.6, "The Role of Human Resources in the Recruitment, Certification and Training of Staff").

Recommendations

BC Ferries should:

- ***ensure that certification, training and other information is provided by supervisors and employees and is entered into the Human Resources Management System database on a timely basis; and***
- ***review the Smart Staff scheduling program to ensure that the controls are functioning as designed so that staff are not assigned to positions for which they are not qualified.***

5.4 Training in Operational Safety

Those responsible for training in BC Ferries have a significant task in ensuring that BC Ferries' 4,400 employees meet their mandatory, regulatory and optional training requirements. The task is made more challenging in that the nature of the business is seasonal, and drawing employees from operations for training during the peak summer traffic periods is difficult. During non-peak periods when more employees are available, training opportunities for particular courses may be restricted by the limited number of classes and seats available.

Training within BC Ferries is guided by a number of requirements. These include the Canada Shipping Act, the ISM Code and BC Ferries Fleet Regulations. The ISM Code, for example, stipulates a number of training requirements relative to a company's SMS.

- The company should establish procedures to ensure that new personnel and personnel transferred to new assignments related to safety and protection of the environment are given proper familiarization with their duties. Instructions that must be provided before sailing should be identified, documented and given.
- The company should ensure that all personnel involved in its safety management system have adequate understanding of relevant rules, regulations, codes and guidelines.
- The company should establish and maintain procedures for identifying any training that may be required in support of the SMS and ensure that such training is provided for all personnel concerned.

Training requirements and needs originate from a number of sources. They can be required, for example, by external sources such as Lloyd's Register and the Canada Shipping Act, or from operational areas within BC Ferries. Generally, regulatory training is 'flagged' by the system and input into the training function, as is non-regulatory training required by cashiers and catering staff. Similarly, chief officers on vessels and terminal supervisors have a responsibility to identify the needs of personnel within their respective areas, as do marine and engineering superintendents.

The training function for BC Ferries was restructured 18 months ago to four principal locations: Swartz Bay; Nanaimo; Little River; and Tsawwassen. Training staff believe that the new training process has improved the delivery of training throughout the organization and is better than the previous decentralized process. Those we interviewed in the training department were very committed and energetic in their roles. The training groups keep in close contact with each other through weekly conference calls and biweekly meetings to exchange information and discuss training plans and other related issues.

BC Ferries offers three levels of training:

- Level I – mandatory training leading to certification (e.g., Medical Emergency Duty training); this is given highest priority
- Level II – regulatory training, which is desirable but not mandatory (e.g., Workers' Compensation Board)
- Level III – optional training to enhance and broaden management and supervisory skills

In this new approach to administration of training programs, about half of the training is delivered in-house. This includes training that is ship- and/or task-specific (e.g., ISM training given to supervisory positions, such as superintendents, and Operational Safety and Audit Division personnel). We were told that generic-type training is tailored to suit operational requirements with course content appropriate for each operational need.

External training involves specialists in a specific field and is tailored to BC Ferries' requirements. Mandated training such as bridge resource management is done at recognized institutions (e.g., the British Columbia Institute of Technology's Marine Campus). Training personnel initiate and encourage Request for Proposals from potential outside instructors with specialized subject matter expertise.

Initial new-hire mandatory training is carried out ashore, with a portion of this being self-study. For those assuming positions on vessels, safety-oriented training is administered on the vessel to which a new hire is assigned. Position-specific orientation packages have been developed for most positions onboard vessels and at the terminals. These are presented to each new employee through a well-designed, high quality orientation package that is tailored to the specific positions. Review of the content of this package is provided by a combination of self-study, human resources input, and supervisory-led discussion.

During the year ended March 31, 2005, BC Ferries provided 7,400 training days. In 2006, the number of training days provided increased to more than 8,600. The plan is to provide 9,720 days in 2007 and then increase it substantially in 2008 to 14,200.

BC Ferries spent \$5.7 million on operational training and familiarization in 2005 and \$5.8 million in 2006. It is planning to spend \$6.3 million in 2007 and \$8.2 million in 2008.

We concluded that the company is committed to providing its employees with ongoing opportunities for training.

Providing a consistent level of training both in terms of timeliness and quality creates many challenges for the company because of the size of its organization, the decentralized nature of its operations, and the location of its employees. During our interviews, approximately half of our respondents indicated that training needs are being met on a timely basis and about an equal number indicated that they would like to receive more timely training. Staff in the North and other areas beyond the major routes were more likely to indicate that they had problems with obtaining the necessary training than those in the south.

A universal concern expressed throughout the organization was about the training and familiarization of seasonal staff. In general, interviewees felt that seasonal staff were not always prepared to undertake the duties that they were assigned and therefore might not be able to deal with emergencies effectively. It was suggested that more focus be put on preparing seasonal staff better by providing them with more timely training and orientation, especially in the catering where most of the seasonal staff work.

Evaluation of the Training Process

Steps are in place to evaluate training programs and courses. Training supervisors audit courses offered by corporate training. However, there does not appear to be structured evaluation guidelines to test the competence of candidates on their skills and knowledge. It was suggested that course evaluation criteria be established, as well as a means of assessing the degree of success trainees have in implementing the concepts and protocols taught during a course.

We sought to determine the level of satisfaction end-users have with overall training provided by the training function within BC Ferries. Again, we found mixed results, with approximately half of our interviewees rating present training programs as either very satisfactory or satisfactory. Some respondents indicated that training is much better than it was in the past and that the level of training generally is good. Others noted gaps, however, such as the lack of a formal process to identify individual training needs and inadequate training resources for the size of the company.

BC Ferries appears to be moving towards self-directed study as a means to deliver some training programs. Some employees said that this approach is not satisfactory because people “simply won’t do it” and the benefit of peer interaction in a classroom setting is lost.

The Training Academy

BC Ferries is in the process of developing a Training Academy designed to meet its training needs and requirements. Its projected start date is October 2008. The company intends to develop partnerships with external agencies such as the Danish Marine Institute to provide bridge simulations as part of initial and refresher training for licensed officers. In addition, current partnerships with external agencies would remain for such areas as marine and vehicle firefighting, confined space rescue, and first aid.

An external contractor has been engaged to conduct the preliminary assessment and vision analysis for the Training Academy. This work will include business plan development and support and implementation.

We believe that this initiative, which was announced in early March 2006, is a positive step in meeting BC Ferries’ future training requirements.

Recommendation

BC Ferries should review its training programs and ensure that required training is provided on a more timely and equitable basis throughout the organization.

Bridge Resource Management

Weakness in bridge organization and management has been cited as a major cause of marine casualties worldwide, with accidents frequently caused by resource management errors. Bridge resource management (BRM) reduces the risk of marine casualties by helping a ship's crew anticipate and correctly respond to a ship's changing situation. BRM is defined as the effective management and utilization of all human and technical resources available to a bridge team to ensure the safe completion of the vessel's voyage. It begins before the voyage with the passage plan and continues through the end of the voyage with the passage debriefing.

The principles of good management practice can be applied to bridge management and control. These pertain to bridge officers' skills such as teamwork, team-building, communication, leadership, decision-making and effective resource management. Key elements to BRM are: passage planning; passage planning briefing; bridge manning; bridge team training; masters' standing orders and end-of-voyage debriefing.

The 1995 Seafarers' Training, Certification and Watchkeeping (STCW) Code describes voyage planning – an essential component of BRM – and establishes specific arrangements and principles to be observed. The STCW Field Guide and Field Regulations discuss the obligations of a marine transportation company for BRM. For example, companies should issue guidance on proper bridge procedures and should promote the use of checklists appropriate to each ship. They should also issue guidance to masters and officers in charge of the navigational watch on each ship, concerning the need for continuously reassessing how bridge-watch resources are being allocated and used based on bridge resource principles.

In our review we saw checklists for arrival and departure on some bridges, However we did not see in all cases formal pre-departure and pre-arrival meetings with bridge personnel to establish condition of voyage variables and resultant impacts, if any, on vessel navigation/operation.

A significant difficulty we identified during our work was the variability in the makeup of the core group of deck officers on the bridge, particularly during peak summer months and vacation periods. Synergy, cohesion and consistency among the officer/bridge crew are an important aspect of the SMS and critical to well-functioning bridge resource management.

Training in Bridge Resource Management

The majority of deck officers we interviewed about the BRM training provided rated it as excellent, good or fair, but a number rated it as poor. Some respondents believed the standards for BRM training were not sufficiently stringent.

Some respondents indicated there was not enough formal training. We reviewed the extent of BRM training for a six-year period. The number of officers trained were: 2001 – 10; 2002 – 5; 2003 – 18; 2004 – 25; 2005 – 36; and 2006 (to November 15) – 28.

While in 2006 the company had trained only 28 deck officers as of November 15, 56 additional deck officers were scheduled for completion of the BRM training program by the end of March 2007. In addition, we found that as of November 15, 122 of 253 regular deck officers (48%) had

undertaken BRM training since 2001 (with a gradual percentage increase year over year since 2002).

We also noted the views of deck officers with respect to familiarization with navigation equipment. Generally, we found no consensus within this group about the extent of training and orientation when new bridge and navigational equipment is installed. Some interviewees indicated that training for bridge navigation equipment is “excellent,” with deck officers required to sign off for clearance. Others believed the company could improve the process of preparing crews to operate new equipment and suggested they be prepared at refit or sent to vendor orientations.

Guidance and Lessons from Other Marine Transportation Systems

Lessons derived from other marine transportation systems about the importance of bridge resource management are instructive. The following two case studies provide guidance in terms of the significance of proper bridge resource management.

The Staten Island Ferry

On October 15, 2003, a Staten Island ferry operated by the New York City Department of Transportation rammed a jetty at speed, with tragic consequences. The U.S. Merchant Marine Academy undertook a comprehensive review of ferry operations. Stemming from this were a number of recommendations related to bridge resource management including:

- provide bridge personnel with initial and periodic refresher training in the operation of all navigational bridge equipment; and
- develop operational checklists to reduce the potential for complacency, tedium and error traps.

The Cruise Ship *Monarch of the Seas*

A joint maritime investigation by the Norwegian Maritime Investigator and the U.S. Coast Guard (cited in Section 3.1, “The Safety Management System (SMS)”) described several lessons to be learned from the grounding of the *Monarch of the Seas*. One of these was the importance of implementing the principles of effective bridge resource management, such as voyage planning, open and effective communication, teamwork, and awareness of the dangers of overconfidence and complacency with regard to navigation. The investigation also revealed that the master’s strong personality and confidence, combined with traditional maritime customs, led to a state in which the master’s decisions were viewed by the ship’s crew as unquestionable. That, in the opinion of the board of inquiry, established an unsafe condition that significantly contributed to the grounding. Specific recommendations coming from the inquiry included:

- provide bridge resource management training and implement a team-building program for all navigational watch personnel; and
- design and implement a training program specifically for senior officers regarding effective communications and effective teamwork with subordinates.

BC Ferries has recognized the importance of BRM training and has made a concerted effort to dramatically increase the number of deck officers trained in this area. In addition, as we noted elsewhere in this review, the company is developing a plan for a Training Academy that will include a BRM component and the use of simulators in that training.

Recommendations

BC Ferries should:

- ***establish criteria, policies and procedures for crew selection and assignment that will promote greater cohesion and synergy among bridge crews for each watch and shift period; and***
- ***continue to accelerate the rate of Bridge Resource Management refresher training to ensure the principles are instilled in and practiced by deck officers in vessel operation.***

Crowd Management and Control

A complete understanding and effective application of the principles of crowd management and control are essential components of a marine safety system. The standard by which these are to be conducted and evaluated is contained in the Canada Shipping Act, BC Ferries Fleet Regulations, the ISM Code and the Seafarers' Training, Certification and Watchkeeping (STCW) Code (to which BC Ferries subscribes).

The Canada Shipping Act, for example, states that crew members with direct responsibility for passenger safety must be able to perform the following functions:

- warning passengers of an emergency;
- ensuring that the passengers are suitably dressed for protection against exposure and have put on their lifejackets correctly;
- assembling passengers at their designated muster stations; and
- keeping order in the passageways and on the stairways and generally controlling the movements of passengers.

The Fleet Regulations of BC Ferries stipulate that:

- crew members assigned to passenger control duties must also be given instruction on evacuation techniques; and
- passenger familiarization sessions with various safety procedures onboard each vessel should be conducted regularly (e.g., giving lifejacket demonstrations and pointing out fire and lifesaving equipment locations).

Both the STCW and ISM Codes set mandatory minimum requirements for the training and qualification of ships personnel in the area of crowd management and control and in mustering procedures.

Training offered by BC Ferries in crowd management and control consists of one day of classroom instruction. In addition, each vessel is supplied with a crowd management video to familiarize and refresh catering attendants and other crew members with the principles.

We reviewed the number of training days devoted to passenger control courses for the period 1999–2006. The data shows that only 41% of regular catering and only 25% of deck staff had completed the initial one-day course. Furthermore, we found an uneven distribution of crowd management and control training by region, with it ranging from a low in the North Coast to significantly higher in the South Coast. We also found no crowd control training for terminal personnel to teach them how to deal with large numbers of passengers boarding and disembarking from vessels. However, BC Ferries has a plan that shows that all deck and catering staff will have received this initial training by March 31, 2011.

While newly hired catering staff receive some orientation crowd management, we noted there was no reference to crowd management and control in the Catering Attendant Training Handbook. Also, from interviews, we determined there is little or no crowd management and control refresher training. We are concerned that this lack of a standardized approach throughout the fleet could inhibit an effective emergency response.

Our analysis of the present state of crowd management and control training leads us to believe BC Ferries should put greater emphasis on the importance of crowd management and control in its overall training regimen. We believe that BC Ferries should ensure that crews of vessels operating in exposed northern waters of the British Columbia coast be given equal opportunity for crowd management and control training.

Recommendations

BC Ferries should:

- ***accelerate the rate of crowd management and control for all employees to be trained in this important area;***
- ***establish a systematic approach to ensuring that catering department staff are regularly exposed to crowd management and control videos on an ongoing basis; and***
- ***determine the minimum period acceptable between initial and refresher training in crowd management training, and initiate a program of refresher training consistent with that finding.***

5.5 The Familiarization Process

Familiarization is a process whereby a properly certified and experienced employee is introduced to a new work site and given appropriate exposure to the intricacies of that site. This process applies to terminals and vessels. Section 6 of BC Ferries' Fleet Regulations sets out the requirements for familiarization and clearance.

We found that the familiarization process is specific to each vessel or terminal in terms of time, methods and clearance process. It can also be operations-specific for critical areas such as systems and equipment operations and may focus on operations safety and safe workplace practices and protocols.

As well, we noted that the quality of the familiarization can vary significantly, depending on who is providing it. The individual supervisor determines the level of familiarization required based on an individual's knowledge of, and competence for, critical systems and equipment. However, different people provide familiarization, and the approach and quality of the familiarization provided to staff can vary significantly. We believe there is a need to ensure that staff receive a consistently high level of familiarization on all vessels and at terminals.

Familiarization information provided to staff also varies significantly from ship to ship. We noted on one vessel the existence of a very good familiarization handbook. This handbook provides excellent information about the vessel, clearly sets out the roles and responsibilities of the various positions on the vessel, and provides clear guidance for employees in the critical areas of their work. Standardization of this type of information across the fleet would be beneficial.

Recommendations

BC Ferries should:

- ***review the familiarization process and ensure that it is carried out uniformly across the organization; and***
- ***ensure that the documented information provided in the familiarization process is standardized to the extent practicable.***

5.6 The Role of Human Resources in the Recruitment, Certification and Training of Staff

BC Ferries' Human Resources and Corporate Development Department is responsible for ensuring that staffing issues related to the efficient operation of vessels and terminals are addressed in an efficient manner. The department is involved in recruiting new staff, providing direction on human resources issues, managing the training process, keeping records on staff performance and training, and providing necessary information about staff qualification and training to the crewing function.

We have not done an extensive review of the human resources activities of BC Ferries. However, during our review we did notice several issues that we feel impact significantly on BC Ferries' ability to ensure operational safety in the organization. These include:

- Difficulties with the system of casual employees on call, whereby a pool of trained and qualified terminal and ships' personnel are available to the company to manage seasonal fluctuations in its operations. As noted before, it is becoming more difficult to retain casual employees. In the current economic climate of increased opportunities for employment elsewhere, casual employees will not accept such conditions of employment and will move on to full-time positions in other areas. By finding a way to provide these employees with permanency in their situation (e.g., by scheduling them as permanent members of specific crews), BC Ferries might better retain them. This, we believe, would help address concerns expressed by masters about the lack of cohesion and synergy amongst ships' crews resulting from the constant changing of crew by watch and shift. Good team cohesion increases a crew's ability to respond effectively in an emergency.
- Little or no progress made on categories of employees as recommended in a mediation/arbitration agreement between BC Ferries and the British Columbia Ferry and Marine Workers' Union. In the proposed agreement, regular employees would be divided into regular full-time and regular part-time. Staff in the newly created category of regular part-time would work to a fixed schedule and receive benefits and entitlements on a pro-rated basis. The designation would allow people in this category to define the days and/or periods in which they are consistently available for work. This information would then be entered into the crewing database, adding regularity to the shift patterns of persons now on call. As well, this new classification would reduce the work of crewing personnel. With greater consistency of shift patterns among a larger pool of personnel, there would be a reduction in the number of scheduling variables that crewing personnel always have to address. Regularity of shift patterns also has the potential to increase crew cohesion and synergy.
- Stringent requirements in the collective agreement regarding the advancement and promotion of personnel. During our review, we asked interviewees for their views about a seniority-based promotion system. We found that, in general, people in management

positions viewed seniority-based promotion as an impediment to promoting the best-qualified individuals. There was, however, a mixed response from terminal and vessel respondents, with little more than half feeling that seniority does not keep the best-qualified individuals from being promoted.

As we noted previously in this report, we observed considerable tension during our review in the relationship between the company and the union. This situation is, in our view, dysfunctional and a significant impediment to resolving operational safety issues and effecting continuous improvement in the SMS. We believe that BC Ferries and the British Columbia Ferry and Marine Workers' Union need to discuss, in an open and constructive way, the human resource issues identified in this report as being obstacles to enhancing the level of operational safety.

6 Monitoring and Auditing Safety Policies and Practices

To ensure that BC Ferries' operational safety policies and procedures are carried out and the company is in compliance with regulatory requirements, appropriate monitoring and reporting processes must be in place. These include carrying out regular audits and inspections, conducting periodic exercises that simulate emergencies, and providing regular reporting to senior management.

6.1 Internal Monitoring

The Internal SMS Verification Audit Group

The Internal SMS Verification Audit Group (IVAG) monitors vessels and terminals in accordance with documented procedures for the conduct of audits. This group focuses on the Safety Management System (SMS) to ensure BC Ferries meets regulatory requirements, exercises due diligence and maintains safe operation of the company's vessels and terminals to ensure the safety of passengers and employees.

The audit cycle is developed such that headquarters and each vessel, terminal and shore office are audited annually. The audit criteria are derived from sections of the ISM Code and are specific to vessels, terminals, watches and so on. The audit process focuses on procedural issues related to the SMS.

The results of the audits are reported to the responsible site managers, including any Corrective Action Requests (CARs) in the case of non-compliance. IVAG is also responsible for arranging follow-up and close-out of CARs and for providing information about the results of IVAG's activities to the Designated Person for information and follow-up.

Staff at IVAG observe a range of operational functions to ensure consistency with Fleet Regulations. For example, auditors: observe bridge procedures; review operations manuals and protocols; observe loading and clearance practices; review engineering department functioning; observe ships' catering departments; review terminal operations; summarize audit findings; and provide feedback to ships' officers and terminal managers.

We found that IVAG plays a significant role in monitoring how well the SMS is working throughout the organization. Its audit staff primarily undertake a compliance function, reviewing all documentation to ensure its completeness, accuracy and currency. We found evidence of standardized checklists for the conduct of the audit. IVAG staff conduct summary meetings with key personnel and identify deficiencies, variations and non-conformities for follow-up with masters, chief engineers, and catering and terminal staff.

In the course of this review, a significant number of our interviews with terminal staff and vessel crews indicated that the work carried out by IVAG was useful, thorough, carried out with consistency and effective. At the same time others described the process as evolving and only somewhat effective because it is a detailed, paper-driven compliance exercise that fails to address significant operational safety issues.

Interviewees thought that, to improve IVAG's effectiveness, the direction of the group should change. Instead of concentrating to such an extent on paperwork and compliance, IVAG should observe operational safety procedures and protocols to a greater extent.

We noted that IVAG does not observe fire and boat drills due to time constraints and present staffing levels. It does, however, check records of drills undertaken and the status of equipment. We were advised that drills are monitored once a year by Transport Canada in the certification process following vessel refit. We discuss the subject of fire and boat drills in greater detail in Section 6.3, “Emergency Drills”.

Twice a year, IVAG inspects records to verify that emergency drills have been carried out at terminals. Forms and checklists developed by IVAG are seen as useful guides to terminal personnel regarding proper procedures and practices. At terminals, auditors also: check records and paperwork to determine whether random checks of dangerous goods have been carried out; and verify crew’s training records.

Currently, IVAG audits are planned months in advance and visits to audit sites are announced weeks before they occur. This allows each audit site to prepare for the audit – and means that auditors may not get an accurate picture of the operation. We believe that it would be useful for IVAG to include surprise audits in its audit program.

We also believe that there needs to be a shift in focus for IVAG. That is, IVAG should, in addition to its compliance audit functions, undertake to observe operational safety procedures and protocols to a greater extent. This would require that clear direction be provided to the group about the nature and extent of these added responsibilities.

Since IVAG has a good overview of how well the SMS is functioning across the organization, it is in a position to provide information to the Designated Person for fleet-wide circulation about observed and emerging safety issues.

We noted that IVAG’s reporting relationship has recently changed, now reporting to the Designated Person. This presents a good opportunity for BC Ferries to clarify its expectations of IVAG and to make the necessary changes to ensure that IVAG has the level of resources it needs to meet those expectations.

Recommendations

BC Ferries should:

- ***direct the Internal SMS Verification Audit Group (IVAG) to observe operational safety procedures and protocols to a greater extent, and to provide the Designated Person with information on safety issues for fleet-wide circulation; and***
- ***introduce surprise audits in IVAG’s regular audit program.***

The Role of Superintendents, Terminal Directors and Managers in Operational Safety

Marine, Engineering and Catering Superintendents, Terminal Directors and Terminal Managers are a key connection between head office and the regions with respect to operational safety. Each is responsible for the safe and efficient operation of their areas, in accordance with regulatory requirements, corporate policies and strategic plans. Policies and directives related to operational safety from senior management, for example, are disseminated to five marine superintendents, each of which is responsible for key result areas such as:

- overseeing and monitoring the professional maritime operation of ships and assigned crews through on-scene evaluations and visits;
- implementing safety programs and monitoring their effectiveness;

- monitoring the condition of vessels for maintenance and refit requirements;
- monitoring compliance with external regulations and legislation; and
- preparing and monitoring budgets for operational financial centres within the region.

The superintendents are instrumental in promoting the principles of the SMS and monitoring its effectiveness. They are required to conduct semi-annual inspections on each vessel to ensure the ISM Code and the SMS are being practiced.

We noted from our examination of the records of both IVAG's and Lloyd's Register external audits that the required inspections may not always be carried out. We believe there is a need to ensure that such inspections are carried out and documented on a timely basis and that the benefits of the SMS are promoted at those inspections.

Recommendation

BC Ferries should ensure that:

- ***superintendent inspections cover operational safety procedures and protocols and be documented as required; and***
- ***superintendents, and terminal directors/managers are provided with the necessary training to enable them to properly carry out their inspections and to promote the SMS at all times.***

6.2 Monitoring by External Agencies

Transport Canada

Transport Canada develops and administers policies, regulations and programs for a safe, efficient and environmentally friendly transportation system.

Transport Canada's groups and regions work together to:

- set policies, regulations and standards to protect the safety, security and efficiency of Canada's rail, marine, road and air transportation systems, including the transportation of dangerous goods and promote sustainable development;
- work in partnership with other federal, provincial, territorial and municipal departments and organizations, other private organizations, stakeholders and members of the transportation industry; and
- promote and enforce policies, regulations and standards through inspection, education and consultation.

A primary function of Transport Canada is the inspection and certification of vessels when they are in operation and at their annual refit. Transport Canada inspectors focus on the safety of vessels and the certification and qualifications of ships' crews.

Each BC Ferries vessel is inspected annually. This inspection begins with reviewing the data base about the ship (such as the date of last inspection, key findings from the inspection, deficiencies to be corrected, and sign-off of work undertaken during refit). The inspector schedules an inspection date or, in the case of a vessel in refit, determines the point in time when remediation is finished and the vessel is ready for sea trials.

The inspector then conducts an introductory session involving the ship's master and chief engineer, and outlines key areas for examination. Transport Canada uses a standardized audit plan that requires a review of internal audit records, charts and nautical publications,

certification and surveys, familiarization training, emergency drills and safety records, and machinery maintenance. The process requires: tests of the alarm and public announcement system; inspections of the davits, fire pumps, and deluge system; counts of the number and condition life jackets onboard; vessel husbandry; and a range of other inspections and tests. The conduct of a fire and boat drill is required in the annual inspection process with a regular crew onboard to carry out a complete and thorough drill following a pre-determined scenario matrix. Depending on the status of the vessel, some inspections are undertaken at the dockyard at refit time. An inspector may also carry out engine and sea trials.

At the end of an inspection, a Safety Inspection Certificate is issued if the vessel and crew are found to be in compliance with the Canada Shipping Act and Regulations. A certificate is not issued where the vessel and/or crew are not in compliance. Should major risks be identified during the inspection, Transport Canada has the option to communicate directly with senior management of the company. In this case, a Safety Inspection document is issued by Transport Canada, listing specific corrective action to be taken by BC Ferries before a Safety Inspection Certificate is issued.

All of BC Ferries' vessels currently in operation have a Safety Inspection Certificate. At the time we were completing this report (November 2006), Transport Canada had 18 Safety Inspection documents (SI7) citing deficiencies that required action by BC Ferries. None of the deficiencies noted compromise the safe operation of any vessel or were overdue for remediation.

Lloyd's Register

As noted previously, BC Ferries has contracted with Lloyd's Register to carry out ISM external audits to ensure that the company remains in compliance with all provisions of the ISM Code. There are two phases to these audits: a Document of Compliance audit, which relates to an audit of shore management processes; and a Safety Management Certificate audit, which relates to vessels. The Document of Compliance is issued every five years, with verification audits conducted annually. The Safety Management Certificate is issued every five years, with verification audits carried out twice during this five-year period.

For each vessel, a Lloyd's auditor carries out a number of interviews with ship's crew, including the master, chief engineer, and other crew as deemed necessary. A standardized audit log is used in the audit. It dictates a review of: internal audit records, chart corrections and nautical publications; statutory certification and surveys; familiarization training; emergency drills and safety records; and machinery and safety equipment maintenance. It also calls for a master's review of the SMS and identification of the Designated Person. In a closing meeting with the vessel's master and a company representative, the auditor identifies any non-conformities and due dates for correction.

BC Ferries currently has a Document of Compliance and a Safety Management Certificate for each vessel. At the time we were completing this report (November 2006), eight non-conformities required action. One of these was overdue for remediation.

Transportation Safety Board

As we noted in Section 4.4, "Incident Reporting and Investigation", the Transportation Safety Board is an independent agency that investigates marine, pipeline, railway and aviation transportation occurrences. The Board reviews developments in transportation safety and identifies safety risks that it believes government and the transportation industry should address to reduce further injury and loss. Its role also is to respond quickly to transportation incidents

and to conduct independent safety investigations. The Transportation Safety Board does not assign fault or determine civil or criminal liability as a result of the work undertaken.

Approximately 4,000 transportation (land, air and marine) occurrences are reported to the Transportation Safety Board each year. These occurrences are wide-ranging – from accidents involving small aircraft or engine-room fires on ships to pipeline ruptures and train derailments. An individual occurrence is investigated when there is a high probability that an investigation will advance Canadian transportation safety – meaning there is significant potential for reducing future risk to persons, property or the environment.

There are three main phases of a TSB investigation: the Field Phase; the Post-Field Phase; and the Report Production Phase.

The number of investigations of incidents carried out by the TSB relating to BC Ferries' operations is shown in the Table 2 in Section 4.4, "Incident Reporting and Investigation".

Reporting the Results of the Monitoring Process

As we noted in Section 4.5, "Dealing with Issues Arising from Audits and Inspections", the results of all operational safety deficiencies that have been noted by internal and external audit and inspection processes are summarized in the Operations Safety Log. A monthly report is prepared and distributed to BC Ferries management for review. All items remain on the log until the individual items are dealt with and then closed out by the creator of the item or the Designated Person. The log is reviewed monthly by senior management and is monitored by the Designated Person on an ongoing basis.

At every quarterly meeting of the Safety, Health, Environment and Security Committee (Safety Committee, for short) of the Board of Directors, a summary of the Safety Log is distributed and the status of the each of the individual areas is reviewed.

We believe that BC Ferries' monitoring process works well in bringing the results of monitoring activities to the attention of management and the Safety Committee; and in ensuring that the necessary action is taken to deal with operational safety deficiencies. The Designated Person is also taking a very active role in ensuring that operational safety issues are dealt with on a timely basis.

6.3 Emergency Drills

Well-executed fire and boat drills are an essential component of a marine safety system. The standard by which these are to be conducted and evaluated is contained in the Canada Shipping Act, the BC Ferries Fleet Regulations and in the ISM Code.

The Canada Shipping Act, for example, outlines requirements that a marine transportation system such as BC Ferries must meet in the conduct of emergency drills.

- The master of a ship must ensure that drills, as far as is practicable, are carried out as if there were an actual emergency.
- The master of a ship must ensure that survival craft drills for the crew of the ship are held within 24 hours after the ship embarks on a voyage if more than 25% of the crew did not participate in a survival craft or fire drill onboard the ship during the month before the ship embarks.
- If the ship carries survival craft other than lifeboats, there must be instruction in the operation and deployment of those survival craft.

- If the ship is fitted with a marine evacuation system, a deployment exercise must be carried out immediately before the system's actual deployment.

Section 8 of BC Ferries' Fleet Regulations sets out specific requirements for fire and boat drills. Highlights include a policy requiring development of contingency plans for all identified potential emergency situations, including a schedule of drills and exercises. Specific topics include:

- identification of potential emergency situations (fire, abandon ship, bomb threat);
- frequency of drills;
- effectiveness of drills;
- debriefing;
- assignment of responsibilities;
- safety in conducting drills;
- crew instruction; and
- passenger familiarization.

Fleet Regulations also require that an emergency drill log be maintained onboard each vessel and at each terminal and shore facility.

The ISM Code stipulates that:

- the company should establish procedures to identify, describe and respond to potential emergency actions;
- the company should establish programs for drills and exercises to prepare for emergency actions; and
- the SMS should provide for measures ensuring that the company's staff can respond at any time to hazards, accidents and emergency situations.

Drills on Vessels

Proficiency of staff

The vast majority of crew members we interviewed indicated that employees were proficient in the performance of fire and boat drills. The proficiency of some casual and seasonal employees is of concern, however, in that they sometimes miss regularly scheduled drills.

Also the level of proficiency in crowd management and control appears to vary widely among catering department crews. Several reported that catering staff are proficient in carrying out drills (as demonstrated, for example, by quizzes to determine what catering staff would do in emergency situations). Others respondents, however, were less positive about catering staff's level of proficiency in crowd management and control.

A key concern expressed by some crews was the lack of opportunity for marine evacuation chute training. Crew members must obtain marine evacuation certification before working on a vessel fitted with this equipment. Annual refresher training at the manufacturers' facilities is also expected to be supplemented by having crews participating in annual marine evacuation chute deployment at their vessels.

Carrying out the drills

Interviews with ships' officers suggest that, for regular employees, the drills schedule matrix is adhered to and fire and boat drills are carried out as required.

A significant issue, however, is the infrequent opportunity for some casual and seasonal staff to be involved in scheduled fire and boat drills. Several interviewees discussed an ongoing situation whereby casuals do not participate in drills as frequently as required. This occurs either because a casual employee is not working during regular drill periods or is shifted from vessel to vessel, missing scheduled drills.

Also significant in our view is the degree of participation of catering staff in drills. Some of these staff members reported they had taken part in all of the drills. Others, however, reported they were not involved in fire and boat drills to any extent, their role being mainly as an observer and getting passengers together. We believe this approach to involvement by catering department staff in crowd management and control during fire and boat drills requires attention.

In some locations, this gap in training is addressed by having casual employees attend drills even though they are not working regular shifts. We found no evidence of a policy across all BC Ferries' operations that requires off-duty casual staff to be systematically scheduled for participation in fire and boat drills.

A significant problem identified by many throughout the fleet is the lack of time allotted to conduct proper fire and boat drills. Tight schedules prevent complete drills from being carried out on many runs during regular watches. This necessitates the conduct of drills either before or after a watch. It is the view of many that containment of overtime costs limits the time allotted and the completeness of the drill.

Fleet Regulations stipulate that "each master, officer and site supervisor must generate a level of reality and enthusiasm during drills which makes the drills of real value to their crew." We found significant differences of opinion among interviewees about the realism of fire and boat drills and exercises. The lack of realism in many drills was attributed to time constraints in carrying out the drills.

We were also advised that on some minor and intermediate vessels on short runs with very tight schedules, drills are often replaced by musters conducted once per shift. Musters are a verbal questioning by deck officers to determine whether a ship's crew understands its emergency duties and responsibilities. Musters are therefore not a complete fire and boat drill in which, among other things, an emergency scenario is played out with a simulated evacuation and all related safety equipment is exercised.

It is a requirement that fire and boat drills be recorded in the wheelhouse log. Both the Internal SMS Verification Audit Group and the external SMS auditor, Lloyd's Register, check the records of drills undertaken in their audits.

Monitoring for uniformity and standardization

BC Ferries has a large number of vessels operating in a variety of locations and conditions. It is therefore important that vessel crews be properly trained in emergency procedures to respond adequately and uniformly in these different environments. In our interviews, we found that BC Ferries does not have a process to monitor fire and boat drills system-wide to ensure uniformity and standardization.

The primary method used now to ensure uniformity and standardization in the practice of fire and boat drills is an annual inspection by Transport Canada. Other agencies under contract to BC Ferries, such as Lloyd's Register, conduct compliance audits on specific vessels. However, observation of a comprehensive fire and boat drill is not included in that process. IVAG conducts

a compliance audit to ensure fire and boat drills have been carried out in accordance with the schedule matrix and are consistent with a requirement that different scenarios be executed.

Senior masters on certain vessels have engaged the services of a private contractor specializing in emergency firefighting consulting and training. Their work, however, is not undertaken system-wide and pertains to one aspect of emergency drills only: firefighting.

We concluded that, because of tight scheduling requirements, there is not always sufficient time for realistic and adequate fire and boat drills to be conducted. As a result, there is no assurance that regulatory requirements and the company's own policies are always met. Musters are not a replacement for the development of skills, expertise and experience derived from the actual practice of a realistic fire and boat drill. Without a system to monitor and evaluate the performance of crews – particularly catering departments – BC Ferries is not able to ensure uniformity and standardization in the conduct of drills.

In our review of terminal operations, we looked at the extent to which emergency drills are being carried out. It is the responsibility of the terminal supervisor to ensure drills are carried out as required. We noted copies of terminal drill schedules and standing orders for the execution of these drills. As part of its facility audit process, IVAG also verifies that regular drills have been carried out.

Recommendations

BC Ferries should:

- **ensure all operational personnel who have not participated in recent fire and boat drills are included on a regular basis;**
- **ensure sufficient time is provided to run complete fire and boat drills and therefore be in full compliance with federal regulations and the company's own policies; and**
- **institute a process to monitor and evaluate fire and boat drills system-wide to ensure uniformity and standardization of crew skills and proficiency throughout the fleet.**

6.4 Security

Security is the exercise of due diligence by an organization to ensure the proper functioning and well-being of its operations, and to reduce its exposure to threats and to risk. In 2001, the federal government enacted the Marine Transportation Security Act to establish a comprehensive framework for the deterrence, detection and prevention of acts that threaten the security of the marine transportation sector. In 2005, the federal government announced that the regulations would in the future be extended to include domestic ferries.

The federal regulations have a three-tiered system for maritime security (MARSEC) designed to provide a means to communicate appropriate responses to increased threat levels:

- MARSEC Level 1 – level of risk where minimum appropriate security measures shall be maintained at all times;
- MARSEC Level 2 – level of risk where appropriate additional protective security measures shall be maintained for a period of time as a result of heightened risk of a transportation security incident; and
- MARSEC Level 3 – level of risk where further specific protective security measures shall be maintained for a period of time when a transportation security incident is probable or imminent or has occurred.

An organization's ability to identify, prevent and respond to emergency/security situations is critical to its longevity. In May 2006, BC Ferries commissioned a vulnerability assessment by a leader in global marine security in response to pending legislation. The assessment was an evaluation of physical, personnel and information security policies, procedures and operations. It identified areas of concern including:

- access control;
- security training, drills and exercises;
- pre-employment screening;
- security and monitoring of critical areas;
- passenger, vehicle, visitor and baggage screening; and
- the ability to respond to heightened threat levels.

Development of a security plan is underway now at BC Ferries. When completed, the plan's strategic objectives will be to:

- mitigate risk by implementing an effective and visible deterrent to potential threats;
- serve as an effective mechanism in identifying and assessing risks; and
- act as an appropriate and efficient response instrument.

Similarly, we noted that BC Ferries has contingency plans in place to deal with marine incidents and security risks. For example, the company maintains emergency response manuals and has established a Corporate Operations Centre (COC) with systems in place and emergency responsibilities assigned. In addition, there are five designated Emergency Operating Centres.

Incident Management Teams are also in place to reflect a broader command and control concept and to augment company resources with regional and national agencies such as the Canadian Coast Guard, police, fire and medical support. The COC maintains incident action plans that lay out specific scenarios and the appropriate action to be taken. In addition, ship and terminal safety plans are kept in the office of the Designated Person for use in an emergency with an identical set kept in the COC boardroom. There has been no schedule for emergency, drills or exercises at the COC level, but efforts are underway to initiate regional exercises with other agencies such as Search and Rescue Exercise (SAREX) 2006.

Terminal Operations is developing a master plan for each terminal. We were told that the design and layout takes into account both safety and security risks. Plans have been completed for the Tsawwassen and Swartz Bay terminals, with other plans being at various stages of development. A key focus is the management, safety and security of vehicles and foot passengers.

In our view, a significant step has been taken at the corporate level with the conduct of a vulnerability assessment and a corporate security plan. That document describes specific steps the company should take to reduce threat levels at terminals and ships.

7 Having the Right Emergency Equipment

To achieve appropriate operational safety, BC Ferries has to ensure that the appropriate emergency equipment is available and that the equipment is maintained so that it will function as required in an emergency. This equipment includes:

- fire detection and extinguishing equipment: fire alarms, sprinkler systems, fire hoses and pumps, fire extinguishers, and fire suits; and
- lifesaving equipment: marine evacuation systems, life jackets, life rafts, life boats and associated launching devices.

The requirements for emergency equipment are set down in the Canada Shipping Act, in approved standards set out by Transport Canada Marine Safety Branch, and in BC Ferries' own policies. To ensure that the right equipment is available at the right location and is properly maintained, BC Ferries' Internal SMS Verification Audit Group (IVAG) inspects the equipment during their periodic audits on the vessels and terminals to ensure that they meet the Canada Shipping Act and the company's requirements. Transport Canada and the company's external auditor, Lloyd's Register, also carry out inspections as part of their visits to the vessels. The results of these inspections are reported and deficiencies identified for correction.

In our review, staff told us they felt that BC Ferries' emergency equipment meets the requirements of the Canada Shipping Act and the company's own requirements. The consensus among most people interviewed was that BC Ferries always buys the best equipment, with continuous improvement in mind. Emergency equipment is purchased when needed and funded properly. Few requests for safety equipment, we heard, were turned down.

As to the quality of maintenance of emergency equipment, the vast majority of people we talked to judged the maintenance of emergency equipment at terminals and on vessels to be "good" to "excellent." The company's focus on safety appears to have resulted in appropriate funding of emergency equipment maintenance. Required maintenance is set out in manufacturers' guides. As well, Transport Canada conducts inspections of equipment on a regular basis such as during annual refits (life rafts once per year; life jackets twice per year). Staff are also required to follow a maintenance schedule based on equipment condition.

8 Reporting on Performance

8.1 Internal Reporting

The Board of Directors has constituted a Safety, Health, Environment and Security Committee (Safety Committee, in short) with the mandate to assist the Board in:

- exercising due diligence over the safety, health, environmental and security operations of BC Ferries;
- developing, reviewing and making recommendations as required on matters related to BC Ferries' safety, health, environmental and security policies and practices; and
- monitoring compliance with government regulations and with BC Ferries' commitment to excellence on these issues.

Management and staff provide both the Safety Committee and the full Board with periodic comprehensive information on operational safety matters. This includes information on:

- the safety management system,
- operational incidents,
- transport Canada standards,
- safety training, and
- major incident response.

The Safety Committee generally meets a day or two before the quarterly meeting of the Board of Directors. We found the information, both written and verbal, provided by management to the Safety Committee to be comprehensive and timely. The chair of the Committee provides the full Board with a verbal report on committee proceedings. Important issues are then discussed by the Board in detail. Committee minutes are not distributed directly to Board members, but are posted on the internal corporate website. The Safety Committee conducts self-assessment evaluations annually.

Recent steps have been taken by the Safety Committee to ensure it is receiving from staff all the information it requires in a form that facilitates the committee's deliberations.

We found that while the current scheduling of committee meetings facilitates time and travel for all Board members, it does not always give staff sufficient time before the upcoming Board meeting to fully research and deliberate on matters raised at committee.

Recommendation

BC Ferries should have the Safety, Health, Environment and Security Committee review its meeting schedule and revise it if necessary to ensure it facilitates both committee and board discussion of safety-related matters on a timely basis.

8.2 External Reporting

BC Ferries and the British Columbia Ferry Authority issue a combined annual report. The report includes information about achievements in the area of the four operational goals set out in the BC Ferries' one-year business plan. However, we found that this public information is not aligned with the tactics, measures and targets included in the corporate strategic and business plans, which makes it difficult for the general public and corporate stakeholders to determine whether or not BC Ferries was successful in meeting its operational objectives, initiatives, goals and targets.

Recommendation

BC Ferries should ensure that its annual report includes appropriate information on the extent to which the company has achieved its operational safety objectives.

Summary of Recommendations

Strategic and Business Plans

BC Ferries should:

- *ensure that each of the corporate strategic and business plans includes a strategic objective/goal that pertains directly to the safety and security of customers and employees, and that applicable tactics, measures and targets are developed in regard to the achievement of that objective/goal; and*
- *reinforce that operational safety is the company's number one priority, and that at no time should any other company objective take a higher level of priority.*

The Safety Management System

BC Ferries should:

- *carry out a comprehensive review of the Safety Management System (SMS) to determine which areas are functioning effectively and which areas need improvement;*
- *improve existing training and orientation processes to ensure they are sufficient to increase knowledge and awareness of the SMS across the organization, especially among vessel Officers and Terminal Directors and Managers to ensure they have "bought into" the SMS;*
- *direct the Internal SMS Verification Audit staff to monitor the level of buy-in to the SMS;*
- *consider adopting a standardized uniform program for shipboard and terminal employees to make them easily recognizable by passengers; and*
- *work cooperatively with the British Columbia Ferry and Marine Workers' Union to continuously improve the SMS and operational safety.*

Policies and Procedures

BC Ferries should:

- *review all of its manuals to determine whether they can be consolidated to avoid duplication and to make them more user-friendly; and*
- *ensure that both the human resources data base and the crewing operational area have up-to-date policies and procedures that clearly set out their roles and responsibilities relating to the effective functioning of the Safety Management System.*

Risk Objectives, Identification and Analysis

BC Ferries should:

- *continue to review its corporate-wide Corporate Risk Register and ensure that all significant risks have been identified;*
- *prioritize individual risks as to the likelihood of each risk occurring, and develop strategies for mitigating the risks;*
- *ensure that risk management is integrated into the Safety Management System at all levels of the operations;*
- *develop the appropriate policies, structure, approach and support tools for managing risk; and*
- *use information from within BC Ferries and the marine industry to ensure that best safety practices are incorporated into BC Ferries' operations.*

Voluntary Individual Safety Observation Reporting Process

BC Ferries should:

- *review the purpose of the Voluntary Individual Safety Observation Reporting System and determine whether the purpose for which the system was established can be met by other processes; and, if it cannot, then its current design should be reviewed with the intention of making it more useful; and*
- *communicate the revised process throughout the organization and encourage its use.*

On-time Performance

BC Ferries should continue to communicate to operating staff that, in making decisions around on-time performance, operational safety will never be compromised.

Vessels Transiting Active Pass

BC Ferries should, as part of a formalized risk management process, undertake an assessment of the degree of risk associated with the current practice of allowing BC Ferries' vessels to transit Active Pass simultaneously.

Shift Handover

BC Ferries should review handover procedures and take appropriate action to ensure that consistent and proper watch handover occurs across the fleet.

Incident Reporting and Investigation

BC Ferries should provide key shipboard, regional operating superintendents, terminal and head office personnel with accident and incident investigation training to improve the effectiveness of these activities.

Dealing with Issues Arising from Audits and Inspections

BC Ferries should:

- *continue with its efforts to ensure that all of the items in the Operations Safety Log are addressed in a timely manner; and*
- *apply severity levels to the items in the Operations Safety Log, to focus attention of senior management and the Safety, Health, Environment and Security Committee on the serious safety-related issues that must be dealt with.*

Crewing in Operational Safety

BC Ferries should:

- *ensure that certification, training and other information provided by supervisors and employees is entered into the Human Resources Management System database on a timely basis; and*
- *review the Smart Staff scheduling program to ensure that the controls are functioning as designed so that staff are not assigned to positions for which they are not qualified.*

Training in Operational Safety

BC Ferries should review its training programs and ensure that required training is provided on a more timely and equitable basis throughout the organization.

Bridge Resource Management

BC Ferries should:

- *establish criteria, policies and procedures for crew selection and assignment that will promote greater cohesion and synergy among bridge crews for each watch and shift period; and*
- *continue to accelerate the rate of Bridge Resource Management refresher training to ensure the principles are instilled in and practiced by deck officers in vessel operation.*

Crowd Management and Control

BC Ferries should:

- *accelerate the rate of crowd management and control for all employees to be trained in this important area;*
- *establish a systematic approach to ensuring that catering department staff are regularly exposed to crowd management and control videos on an ongoing basis; and*
- *determine the minimum period acceptable between initial and refresher training in crowd management training, and initiate a program of refresher training consistent with that finding.*

The Familiarization Process

BC Ferries should:

- *review the familiarization process and ensure that it is carried out uniformly across the organization; and*
- *ensure that the documented information provided in the familiarization process is standardized to the extent practicable.*

The Internal SMS Verification Audit Group

BC Ferries should:

- *direct the Internal SMS Verification Audit Group (IVAG) to observe operational safety procedures and protocols to a greater extent, and to provide the Designated Person with information on safety issues for fleet-wide circulation; and*
- *introduce surprise audits in IVAG's regular audit program.*

The Role of Superintendents, Terminal Directors and Managers in Operational Safety

BC Ferries should ensure that:

- *superintendent inspections cover operational safety procedures and protocols and be documented as required; and*
- *superintendents, and terminal directors/managers are provided with the necessary training to enable them to properly carry out their inspections and to promote the SMS at all times.*

Emergency Drills

BC Ferries should:

- *ensure all operational personnel who have not participated in recent fire and boat drills are included on a regular basis;*
- *ensure sufficient time is provided to run complete fire and boat drills and therefore be in full compliance with federal regulations and the company's own policies; and*
- *institute a process to monitor and evaluate fire and boat drills system-wide to ensure uniformity and standardization of crew skills and proficiency throughout the fleet.*

Internal Reporting

BC Ferries should have the Safety, Health, Environment and Security Committee review its meeting schedule and revise it if necessary to ensure it facilitates both committee and board discussion of safety-related matters on a timely basis; and

External Reporting

BC Ferries should ensure that its annual report includes appropriate information on the extent to which the company has achieved its operational safety objectives.