

2000

An investigation into the feasibility of onboard assessments of competency during port state control inspections

Jennifer Ketchum
World Maritime University

Follow this and additional works at: http://commons.wmu.se/all_dissertations



Part of the [Public Affairs, Public Policy and Public Administration Commons](#)

Recommended Citation

Ketchum, Jennifer, "An investigation into the feasibility of onboard assessments of competency during port state control inspections" (2000). *World Maritime University Dissertations*. 81.
http://commons.wmu.se/all_dissertations/81

This Dissertation is brought to you courtesy of Maritime Commons. Open Access items may be downloaded for non-commercial, fair use academic purposes. No items may be hosted on another server or web site without express written permission from the World Maritime University. For more information, please contact library@wmu.se.

WORLD MARITIME UNIVERSITY

Malmö, Sweden

**AN INVESTIGATION INTO
THE FEASIBILITY OF ONBOARD
ASSESSMENTS OF COMPETENCY
DURING PORT STATE CONTROL
INSPECTIONS**

By

JENNIFER KETCHUM

United States of America

A dissertation submitted to the World Maritime University in partial
fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

**MARITIME EDUCATION AND TRAINING
(Nautical)**

2000

Copyright Jennifer Ketchum, 2000

DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

Jennifer A. Ketchum.....

Date

Supervised by:

Professor Peter Muirhead

Course Professor, Maritime Education and Training

World Maritime University

Assessor:

Professor Patrick Donner

Associate Professor, Port and Shipping Management

World Maritime University

Co-assessor:

Mr. Christopher Young

Maritime Personnel Qualifications Division (G-MSO-1)

United States Coast Guard

ACKNOWLEDGEMENTS

First and foremost I thank my husband, Clement, and my sons Benjamin and William for their patience, understanding and uncomplaining support during the program of study at the World Maritime University.

Thank you to Susan Jackson from the World Maritime University for organizing sponsorship for my attendance at WMU, and for answering my endless questions prior to my arrival.

Thank you to Jerry Dzugan of the Alaska Marine Safety Education Association for interesting me in the field of Maritime Education and Training and for being the groundbreaker for Alaskans at the World Maritime University.

Thank you to Professor Peter Muirhead for coordinating a program at WMU where excellence is the norm, and the field studies are unsurpassed.

Thank you to my classmates in the MET 2000 class for their support and extra study sessions for that vast amount of unfamiliar material.

Thank you to those in the U.S. Coast Guard who thought “out of the box” and allowed me to undertake this unique opportunity, especially LCDR Carolyn DeLeo, LCDR Charlie Howard, CDR Andrea Contratto, and LT Dave Kalis

Finally, thank you to those in Mercy Ships who nominated me to attend the World Maritime University and saw the benefits of attendance, especially Don Stephens and Jack Minton, and to the crew of the M/V Caribbean Mercy who taught me how to be a teacher and how to serve others.

ABSTRACT

Title of Dissertation: **An Investigation into the Feasibility of Onboard Assessments of Competency during Port State Control Inspections**

Degree: **MSc**

This dissertation is an investigation of the feasibility of conducting onboard assessments of competency during Port State Control (PSC) Inspections by examining the potential issues involved in the conduct of such assessments and possible solutions to these issues.

PSC is an acknowledged part of the safety net designed to eliminate substandard shipping from the world's oceans. Provisions for PSC written into international conventions ensure that Port State Control Officers (PSCOs) have the power to check the human systems of a vessel just as thoroughly as the structural systems of a vessel. Onboard assessments permitted by international conventions, in particular STCW 95, have the potential to change the conduct of PSC Inspections to reflect the emphasis on human factors that currently dominates the debate on maritime safety.

The present conduct of PSC Inspections worldwide is investigated, with an emphasis on situations where the PSCO must assess mariner competency. A definition of onboard assessment of competency is proposed and situations which fit the parameters of this definition are analyzed with the intent of codifying standard terminology and procedure as a partial solution to some of the issues raised.

The concluding chapters propose a starting point for future work in the area of onboard assessments with special emphasis on training as a potential solution, and propose a standard frame of reference for worldwide application of onboard assessments as part of Port State Control efforts

KEYWORDS: Port State Control, Assessment, Shipboard, Competency, Training

TABLE OF CONTENTS

Declaration	ii	
Acknowledgements	iii	
Abstract	iv	
Table of Contents	v	
List of Tables	ix	
List of Figures	x	
List of Abbreviations	xi	
1	Introduction and Research Methodology	
1.1	Introduction	1
1.2	Research objectives and methodology	6
2	IMO Conventions and Port State Control: Provisions For Onboard Assessments of Competency	
2.1	Introduction	8
2.2	SOLAS 74	9
2.3	The International Safety Management (ISM) Code	10
2.4	MARPOL 73/78	11
2.5	STCW 78	12
2.6	STCW 95	13
2.7	Onboard assessments of competency	14
2.8	Types of onboard assessment	15
3	The MOU View of the Provisions for Onboard Assessments in IMO Conventions	
3.1	Introduction	17
3.2	Paris MOU	18

3.3	Statistics regarding onboard assessment from the Paris MOU	21
3.4	Tokyo MOU	23
3.5	Statistics regarding onboard assessments from the Tokyo MOU	24
3.6	Vina del Mar MOU	25
3.7	Statistics regarding onboard assessments from the Vina del Mar MOU	26
4	Questions Regarding Onboard Assessments of Competency	
4.1	Introduction	27
4.2	Question 1: What conditions will prompt an onboard assessment under STCW 95?	31
4.3	Question 2: What can practically be assessed during an onboard assessment?	33
4.4	Question 3: What evaluation criteria should be used?	34
4.5	Question 4: What are the results of an onboard assessment?	
4.6	Question 5: How much time will onboard assessments add to a PSC Inspection?	36
4.7	Question 6: Are PSCOs adequately trained to be able to conduct onboard assessments?	37
4.8	Question 7: Are there any legal issues involved?	38
4.9	Question 8: Is there really a need for onboard assessments of competency during a PSC Inspection?	38
4.10	Fraudulent seafarer documents	40
4.11	Transitional provisions	41
4.12	The "White List"	42
4.13	Corruption	44

5	Toward a Harmonized Approach to Onboard Assessments	
5.1	Introduction	45
5.2	Acceptance of standard terminology	46
5.3	Standardized purpose for onboard assessments of competency	50
5.4	Reducing subjectivity	52
5.5	Legal issues	53
5.6	Fraudulent seafarer documents	54
5.7	Transitional provisions	55
5.8	The "White List"	55
5.9	Corruption	55
6	The Port State Control Program in the United States	
6.1	Introduction	56
6.2	History and legal basis	56
6.3	Training for Port State Control personnel	58
6.4	Background of personnel involved in the U.S. Port State Control program	58
6.5	Current operational procedures in PSC exams	60
6.6	Onboard assessments of crew competency	64
6.7	Comments on the status of the U.S. Port State Control Program	68
7	Training of Port State Control Officers	
7.1	Introduction	69
7.2	Experience of PSCOs	69
7.3	Importance of PSCO training on onboard assessments of competency	71
7.4	Specific aspects of training for PSCOs	73

7.5	Recommended training for the U.S. PSC Program	75
7.6	Additional comments on USCG PSCO training	78
8	Conclusions and Recommendations	
8.1	Introduction	80
8.2	The need for onboard assessments: the GMDSS case	80
8.3	Review of the objectives of this dissertation	82
8.4	Conclusions	83
8.5	Recommendations	84
	References	85
	Appendices	
Appendix A	List of nations participating in each MOU	89
Appendix B	Sample of MERPAC assessment standard table for advanced fire fighting	92

LIST OF TABLES

Table 3.1	Paris MOU Deficiency Statistics on Onboard Assessments	22
Table 3.2	Tokyo MOU Deficiency Statistics on Onboard Assessments	24
Table 4.1	Excerpt from STCW 95 Table A-VI/3 on Adv. Firefighting	35
Table 6.2	U.S. Coast Guard PSC Detentions 1992-1999	66
Table 6.3	U.S. Detention Category Statistics for 1999	67

LIST OF FIGURES

Figure 6.1	USCG Boarding Priority Matrix	61
Figure 7.1	Recommended Training for U.S. PSCOs	75

LIST OF ABBREVIATIONS

AB	Able-bodied Seaman
AIS	Automated Identification System
AMSA	Australia Maritime Safety Authority
AT	Annual Training
ECDIS	Electronic Chart Display
FSI	Flag State Implementation Subcommittee (IMO)
GMDSS	Global Maritime Distress Safety System
G-MOC	USCG Office of Compliance
ICLL	International Convention on Load Lines
IMO	International Maritime Organization
ISD	Instructional Systems Design
ISM	International Safety Management (Code)
MARGRAD	Maritime Academy (US) Graduate
MARPOL	Marine Pollution
MERPAC	Merchant Marine Personnel Advisory Committee (USCG)
MIC	Marine Inspector Course
MMIRRG	Merchant Marine Individual Ready Reserve Group
MOU	Memorandum of Understanding
MSC	Marine Safety Committee (IMO)
MSPOC	Marine Safety Petty Officer Course
NMC	National Maritime Center
NVIC	Navigation and Vessel Information Circular
PSC	Port State Control
PSCO	Port State Control Officer
SIRC	Seafarer's International Research Center
SMS	Safety Management System
SOLAS	Safety of Life at Sea

STCW	Standards of Training, Certification and Watchkeeping
U.S.	United States
UK P&I	United Kingdom Protection and Indemnity (Club)
UK	United Kingdom
USCG	United States Coast Guard
USMMA	U.S. Merchant Marine Academy

Chapter 1

Introduction and Research Methodology

1.1 Introduction

Nations have long been able to check foreign-flag vessels calling on their ports to ascertain compliance with both international conventions and domestic law. Only within the past ten years has the term Port State Control become a standard name for this process. As an example, the United States began checking foreign-flagged passenger vessels for compliance with certain domestic laws as early as the 1970s; however, the official U.S. Port State Control program was not created until the mid-1990s. Whatever the terminology used, the past five years have witnessed a dramatic growth in the significance of Port State Control as it has become an acknowledged part of the global effort to eliminate substandard shipping from the world's oceans.

The International Maritime Organization (IMO) has supported Port State Control (PSC) objectives and has fostered a regional approach. The result is that PSC is executed in most parts of the world by large cooperative groupings of countries based on a document called a Memorandum of Understanding (MOU). Members of each MOU are obliged to follow the directives and regulations of their particular MOU. At this time, there are eight MOUs in place: Paris, Tokyo, Vina del Mar (South America), Caribbean, Mediterranean, Indian Ocean, Abuja (West Africa), and Black

Sea; one on the drawing board: Persian Gulf; and one nation, the United States (U.S.), operating unilaterally due to domestic law. Appendix A contains a list of nations involved in each MOU.

Port State Control provisions are written into many of the IMO's conventions. These include: the International Convention on Load Lines 1966 (LL66); the International Convention on Safety of Life at Sea 1974 (SOLAS 74); the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78); the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW 78); and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 and 1997 (STCW 95). The control provisions in all conventions focus primarily on the verification of certificates issued under each convention. A representative example of the wording of each convention is found in the SOLAS 74 Convention, which states in regulation 19:

Every ship when in a port of another Party is subject to control by officers duly authorized by such Government in so far as this control is directed towards verifying that certificates issued under regulation 12 or regulation 13 of this chapter are valid.

Although the regulations continue to include other circumstances, it is important to note that the drafters of IMO conventions generally saw PSC activities as a certificate check. The underlying presumption was that the flag state or classification society issuing certificates under each convention had already ensured that the certificates reflected the reality of the condition of the ship and seafarers.

Major marine casualties in the 1980s and 1990s led to the realization that the presence of certificates on a ship was not necessarily an indicator of safety and that

human factors were not adequately accounted for in the IMO conventions. Casualty investigations confirmed the latter revelation, and contributed the statistic that 65% to 80% of maritime casualties were due in whole or in part to some sort of human error (United States Coast Guard, 1996). The implication was that the issue of certificates under various IMO conventions had become somewhat of a paper exercise, and that some flag states and classification societies were not doing a thorough job of oversight.

IMO responded by encouraging flag states and classification societies to improve the quality of their processes, and by making an urgent effort to revise the convention which dealt primarily with human factors, namely STCW 78, a document which was generally seen as weak and easy to circumvent. In his book which elucidated the proceedings of the revision process, Captain W.S.G. Morrison (1997, p. 19) commented on the urgency of revising STCW 78:

By the late 1980s and early 1990s, investigations of shipping casualties and pollution incidents and public inquiries into shipping disasters repeatedly identified human error in the operations of the ship as the major contributory factor. This further eroded any remaining confidence in the value of STCW 78.

Amendments to STCW 78, commonly known as STCW 95, came into force in February of 1997.

Among other accomplishments, STCW 95 expanded port state options for exercising control over foreign-flagged vessels in the ports of that state. Specific provisions will be discussed later in this paper, but it is important to note that this move was not intended to undermine flag state supremacy, but rather, it was an attempt to complement flag state efforts. This objective was manifested in IMO resolution A787

(19), which was designed to set global standards for PSC activities. Section 1.3.3 of this resolution states:

. . . control procedures are complementary to national measures taken by Administrations of flag States in their countries and abroad and are intended to provide assistance to flag State Administrations in securing compliance with convention provisions in safeguarding the safety of crew, passengers and ships, and ensuring the prevention of pollution.

The expectation was that port states and flag states would be cooperating with each other as well as with the other parties with a vested interest in maritime safety, including classification societies, insurers, ship owners, and ship operators in the battle against substandard shipping.

The new approach embodied in STCW 95 took into consideration the idea that human systems needed to be checked just as thoroughly as structural systems. The flag state and the classification society were responsible for periodically ensuring that the structural systems of the ship met and continued to meet international standards. However, there was a gap when it came to periodically checking the “human systems” of a vessel. The flag state was still responsible for the training and certification of seafarers and the condition of a vessel entitled to fly its flag, but after initial certification of seafarers, the flag state was primarily focused on structural systems. There was no provision for periodic checks on the competency of seafarers to which many of the casualties of the past two decades were attributed.

Prevailing practice in seafarer training, certification and crewing further contributed to the recognition of a need for periodic checks. The typical cycle was this: A seafarer (either officer or rating) was certificated by a flag state, which depended on training institutions of varying quality to assess the competency of seafarers. The seafarer then offered his or her skills to the market. A crewing company or a

shipping company determined the validity of the qualifications (by a certificate check), and the seafarer went to work, many times on a ship which was not of the same flag as his or her nationality or license. Continuing competence on the job was not addressed in subsequent flag state and classification society surveys, which tended toward checking only structural systems of a vessel.

Only in nations which had an assessment or exam for upgrading licenses would a seafarer's continued competency be ascertained. Thus, a seafarer who remained at the same level, such as able-bodied seaman (AB) for an entire career would only be examined at the entry level. An officer who had a license from a nation which only assessed competence at the entry level (front-ended system) would similarly not be checked. An engineer with a license from one nation and sailing under an equivalent license from another nation without a training infrastructure would also not be checked. Furthermore, as many of the expectations of competency were in emergency procedures that were not performed on a regular basis, an erosion of skills was the logical result.

STCW 95 was a double-edged effort to ensure mariner competence. Flag states were tasked with assessing competence, not only at the entry level, but at several levels in a seafarer's career. Licensing changed from primarily examination-based to competency-based. Flag states were also required to provide documentary evidence of an effort to give "full and complete effect" to STCW 95 by means of a submission to the IMO. Most importantly for this discussion, PSC was recognized as a point at which an oversight for compliance with STCW 95 and hence, crew competence, could be performed. Strengthened and clarified control provisions allowed a Port State Control Officer (PSCO) to perform an "onboard assessment" of crew competency under certain conditions.

Section B/I-4, of the STCW Code, while non-mandatory, states simply the philosophy behind the strengthening of the control provisions in STCW 95. Paragraph one of this section says: “The purpose of the control procedures of regulation I/4 is to enable officers duly authorized by port states to ensure that the seafarers on board have sufficient competence to ensure safe and pollution free operation of the ship.” The Code continues in paragraph two: “This provision is no different in principle from the need to make checks on the ship’s structures and equipment. Indeed, it builds on these inspections to make an appraisal of the total system of on-board safety and pollution prevention.” (STCW Code, 1995, p. 177)

Port State Control regimes have been slow to recognize and hesitant to exercise the strengthened control provisions granted to them under STCW 95. There are several reasons for their hesitation, not the least of which are a number of transitional provisions which render STCW 95 largely unenforceable until 2002. Other issues involving objectives, procedures, legality and training needed for PSCOs to fully enforce the STCW 95 Convention are also unresolved.

1.2 Research objectives and methodology

A desirable goal is, when the transitional provisions expire in 2002, PSC personnel worldwide are ready to use STCW 95 in a uniform, consistent, legal manner which complements and continues ongoing efforts to enhance maritime safety worldwide.

To these ends, specific objectives of this paper are:

- to ascertain prevailing attitudes of those involved in PSC activities (MOUs, USCG, industry, P&I clubs, and seafarers) about the practicality and necessity of onboard assessments of competency.

- to address concerns raised within the framework of what is permitted under international conventions and what is practical under prevailing conditions in the maritime industry.
- to emphasize the need for international standardization of terms, operational procedures, purpose for detentions, reporting procedures, and analysis of information with regard to onboard assessments of competency.
- to propose a starting point for standardization of PSC efforts with regard to onboard assessments of competency.
- to investigate the training needs for a consistent application of PSC efforts.

In order to achieve these objectives, interviews with persons involved in PSC supplemented by a literature search will be conducted. This information will then be compared to the control provisions contained in international conventions as they relate to onboard assessment of seafarers and interpretations of these conventions by various MOUs and nations. An analysis of the more common questions and issues related to onboard assessments will provide a starting point for recommendations for the uniform implementation of provisions relating to onboard assessments. These recommendations will include a section on training necessary to fully implement STCW 95 from a PSC perspective. Chapter 6 and part of Chapter 7 will specifically investigate the U.S. PSC program.

Chapter 2

IMO Conventions and Port State Control: Provisions for Onboard Assessments of Competency

2.1 Introduction

This chapter will investigate the IMO conventions which currently allow for onboard assessment of mariner competency, and how these provisions are interpreted by the IMO. There are several provisions currently in place which allow a PSCO to assess the competence of mariners onboard the ship during PSC inspections. The IMO has consolidated provisions from all of the applicable conventions and written them in IMO Resolution A787 (19). This document has been simplified further in a booklet published by the IMO in 1997 entitled Procedures for Port State Control. Amendments to IMO Resolution A787 (19) were accepted in 1999 and are contained in IMO Resolution 882 (21).

First, it is necessary to define the term onboard assessment. A definition contained in Maritime Safety Committee (MSC) Circular 853 for “shipboard assessment” is adequate for this purpose. It says: “Shipboard assessment is a process by which shipboard performance is observed, measured, and compared to standards of performance in order to determine a mariner’s proficiency.” (MSC, 1998) An onboard assessment related to PSC, then, is simply the evaluation of an individual’s competence during a PSC Inspection to perform a particular task which the applicable conventions state that person should be able to perform.

All PSC Inspections begin with a certificate check. Common to all conventions is that if a PSCO has “clear grounds” to suspect that the certificates do not reflect the reality of the condition of the particular vessel or the competency of its crew, then the PSCO may require seafarers to perform certain operational procedures which are required for each convention. These procedures are outlined in Resolution A787 (19). This type of action is called "operational control" by the IMO. According to the working definition of onboard assessment presented earlier, this operational control is an assessment of competency because it is an evaluation of a seafarer’s competence to perform a specific task. As an example, the provision for operational control of the muster list states: “The PSCO may determine whether the crew members are familiar with the duties assigned to them in the muster list, and are aware of the locations where they should perform their duties.” (IMO Res. A787(19), 1995, section 3.5.4) To ascertain this, a PSCO would have to assess whether a particular seafarer knew the location of his or her muster station, and what duties were assigned upon arrival to the muster station.

A short analysis of the conventions which allow for onboard assessment during PSC Inspections follows:

2.2 SOLAS 74

SOLAS 74, chapter XI, regulation 4, part 1 states:

A ship when in a port of another Contracting Government is subject to control by officers duly authorized by such a government concerning operational requirements in respect of the safety of ships, when there are clear grounds for believing that the master or crew is not familiar with essential shipboard procedures relating to the safety of ships.

A footnote in the SOLAS text refers the reader to IMO Resolution A787(19). Section 3.5 of this resolution, entitled, “Guidelines for Control of Operational Requirements,” contains relevant sections which apply to SOLAS. Under this convention, a PSCO may ascertain the effectiveness of a muster list, and the degree to which crewmembers are aware of their duties. A PSCO may require the crew to perform a fire or abandon ship drill. A PSCO may also ensure that crewmembers are familiar with the fire control plan and the damage control plan.

If a discrepancy is found between what a seafarer should know and the results of an assessment, then SOLAS advocates: “. . . the Contracting Government carrying out the control shall take such steps as will ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of the present Convention.” (SOLAS 74, 1997, p. 456)

2.3 The International Safety Management (ISM) Code

The ISM Code, as part of SOLAS, has the same control provisions as the rest of the convention. Since its implementation for some ships in 1997, assessment of this part of SOLAS has focused on the officers’ and crewmembers’ knowledge of the company Safety Management System (SMS). This is usually accomplished by a series of questions to the officers and crewmembers. One particular point is that the ISM Code requires that a seafarer who is newly assigned and in a position related to safety or environmental protection be familiarized with his or her duties. It also calls for essential information required by seafarers prior to sailing to be given and documented. The retention of such information by a particular seafarer may be assessed.

2.4 MARPOL 73/78

Control provisions under MARPOL are similar to those in SOLAS. Each annex of MARPOL has a provision for exercise of control concerning operational requirements.

Each says:

A ship when in a port of another Party is subject to inspection by officers duly authorized by such Party concerning operational requirements under this Annex, where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of pollution by (oil-annex 1, noxious liquid substances-annex 2, harmful substances-annex 3, garbage-annex 5). (MARPOL 73/78, 1997, pp. 49, 251, 342, 366)

Referring back to Resolution A787(19): Under MARPOL, a PSCO may assess, among other things, the familiarity of an officer with handling of bilge water, oil, garbage, or dangerous goods. In addition, a PSCO may ask to witness operational requirements outlined in any of the annexes. (IMO Res. A787(19), 1995, section 3.5)

If the particular persons responsible for such requirements are unable to respond appropriately, then the PSCO “. . . has to exercise professional judgement to determine whether the operational proficiency of the crew as a whole is of a sufficient level to allow the ship to sail without . . . presenting an unreasonable threat of harm to the marine environment. " (Procedures for Port State Control, 1997, p. 19)

2.5 STCW 78

Under STCW 78, a PSCO may conduct an “assessment of the ability of seafarers to maintain watchkeeping standards if there are clear grounds for believing that such standards are not being maintained” (STCW 78, p. 18) STCW 78 specifies certain clear grounds. Generally, these are evidence that the conditions on the ship do not correspond with the certificates held by the ship, or evidence that officers or crewmembers are not familiar with procedures necessary to run a safe and pollution-free ship.

STCW 78 further contains three specific situations when clear grounds exist. First, the ship has been involved in a casualty, specifically, a "collision, grounding or stranding". Second, the ship has had an illegal discharge of substances (under an international convention) either in a berth in port or at anchor. Third, the ship "has been maneuvered in an erratic or unsafe manner," including ship operations in which "safe navigation and procedures have not been followed". (STCW 78, pp. 18-19)

When clear grounds are established by the PSCO, then a “more detailed inspection” can be initiated. Included in this more detailed inspection is a provision for "operational control" or "operational checks". These checks not only verify that the equipment is working, but also, an individual seafarer’s ability to operate the equipment on that specific ship.

Under STCW 78, PSCOs may check that the officers on a ship know the action to be taken if the ship is damaged, and check for compliance with the shipboard damage control plan. A PSCO may check that an officer knows how to operate the navigational equipment on the bridge or if persons engaged in handling cargo are able to conduct cargo operations safely and know the dangers involved with a particular cargo. A very important issue with regard to operational checks is that a PSCO may see if ship's personnel are able to operate machinery such as the

emergency generator, the fire pumps, the emergency steering mechanism, the lifeboat engine, or the fire detection system, among other items.

If the ship's crew cannot demonstrate the procedures to the satisfaction of the PSCO, then detention is an option. As it is written, detention may be exercised over a ship if it can be determined that a seafarer who needs to hold a certificate does not hold one; if watch arrangements do not conform to flag state requirements; if there is no one competent in a watch who can operate navigation or pollution prevention equipment; or if sufficiently rested persons are not available to take watch during first watch or any other watch.

2.6 STCW 95

STCW 95 takes STCW 78 a step further. In addition to the aforementioned three circumstances for establishing clear grounds, a fourth has been added: “the ship is otherwise being operated in such a manner as to pose a danger to persons, property, or the environment.” (STCW 95, p. 25) The STCW Code clarifies this and describes specific situations which can be considered to pose this danger. These coincide with the detainable deficiencies listed in STCW 78 (STCW 95, p. 25):

- failure of seafarers to hold a certificate
- failure to comply with safe manning
- failure of navigation or engineering watch arrangements to conform to requirements specified by the Administration.
- absence in a watch of a person qualified to operate equipment essential to safe navigation, safe communications or prevention of marine pollution
- inability to provide for the first watch at the commencement of a voyage . . . persons who are sufficiently rested.

If a ship cannot correct any of these deficiencies, then the PSCO must use his or her judgement and determine if the situation on the ship poses “a danger to persons, property, or the environment.” (STCW 95, p. 25) If so, the ship may be detained until the problem is corrected.

2.7 Onboard assessments of competency

A provision contained in STCW 78 is that control exercised by a PSCO is limited to three situations: verification of certificates, verification that ship’s crew conforms with the safe manning document, and most importantly for this discussion: “assessment of the ability of the seafarers of the ship to maintain watchkeeping standards as required by the convention if there are clear grounds for believing that such standards are not being maintained because any of the following have occurred . . .” (STCW 78, p. 18-19) These provisions are found in the preceding section on “clear grounds.” STCW 95 uses almost identical language in Regulation I/4 section 1.3. But a major difference between the two documents is that STCW 95 contains the phrase “assessment, in accordance with section A-I/4 of the STCW Code . . .” (STCW 95, p. 25) thus correcting a major shortcoming of STCW 78, that is the lack of guidance for the conduct of onboard assessments of competency.

The STCW Code was written along with the revised STCW Convention to amplify some aspects of STCW 78 which were seen as unclear or weak. Section A-I/4 of the STCW Code, entitled “Control Procedures” elaborates on these onboard assessments of competency, imposing several conditions:

- the occurrences in paragraph 1.3, section A-I/4 need to have occurred
- the assessment is a "verification" that the crewmembers responsible for either the occurrence or the mitigation of the occurrence have the skills "related to the occurrence." For example, if a ship is involved in a steering casualty which

results in a grounding, the crew may be assessed in emergency steering procedures, or other subjects relevant to the casualty

- the relationship to the ISM code must be considered in an assessment
- certificates of seafarers should be checked as the first part of an any assessment
- a demonstration can be required at the workplace (i.e. on the ship)
- the demonstration of competency can cover both watchkeeping standards and operational requirements
- the assessment cannot be beyond a seafarer's certificated level of competence
- only the "methods for demonstrating competence" together with the "criteria for its evaluation" in part A of the STCW Code can be used

Part B of the STCW Code, which is optional, further amplifies this information, and supplies some of the "why?" behind both the provision for and the stipulations of onboard assessments. In chapter one, which referenced the first two provisions of Part B, an analogy was drawn between the need to check a ship's human systems just as much as a ship's structural systems. In addition, Part B comments on three important elements of the differences between STCW 78 and STCW 95: reducing subjectivity by relating assessment to criteria in Part A of the STCW Code, the connection of nature of the clear grounds with the subject of assessment, and the importance of professional judgement when making a determination of whether any shortcomings in individuals assessed make the ship "a danger to persons, property or the environment". (STCW 95, p. 177)

2.8 Types of onboard assessment

Based on the information from the various conventions, three types of onboard assessment can be identified:

1. Operational checks under the SOLAS 74 and MARPOL 73/78 Conventions
2. Fire and boat (abandon ship) drills

3. Onboard assessment of watchkeeping skills as provided for in STCW 78 and STCW 95.

Chapter 3

The MOU View of the Provisions for Onboard Assessments in IMO Conventions

3.1 Introduction

The seven MOUs have based their PSC programs on IMO Conventions and their interpretations of provisions for PSC largely reflect guidance given by the IMO, specifically, Resolution A787(19) and Res. 882(21), which provided amendments to A787(19). Guidance from the IMO indicates that provisions in STCW 95 should not be enforced at this time because of the transitional provisions in place until 01 February 2002. For this reason, the MOUs are still requiring STCW 78 compliance. The U.S. is enforcing some of the more urgent requirements of STCW 95 (as outlined in chapter 6).

This chapter is not intended to be an overview of the MOUs' PSC programs, but rather, a look at how three of the more established MOUs are using the three previously identified types of onboard assessment; operational checks, fire and boat drills, and onboard assessment of watchkeeping skills as provided for in STCW 78 and 95, during PSC Inspections. The three regions surveyed are the Paris MOU, Tokyo MOU, and the Vina del Mar (South America) MOU.

3.2 Paris MOU

Section 3.1 of the Paris MOU on PSC first directs a PSCO to visit a ship to check certificates and documents. It then advocates a walk-through inspection for the PSCO to see if the overall condition of the ship and crew “meets generally accepted international rules and standards.” (Paris MOU, 1982, section 3.1) If a PSCO has “clear grounds” to believe that the certificates on the ship do not reflect the condition of the ship or crew, either an expanded inspection or a more detailed inspection may be conducted.

An expanded inspection is one which is required every 12 months for certain types of ships, namely, certain oil tankers, bulk carriers older than 12 years, passenger ships, and gas and chemical tankers over 10 years old. No clear grounds are required for vessels in this category; however, clear grounds are required for other types of ships for which a PSCO deems an expanded inspection necessary.

The Paris MOU states that for all ships subject to expanded inspection, a PSCO may check crewmembers’ ability to operate a number of systems onboard, including: the emergency generator, emergency lighting, emergency fire pump, bilge pumps, watertight doors, remote emergency stops for certain equipment, steering gear, emergency power to communications gear, oily water separator, and the lowering of a lifeboat to the water. (Paris MOU, 1982, section 8.4.2) This section is very extensive and contains all of the provisions listed in IMO Resolution A787(19).

In the case of an expanded inspection for other than ships required to have an expanded inspection every 12 months, and those ships which need a “more detailed inspection,” the “clear grounds” provision is relevant. Section 3 of the Paris MOU states:

The Authorities will regard as ‘clear grounds’ *inter alia* the following:

- a report or notification by another Authority
- a report or complaint by the master, a crew member, or any person or organization with a legitimate interest in the safe operation of the ship, shipboard living and working conditions or the prevention of pollution, unless the Authority concerned deems the report or complaint to be manifestly unfounded.
- other indications of serious deficiencies, having regard in particular to Annex I. (Paris MOU, 1982, section 3)

Further, the Paris MOU makes a distinction between clear grounds for a more detailed inspection and clear grounds for conducting operational checks:

For the purpose of control on compliance with onboard operational requirements, specific 'clear grounds' are the following:

- evidence of operational shortcomings revealed during PSC procedures in accordance with SOLAS 74, MARPOL 73/78, and STCW 78
- evidence of cargo and other operations not being conducted safely or in accordance with IMO guidelines
- involvement of the ship in incidents due to failure to comply with operational requirements
- evidence, from the witnessing of a fire or abandon ship drill, that the crew are not familiar with essential procedures
- absence of an up to date muster list

- indications that key crew members may not be able to communicate with each other or with other persons onboard (Paris MOU, 1982, annex I, section 4)

Provisions for the “more detailed inspection” are found in annex 1, section 5. In this section is the authority for a PSCO to test operational requirements relating to emergency musters, drills, communications, SAR plan, bridge operation, cargo operations, machinery operation, and compliance with shipboard and company manuals.

Detention is always an option in cases in which a ship is found deficient in any operational area. The Paris MOU charges PSCOs with exercising professional judgement to:

determine whether the operational proficiency of the crew as a whole is of a sufficient level to allow the ship to sail without danger to the ship or persons onboard, or presenting an unreasonable of harm to the marine environment.
(Paris MOU, 1982, annex I, section 5.5.3)

Further guidance in exercising professional judgement to determine if deficiencies are serious enough to warrant a detention is found in section 6.3. This section gives several circumstances related to the vessel’s “forthcoming voyage.” These criteria may be framed into a series of questions. On the forthcoming voyage, can the ship:

- navigate safely?
- handle, carry and monitor cargo?
- operate the engine room safely?
- maintain proper propulsion and steering?
- fight fires in any part of the ship?
- abandon ship correctly?

- prevent pollution?
- maintain adequate stability?
- maintain adequate watertight integrity?
- communicate in distress situations?
- provide safe and healthy conditions onboard?

If the answer to any of these questions is negative in the PSCO's judgement, "the ship should be strongly considered for detention". (Paris MOU, 1982, annex I, section 6.3)

3.3 Statistics regarding onboard assessments from the Paris MOU

It is difficult to analyze specific instances where an onboard assessment has been used as the statistics on the results of onboard assessments during PSC Inspections are either not reported or sometimes mixed in with other categories. For example, failure of an operational check of emergency communications equipment could be listed in one of several categories: "safety in general", "radio", "operational control-SOLAS," or even "ISM", depending on the nature of the deficiency. The most relevant categories for deficiencies found after an operational control are: "safety in general--musters and drills," "operational control SOLAS" and "operational control MARPOL." A chart of three years of enforcement for these categories follows on the next page:

Table 3.1 Paris MOU Deficiency Statistics on Onboard Assessments

Safety in General	1997	1998	1999
Musters and drills	266	382	432

Operational Control SOLAS	1997	1998	1999
Musters/drills/communication	269	316	352
Fire/damage control plan	177	185	220
Bridge/engine room/cargo operations	57	84	76
Manuals/instructions, etc.	162	190	295
Other	58	56	32
Total (for Operational control SOLAS)	723	831	975

Operational Control MARPOL	1997	1998	1999
Oil/oily mixtures in machinery spaces	85	102	106
Garbage	138	381	382
Other	39	63	70
Total (for Operational control MARPOL)	262	546	558

Source: 1999 Annual Report-Paris MOU on PSC

Clearly, there has been a rise in detentions for operational checks, both SOLAS-related and MARPOL-related. The Paris MOU concluded:

A development of growing concern is the substantial consistent increase recorded in operational deficiencies related to safety and environmental procedures. Over a four-year period these deficiencies have increased by 74%. In the light of recent disasters, ship owners and flag States should

recognise the seriousness of these figures and take adequate measures to improve operational safety onboard. (Paris MOU, 2000, p. 1)

3.4 Tokyo MOU

The Tokyo MOU is very similar to the Paris MOU. Section 3.1 of the Tokyo MOU states that a PSCO will first conduct a certificate check for compliance with international conventions. PSCOs will also look at various areas of a ship, including accommodation spaces, the engine room, and the galley to get an impression of the overall condition of the ship. A more detailed inspection will be carried out if certificates are not valid or if a PSCO has clear grounds for believing that a ship or crew does not meet the actual requirements of international conventions, or if certificates attesting to compliance are absent.

The provisions for clear grounds with regard to compliance with operational requirements are identical to the Paris MOU provisions (Greenaway, 1998, p. 19):

- evidence of operational shortcomings revealed during PSC procedures in accordance with SOLAS 74, MARPOL 73/78, and STCW 78.
- evidence of cargo and other operations not being conducted safely or in accordance with IMO guidelines
- involvement of the ship in incidents due to failure to comply with operational requirements
- evidence, from the witnessing of a fire and abandon ship drill, that the crew are not familiar with essential procedures
- absence of an up-to-date muster list

- indications that crew members may not be able to communicate with each other or with other persons onboard.

The elements of a more detailed inspection are the same as outlined in the Paris MOU in the preceding section. Detention criteria are found in Appendix 1 of IMO Resolution A.787 (19).

3.5 Statistics regarding onboard assessments from the Tokyo MOU

The 1999 report for the Tokyo MOU also recognized an increase in MARPOL-related operational deficiencies, but a decrease in SOLAS related operational deficiencies (though not large enough to represent a trend).

Table 3.2 Tokyo MOU Deficiency Statistics on Onboard Assessments

Category	1997	1998	1999
SOLAS related operational deficiencies	1,757	3,047	2,641
MARPOL related operational deficiencies	183	486	814

Source: 1999 Annual Report Tokyo MOU on PSC

As a representative sample of the Tokyo MOU, the 1999 report of the Australia Maritime Safety Authority (AMSA), elaborated on these statistics indicating increases in operational deficiencies statistic by including in the text of their annual report for 1999, this statement:

The other noticeable increasing trend is with deficiencies related to the operational aspects of the ship. Muster list, communication, fire drills, abandon ship drills, bridge, cargo and machinery operations are included in this deficiency category. Over the years, AMSA surveyors have expanded their inspections from the traditional check of the physical condition of the

ship and its equipment to also include the crew's ability and familiarity with the safe and pollution free operations of their ship. (AMSA, 2000, p. 9)

3.6 Vina Del Mar (South America) MOU

PSCOs in the Vina del Mar region (South America) initially survey the ship for validity of certificates and documents, as do the other regions. However, in a break from the others, the agreement mandates checking for compliance with operational requirements as part of the initial inspection. If a ship is not in compliance with conventions, including operational requirements checked in the initial inspection, then the PSCO may conduct a more detailed inspection. As with the Paris and Tokyo MOUs, a form of clear grounds, called "clear indications" for a more detailed survey, are listed (Greenaway, 1998, p. 26):

- A report or notification from another Maritime Authority
- A report or complaint from the Master of the ship, a member of the crew or any other person or organization interested in maintaining the safety of operations of the ship or in preventing marine pollution, unless the respective Maritime Authority considers that the report of the complaint are evidently groundless.
- other signs of serious deficiencies

Similar to the other MOUs, the Vina del Mar MOU specifies more "clear indications" for operational checks, including (Greenaway, 1998, p. 26):

- Evidence of operational failures verified during PSC procedures of ships, pursuant to SOLAS, MARPOL, and STCW 78
- ship involvement in incidents arising from non-compliance with operational requirements

- Ascertained evidence, during fire fighting drills and/or ship deserting drills, that the crew is not familiar with basic procedures
- Lack of an updated muster plan
- Indications that it is impossible for the key members of the crew to communicate among themselves or with other persons onboard

Detention is an option if the ship is found not to be in compliance with any aspect of any international convention.

3.7 Statistics regarding onboard assessment from the Vina del Mar MOU

The author was unable to retrieve any annual statistics on PSC activities in the Vina del Mar MOU region.

Chapter 4

Questions Regarding Onboard Assessments of Competency

4.1 Introduction

One of the most significant changes made to STCW 78 in STCW 95, was the strengthening of control provisions. To understand the implications of this change, it is first necessary to understand the shortcomings of STCW 78. The drafters of STCW 78 intended for the convention to establish global minimum professional standards for seafarers. It was written as primarily a flag state document, with the expectation that flag states would implement these minimum standards for certification of seafarers or use them as a guide for implementing more stringent standards. Dr. Rolf Schulte-Strathaus (1998, p. 31) commented on what really happened:

In practice STCW 78 standards were regarded as a maximum level of education and training that was often not reached or enforced by the Flag States. Therefore the quality of training throughout the world's merchant fleet still varied widely.

Rather than being the end of the improvement process, STCW 78 was revealed to be only a small step in the right direction. Major shortcomings in the convention were noted within the first five years of its existence. According to the IMO, STCW 78 suffered because of a “general lack of precision in its standards, the interpretation of

which was left ‘to the satisfaction of the Administration.’” (IMO, 1997, p. 2) The result of this shortcoming was “. . . Widely varying interpretation of standards and many Parties failed to effectively administer and enforce Convention requirements. STCW certificates could no longer be relied upon as evidence of competence.” (IMO, 1997, p. 2)

The coordinator of the group of international consultants who participated in the revision of STCW 78 was Captain W.S.G. Morrison, who wrote a book intended to facilitate understanding of the process of that revision. According to his book, there was a rapid expansion of the maritime labor pool from nations that did not have maritime training infrastructures subject to control and audit, a situation described by him:

Experience within the shipping industry soon indicated that large numbers of poorly trained seafarers were being granted STCW certificates of competency. Since both well-trained and poorly trained seafarers were issued exactly the same type of certificate, the only means of identifying one from the other was through evaluating their performance onboard after they were already employed. (Morrison, 1997, p. 18)

In addition to within a company, the other place where these variations in competence were manifest was during PSC Inspections.

A series of high profile casualties with significant loss of life and pollution cases that caused severe damage to the marine environment occurred in the 1980s and early 1990s. The much publicized “human factor” relating to these accidents served to turn the heretofore unconcerned public into a vocal lobby highly critical of the shipping industry and the IMO and its work, especially STCW 78. The Secretary General of the IMO, William O’Neil, called for an urgent revision of STCW 78,

using consultants working for the STW Subcommittee to prepare the new convention. To further enhance the speed at which the convention was implemented, a tacit acceptance procedure was used. This meant, that unless one third of the Parties or the Parties whose combined merchant fleets constituted not less than 50% of the world tonnage rejected it, the amendments would enter into force in one to two years.

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 and 1997 (STCW 95) and the Seafarer's Training, Certification and Watchkeeping Code (STCW Code) came into effect on 01 February 1997.

Before STCW 95 came into effect, PSC was recognized as a time during a seafarer's career in which a third party could observe performance on the job. Thus, the enhancement of the PSC provision was seen as one of the priorities for the revised STCW Convention. However, the drafters realized that certain conditions would have to be placed on such procedures in order to prevent PSCO carte blanche. This intention is stated in IMO guidance:

Enhanced procedures concerning the exercise of Port State Control under Article X of the Convention have been developed to allow the competence of seafarers in carrying out watchkeeping to be assessed and to permit intervention in the case of deficiencies deemed to pose a danger to persons, property and the environment. (IMO, 1997, p. 7)

The conditions that were placed on PSC procedures were outlined in chapters two and three as "clear grounds."

Under STCW 95, PSCOs are tasked with checking certificates of competency, and making a judgement as to whether or not they reflect the reality of the crew's

competency, based both on what has happened immediately preceding the inspection or observation during the inspection. If these circumstances meet the criteria of clear grounds, then, a PSCO has an option to assess the watchkeeping skills of crewmembers as compared to the tables in the STCW Code. Then, he or she must make another judgement as to whether or not whatever level of competency he or she finds poses a danger to persons, property or the environment, and if so, whether to recommend the vessel for a detention until the problem can be rectified.

From chapter two, the definition for shipboard assessment as presented in MSC Circular 853 is: “. . . a process by which shipboard performance is observed, measured, and compared to standards of performance in order to determine a mariner’s proficiency.” (MSC Circular 853, 1998) Current PSC practice reveals three categories which are assessments:

Based on the information from the various conventions, three types of onboard assessment can be identified:

1. Operational checks under the SOLAS 74 and MARPOL 73/78 Conventions
2. Fire and boat (abandon ship) drills
3. Onboard assessment of watchkeeping skills as provided for in STCW 78 and STCW 95.

A distinction is made between operational checks and fire and lifeboat drills because the two items focus the PSCOs attention in a different way.

The first two types of assessments, operational control for various operational aspects of the conventions and fire and lifeboat drills under SOLAS are currently performed, and are accepted as a part of an expanded PSC inspection in the more established MOUs and part of the general inspection in the United States and Vina del Mar MOU. The third type of assessment, that prescribed in STCW 78 and elaborated in STCW 95 is the most problematic in terms of uniform worldwide implementation, and that will be the focus of this chapter. Information from the offices of the MOUs

and the U.S. Coast Guard indicate that assessments of competency under STCW 95 are not being used at this time due to several uncertainties and issues involved with full implementation of this option.

This chapter contains an enumeration of several issues that come to mind when considering implementing the onboard assessment provision of STCW 95. They are framed as questions. The first eight questions are intrinsic to the idea of onboard assessments. The last four are issues not necessarily limited to onboard assessments, but rather, they are concerns that are more broadly linked to PSC in general.

4.2 Question 1: What conditions will prompt an onboard assessment under STCW 95?

The four items that would alert a PSCO to conduct an assessment are termed “clear grounds” for believing that watchkeeping standards according to STCW 95 are not being maintained (STCW 95, p. 25):

- collision, grounding or stranding of ship
- illegal discharge of substances from ship
- the ship has been maneuvered in an unsafe manner
- the ship is being operated in a manner which may “pose a danger to persons, property or the environment.”

The fourth clear ground is the most open to interpretation. STCW 95 continues with five criteria that can be used as evidence of the clear ground that the ship may pose a danger to persons, property and the environment. These may be phrased as questions based on the provisions found in STCW 95, Regulation I/4, paragraph 2:

1. Do all seafarers hold a certificate or dispensation?
2. Does the ship comply with the safe manning document of the administration?

3. Do the navigation and engineering watchkeeping arrangements comply with Administration guidelines?
4. Is there a person in each watch qualified to operate equipment that is needed for safe and pollution free operation of the ship?
5. Are there enough persons onboard who are sufficiently rested to cover the watches required?

The Paris MOU, Tokyo, and Vina del Mar MOUs have not specified any additional clear grounds for STCW assessments, either 78 or 95, however, they do have additional clear grounds for control of operational requirements, which would prompt a “more detailed inspection,” which would include operational checks (assessments). These additional clear grounds are specified in chapter three, but some of them are: evidence of operational shortcomings with regard to IMO conventions, including failure of a fire or boat drill or questionable cargo handling practices; absence of a current muster list; and indications that the crew may not be able to communicate with each other.

The U.S. Coast Guard has specified additional clear grounds as well. These are: crew unable to perform fire and lifeboat drills, watchkeeping officers cannot communicate with the PSCO in English, crewmembers cannot operate shipboard equipment required for operational tests, observation by the PSCO that ship personnel are unfamiliar with the ship or their duties, and the crew not being able to communicate with each other. (NVIC 3-98, p. 8)

Although these clear grounds are similar, they are not exactly the same. This lack of standardization with regard to clear grounds can be confusing to the flag state and the seafarer. A related issue is the potential fitness of a seafarer who has been involved in an incident that would provide the clear grounds for the conduct of an assessment. A mariner who has been involved in a casualty such as a grounding, stranding, or

illegal discharge of substances is usually not at his or her best mentally or emotionally. It would be difficult to rely on the validity of an assessment conducted under such circumstances.

4.3 Question 2: What can practically be assessed during an onboard assessment?

Modern shipping requires that a ship spend a very limited amount of time in port. Cargo loading and discharging, crew changeovers, inspections by classification societies, flag states and cargo and charter concerns all need to be completed during the time in port. The in port work of a ship usually involves every crewmember. In this environment, what can be completed during an onboard assessment?

Capt. J. Brusseau of the U.S. Coast Guard (2000, p. 66) writes about the problem:

. . . the assessment scheme under the STCW Code has the effect of broadening those criteria considerably, to include virtually every aspect of ship operations where a seafarer is involved as a human element. . . . on one hand, ship operators are concerned that a comprehensive assessment would make everything about the ship subject to the PSCO's microscopic scrutiny. PSCOs, on the other hand, are concerned about the time and expertise it would take to do a full assessment.

Clearly, there is a need for published, specific boundaries with regard to onboard assessments. In addition to the time element, what type of assessment can reasonably be expected for a platform that is not operating? For example, is an assessment on position fixing possible when the ship is tied to the dock?

4.4 Question 3: What evaluation criteria should be used?

In giving “full and complete effect” to the Convention, many nations are finding that STCW 95 specifies certain items as criteria for evaluating competence, but that this is not detailed enough in how to execute the assessments. This is important with regard to Section A-I/4 paragraph 5, which states: “In the assessment, only the methods for demonstrating competence together with the criteria for its evaluation and the scope of the standards given in part A of this Code shall be used.” (STCW Code, 1995, p.13) For example, in Table A-VI/3, which applies to advanced firefighting, and partially reproduced in Table 4.1, the lack of assessment criteria is clear. It would be difficult for a PSCO to use these published and very general criteria to determine if a seafarer does in fact possess the knowledge of fire fighting operations at sea. A recent article comments on this particular shortcoming of the STCW Code:

Tables in the STCW Code provide general instructions on the methods and criteria for evaluating competence, but the terms of reference in these tables are not specific enough to permit assessments that are both valid and reliable, and the conditions for demonstration are not stated. (Bobb, 2000, p. 5)

Please note that only one knowledge is listed in table 4.1 in order to facilitate comparison with the assessment measures expanded by the USCG in Appendix 2.

Validity and reliability of assessments will be covered in the next chapter, but shortcomings in the reliability area concern subjectivity in assessing a certain task. This is an important concern in the area of a PSCO conducting onboard assessments of competency.

Table 4.1 Excerpt from STCW 95 Table A-VI/3 on Advanced Firefighting

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Control fire fighting operations onboard a ship	Fire fighting procedures at sea and in port with particular emphasis on organization, tactics and command	Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulated shipboard conditions) and, whenever possible and practicable, in darkness	<p>Actions taken to control fires are based on a full and accurate assessment of the incident, using all available sources of information</p> <p>The order of priority, timing and sequence of actions are appropriate to the overall requirements of the incident and to minimize damage and potential damage to the ship, injuries to personnel and impairment of the operational effectiveness of the ship</p> <p>Transmission of information is prompt, accurate, complete and clear</p> <p>Personal safety during fire control activities is safeguarded at all times.</p>

Source: STCW 94, Code A, Table A-VI/3

4.5 Question 4: What are the results of an onboard assessment?

According to Section A-I/4, the results of an onboard assessment will indicate the ability of seafarers to maintain watchkeeping standards. Detention of a ship may result if there is “an absence in a watch of a person qualified to operate equipment essential to safe navigation, safety radiocommunications or the prevention of marine pollution.” (STCW 95, p. 13) Additionally, the absence of this person needs to be deemed by the PSCO to pose a danger to persons, property or the environment. It is not just the inability to perform a task that sets the criteria for detention, but rather, the absence of a person proficient in that skill in a watch and the determination that the absence is a danger.

If clear grounds for the assessment are an occurrence such as a casualty, then that danger has already been determined, and the onboard assessment becomes more of a judgement of competency of an individual seafarer that merits an investigation by the flag state or nation that licensed the individual. Morrison (1997, p. 239) writes:

Evidence of incompetency may be revealed through poor performance in the sequence of events leading to or during the incident as judged against the relevant standard of competence in part A of the STCW Code. If incompetency is confirmed and poses a direct threat to safety of life or property at sea or to the marine environment, then steps should be taken to withdraw, suspend, or cancel the certificate, at least until the competence has been reestablished. Weaknesses in performance can be corrected through refresher or upgrading training.

In considering the results of an onboard assessment, a distinction must be made between human error and incompetence. A seafarer may have made an error, but he or she still knows how to perform the skill in question (is competent). A finding of incompetency as defined by Morrison would be difficult to do in the realm of PSC.

4.6 Question 5: How much time will onboard assessments add to a PSC Inspection?

There is a provision in all conventions for not delaying ships. In Article X of STCW 95, this provision reads:

When exercising control under this article, all possible efforts shall be made to avoid a ship being unduly detained or delayed. If a ship is so detained or

delayed it shall be entitled to compensation for any loss or damage resulting therefrom. (STCW 95, p. 12)

In addition, a ship in port is subject to all manner of inspectors, from flag state surveyors to classification societies, to purpose inspectors (grain, tankers, passengers, cargo, etc.). The maritime press is full of articles and editorials lambasting the current regulatory climate in port. Is there enough time to complete an onboard assessment if needed?

4.7 Question 6: Are PSCOs adequately trained to be able to conduct onboard assessments?

Ideally, all PSCOs should possess a professional qualification that enables them to accurately assess a seafarer onboard. This means they should possess the skill they are assessing. Suggested qualifications for those PSCOs carrying out inspections of operational requirements are found in Section 2.5 of Resolution A787(19):

- qualified as master or chief engineer with seagoing experience
- have maritime-related qualifications (recognized by the Administration) **and** have specialized training to “ensure adequate competence and skill”
- be an officer of the Administration **and** have an “equivalent level of experience and training” in the conduct of operational checks.

The last two provisions are concessions to nations who do not possess the maritime infrastructure necessary to find PSCOs who fulfill the first prerequisite. This is necessary because, currently, a minority of nations have PSCOs who are qualified in the skills that they could be judging in the case of an onboard assessment. The United States is one such nation in which the professional qualifications of PSCOs vary widely. Also, many developing nations or small nations with very few convention sized ships calling on its ports cannot justify the expense of maintaining a corps of PSCOs who are so well-trained and could obviously work in some other area

for more compensation. How can administrations attract and pay PSCOs with the appropriate qualifications?

4.8 Question 7: Are there any legal issues involved?

Although onboard assessments are legally within the purview of a PSCO according to international conventions, the element of subjectivity inherent in onboard assessments increases the probability of legal issues. Among these are:

- entitlements for compensation for delay of ships
- who should be contacted prior to an onboard assessment or be present during an onboard assessment?
- right of appeal of person assessed, master, agent/company
- confidentiality of results
- jurisdiction on parties who have not ratified some or all of the conventions

4.9 Question 8: Is there really a need for onboard assessments of competency during a PSC Inspection?

In an article in Proceedings, Captain J. Brusseau stated that practical realities restrict the need for onboard assessments of competency. After analyzing the statistics in the U.S. from Sept. 1, 1998 to August 31, 1999, he remarked:

If all the ships detained in the U.S. last year had been crewed according to their Safe Manning Document, with all crewmembers appropriately certificated, and if those crews had demonstrated they could fight a fire and launch a lifeboat, then only 4 ships would have been detained for STCW-related deficiencies. (Brusseau, 2000, p. 66)

He concluded: “The lesson is pretty clear; most port state control problems go away by taking care of the basics.” While he noted that the number of STCW-related deficiencies remained steady over the months of that year-long period, the actual number was still low compared to the number of total deficiencies, yet he concluded that: “. . . it is safe to say the human element in general will remain a prominent focus of PSC in the U.S. in coming years, certainly until there is a noticeable decrease in STCW-related deficiencies.” (Brusseau, 2000, p. 66)

Despite this view, there is a general view among those of traditional maritime nations that the skill level of serving and incoming seafarers is lower than in the past. This view is confirmed by a large study undertaken by the Seafarers Industrial Research Center (SIRC), in Cardiff, Wales, in which marine pilots in various ports were asked to rate crew competency on vessels that they piloted. Most of the study (80%) was completed in six European ports, with the other 20% completed in ten ports in Africa, Southeast Asia and Australasia. The pilots were asked to rate the crews on: the ship’s condition, the Captain and officers’ performance on the bridge, handling lines and tugs, and ability to communicate with the pilot. A tabulation of the results revealed that pilots felt that 25% of ships they evaluated were manned by seafarers whose competence was “poor”. Ten percent of ships were reported to have “abysmal” crew competence. This study was completed as “. . . a response to a prevailing view that crew competence was in general a growing problem . . .” (The Sea, 1999, p. 1)

In addition to this study, the statistics and comments from the 1999 Paris MOU Annual Report, the 1999 AMSA Annual PSC Report, and the 1999 U.S. Coast Guard’s Annual PSC Report show an increase in operational deficiencies under the operational specifications of the conventions, such as fire and boat drills. Can PSCOs help in the battle against substandard training of mariners by conducting onboard assessments, or is there really no need to do them?

In addition to these questions specific to onboard assessments of competency under STCW 95, there are a number of issues that are not necessarily intrinsic to that issue, but are more generally related to PSC. These concerns will be presented in the following paragraphs.

4.10 Fraudulent seafarer documents

The first task a PSCO is authorized to perform onboard a ship is a certificate check. According to Morrison (1997, p. 41):

Every certificate must be accepted by port State authorities unless there are clear grounds for believing it was fraudulently obtained or is being used by a person other than the person to whom it was issued. Note that these two circumstances are the only reasons why a valid certificate is not accepted.

One trend noted by the IMO in recent years is the proliferation of fraudulent certificates of competency. The widespread use of computers and scanners has made it easier to produce very authentic looking fraudulent documents. Most flag states do not have the resources to combat this burgeoning practice.

The IMO MSC has recently commissioned a study to be completed by the Seafarer's International Research Center (SIRC) on unlawful practices linked to seafarer certificates. Some of the preliminary findings are that there are four main areas of unlawful practice (IMO, 2000, p. 22):

- seafarers possessing certificates which do not reflect actual functions performed on the ship or limitations due to tonnage, area of work, etc. or certificates which are expired
- legitimate certificates issued by a third party based on forged or fraudulently obtained evidence of competency from the original certification party

- certificates issued based on flawed or lax examination procedures or official corruption
- blatant forgeries given by a manning agency or shipowner, or purchased “on the street”

While the complete research is not available, a recent article in IMO News stated: “There is evidence to suggest that the problem is more widespread than previously thought.” (IMO, 2000, p. 22)

4.11 Transitional provisions

Verbal guidance from the IMO given at the MSC Subcommittee meeting in May 1999 stated that nations should not be concentrating on STCW 95 enforcement until the transitional provisions expire on 01 February 2002. There are two regulations in STCW 95 on transitional provisions that are relevant to PSC. Regulation I/15, entitled “Transitional Provisions” says that a Party can issue, recognize and endorse certificates in accordance with STCW 78 until 01 February 2002. This provision applies to those seafarers who began their seagoing service toward certification or their training program prior to 01 August 98. The U.S. is an example of a nation that is still issuing STCW 78 certificates for those seafarers who began their service prior to 01 August 98. These certificates all expire on 01 February 2002. Mariners with existing licenses need to meet STCW 95 requirements and have certificates attesting to that fact prior to 01 February 2002.

Provisions under Article VII of STCW 95 are harder to understand. Morrison sheds some light on the subject: “After entry into force of the Convention for a Party, its Administration may continue to issue certificates of competency in accordance with its previous practices for a period not exceeding five years.” (Morrison, 1997, p. 41) If a State accepted the STCW 78 Convention after 28 April 1984, the entry into force of STCW 95 varies. The implications for PSC are important, as validity of a

certificate is grounds for a more detailed inspection or an expanded inspection. A PSCO who is not fully versed in the individual arrangement for each nation could unknowingly impose his or her own national requirements on a ship that is fully compliant with the Convention under their particular arrangement. As an example, the STCW Convention entered into force for Estonia on 29 November 1995. The Estonian government may continue to issue STCW 78 certificates until 29 November 2000. This certificate is issued under Article VII, and is considered equivalent to an STCW 95 Certificate. It will be valid until 20 November 2005. However, if the seafarer wants to serve on a non-Estonian ship, he or she needs to receive an STCW 95 endorsement from the flag state of that ship prior to 01 February 2002. The IMO STW Subcommittee has written guidance for this confusing issue in IMO STCW.7/Circ.1. A supplement to Morrison's book contains several tables and a country-by-country list of the status of the STCW 78 Convention.

4.12 The "White List"

Regulation I/7 of the STCW Convention (amplified by Section A-I/7 of the STCW Code) requires parties to STCW to submit a report to the IMO that demonstrates that the party is giving "full and complete effect" to the STCW Convention. Some specific items required in this report are a detailed exposition on a nation's maritime training and licensing infrastructure, including schools, training centers, administrative oversight, and certification procedures. These reports are reviewed by a panel of "competent persons" for the IMO who make the determination as to the sincerity of the Party's efforts toward "full and complete effect".

According to an article in Proceedings by the chairman of the STW Subcommittee, Mr. Christopher Young, no results from those reviews of the 81 nations which submitted their reports prior to the August 1, 1998 deadline are approved for release. The reason for this is that the MSC does not want to disadvantage any nation because

of the pace of work produced by its particular panel. The 72nd (May 2000) meeting of the MSC indicated that publication of the results would be delayed indefinitely pending work of all 81 panels.

The anticipation for the results of this list, dubbed “the White List” is intense. Parties and those in maritime press have added to the hype by creating the perception that if a party is not on the white list, they must be on a “black list”. Mr. Young commented: “. . . the wording of the STCW Convention does not provide a basis for automatically presuming that any country which is not yet on the list is fundamentally in non-compliance with the convention.” (Young, 2000, p. 62) He points to the transitional provisions in place until 2002 and the fact that the process of evaluation of a party’s QSS under regulation I/8 presupposes the existence of such a system for five years prior to evaluation as indicia that the white list is not the end of the evaluation process, but rather just a piece of the puzzle. He wrote: “. . .the working presumption should be that the Party is making good faith efforts to address deficiencies and to meet its obligations.” (Young, 2000, p. 62)

Despite the official intentions of the white list process, a review of press articles seems to indicate that perceptions of the maritime community do not fall in line with the recommended view. In a comprehensive UK P&I Club handbook on PSC, the Secretary General of the IMO was quoted as saying that:

‘Following publication of the list, certificates issued by countries not included in the list will not be accepted as *prima facie* evidence that the holders have been trained and meet the standards of competency required by the convention.’ (Greenaway, 1998, p. 5)

This comment was not referenced, so it is impossible to check its accuracy. The author of the guide commented further:

The consequence of this will be that ships on which such seafarers are sailing may suffer costly delays in ports while inspectors verify that they are competent to safely man the ships, and this may in turn lead to an unwillingness by foreign shipowners to employ such seafarers. (Greenaway, 1998, p. 5)

Despite the intention of the IMO with regard to the white list, interpretations such as that published in the UK P&I Club are common. Parties to the convention who hold such a view, either publicly or privately, may choose to use absence of another party on the white list as a clear ground that a ship poses a danger to persons, property or the environment because the level of training of the seafarers onboard cannot be ascertained on the basis of their certificates.

4.13 Corruption

The enhanced power given to PSCOs in the control provisions of STCW 95 have some shipowners and operators wondering whether or not opportunities for corruption will be enhanced by some degree. If more opportunities for subjectivity in detention criteria are introduced into the PSC process, will some PSCOs use the opportunities for financial gain in return for consideration during an inspection? This is mainly a concern in areas where PSC is a fledgling enterprise, or nations that are in turmoil due to economic or social upheaval.

Chapter 5

Toward a Harmonized Approach to Onboard Assessments

5.1 Introduction

The questions and issues discussed in the preceding chapter can be addressed collectively by advocating an approach which at each step bears in mind the greater objective of Port State Control: to make the maritime industry more safe for seafarers, ships and the environment. Onboard assessments of competency have the potential to directly assist in this goal. In order to realize this potential, harmonization as to the reasons, procedures, criteria, purposes for detention, and training needed to conduct onboard assessments is required. The only organization in a position to do this is the IMO.

In addition to enhancing maritime safety by ensuring that seafarers are proficient in shipboard tasks relating to safety, PSC can play another role. Dr. Heike Hoppe of the IMO comments on a global vision of PSC as a knowledge-gathering element. The knowledge “will provide the maritime community with the opportunity to better analyze the causes of incidents and casualties and to ascertain, more accurately than ever before, how they can be prevented from occurring again.” (Hoppe, 2000, p. 14) She continues:

Armed with the information made available as a result of regional cooperation in PSC, we can work towards a change of attitude within the shipping industry, where a long tradition of secrecy has often resulted in

problems being hidden and ignored rather than revealed and solved. (Hoppe, 2000, p. 14)

Onboard assessments of competency have a place in this knowledge-gathering role of PSC. The knowledge gained from the onboard assessments conducted on a daily basis during PSC activities now should be analyzed, and information gathered should be used to assist in setting procedures for onboard assessments specifically under conditions enumerated in STCW 95. At this time, too much uncertainty and apprehension exists about the provisions in STCW 95 to make it useful in today's PSC activities. Information gained from previous onboard assessment activity should be used to ensure maritime authorities the STCW 95 provision is only another form of what is currently occurring in everyday PSC activities.

In addition to commenting on the questions and issues raised in the preceding chapter, this chapter will provide some suggestions for the IMO to develop a harmonized approach to facilitate onboard assessments of competency. This step-by-step approach contains the following elements:

1. acceptance of standard terminology
2. acceptance of what is implied by the terminology
3. standardized purpose for onboard assessments
4. reducing subjectivity by good practices

The end of this chapter contains comments on the other issues contained the preceding chapter: legal concerns, fraudulent documents, transitional provisions, the white list, and corruption.

5.2 Acceptance of standard terminology

Acceptance of terminology is the first step toward harmonization. Shipboard assessment, according to the definition proposed in the preceding chapters, is: “a

process by which shipboard performance is observed, measured, and compared to standards of performance in order to determine a mariner's proficiency." (IMO Res. 853, 1998) Again, onboard assessments encompass not only those under STCW 95, but also, operational checks under IMO conventions and fire and lifeboat drills. These operational checks and drills have been part of a PSC Inspection for many years, however, they have not been treated as assessments, but rather tasks which a crew or individual seafarer either passes or fails, based on a PSCO's professional judgement.

Once the idea that all these actions during a PSC Inspection are indeed assessments, standard assessment philosophy and procedures can then be adopted. Although the competency-based approach embodied in assessments is new to the maritime world, parallels exist to other industries where this type of assessment has been the norm for many years. As a result, a whole body of research and procedure already exists on competency-based assessments in general. With the advent of STCW 95's more competency-based approach to training being about six years old, a body of research has also appeared in the maritime community as well. Included in this is guidance from the IMO in the form of the previously referenced MSC Circular 853. Though this document was written with training institutions and companies in mind, the procedures are relevant to PSC.

Standards of performance are known as criteria. Parties must recognize that all assessments must exist with a set of criteria attached. The drafters of STCW 95 realized that lack of criteria was a major shortcoming of STCW 78. This was partially rectified in STCW 95. According to the STCW Code, "In the assessment, only the methods for demonstrating competence together with the criteria for its evaluation and the scope of the standards given in part A of this Code shall be used." (STCW Code, p. 13)

As outlined in the previous chapter, STCW 95 is not detailed enough to permit flag state assessors or maritime training personnel to complete proper assessments. As an example, in STCW 95, table A-II/4, the criteria for evaluating a seafarer's competence to "steer the ship and comply with helm orders also in the English language", and specifically knowledge of use of the gyro-compass in doing this, the criteria for evaluating competence is: "A steady course is steered within acceptable limits having regard to the area of navigation and prevailing sea state." What is missing is the standard for the acceptable limits. Using guidance on writing assessments, Dr. Myriam Smith of the U.S. Coast Guard comments on applying assessment methodology to these rough criteria found in the STCW Code:

An example of an objective might be to assess a mariner's ability to steer by gyrocompass. The corresponding observable measure might be the accuracy with which the mariner is able to maintain the ordered heading. The standard might be to maintain the ordered heading to an accuracy of plus or minus three degrees. (Smith, 2000, p. 15)

To rectify this shortcoming in STCW 95, The U.S. Coast Guard's Merchant Marine Personnel Advisory Committee (MERPAC) has written specific criteria for many of the competence tables in the STCW Code. They used the five steps of Instructional System Design (ISD) (Bobb, 2000, p. 5):

1. determine the assessment objective
2. determine the assessment method
3. specify the assessment condition
4. develop the assessment measures and standards
5. prepare the assessment package

An example of an assessment from one of the MERPAC tables, and a comparison with what is written in STCW 95 is found in Appendix B.

In developing procedures for effective assessment two features must be kept in mind: reliability and validity. In commenting on effective assessments of mariner competence, Dr. Smith (2000, p. 15) wrote:

. . . an assessment should be a reliable and valid snapshot of the performance that can be expected from a mariner. A “reliable” assessment is one whose consistency can be trusted: the same performance will receive the same assessment every time. A “valid” assessment is a sample of performance that includes all the critical components of the function that will be expected from the mariner onboard the ship.

Factors affecting the reliability of an onboard assessment are the most relevant to this discussion. Some of them are: differing procedures and equipment on ships, differing cultural norms and ways of performing a task, and differing expectations of the assessor and the persons being assessed. The fact that onboard assessments can never really be fully reliable, mostly because of subjectivity, can never be overcome. However, the factors affecting reliability can be taught and reliability can be enhanced through proper assessment training for the assessor.

As for validity, observing performance at the job site while operating is optimal. In the case of onboard assessments, the ship is not operational, but a high degree of validity can be accomplished through very thorough up-front planning. It is necessary to refine assessment standards further to fit in the operational environment onboard a non-operating ship, both in terms of time and condition for assessment. In a study of the practicality of shipboard assessments conducted by the U.S. Coast Guard Research & Development Center, with Sea River Maritime, Dr. Smith (2000, p. 17) found:

. . . that it was difficult for some of the regular ship officers to compete some of the assessments during the limited time period provided during these trials.

This suggest the need to more completely integrate the assessment process into current operations and training, as well as to refine the assessment procedures to better match shipboard operational conditions and restraints.

A step in that direction is contained in the previously referenced IMO MSC Circular 853. The second step in preparing shipboard assessments is “select performance objectives for shipboard assessment.” Included in this area are the following considerations:

- safety implications of conducting the assessment
- current shipboard operating conditions, including, environmental conditions, location, equipment status, workload, and personnel schedules
- the ability to establish adequate controls over shipboard operations
- the candidate’s current skill level, taking into account prior training and experience

If a potential subject for an onboard assessment is identified and run through this filter, a manual of assessments which can practically done during a PSC exam while moored to the pier can be developed. It should be referenced to STCW and to the clear grounds that are established. For example, guidelines for assessing competency after a ship is observed maneuvering in an erratic or unsafe manner should encompass elements contained in the STCW Code on navigation at the operational level and navigation at the management level.

5.3 Standardized purpose for onboard assessments of competency

Once the definition of assessment and what can be assessed is agreed upon, the purpose for such assessments needs to be standardized. Referring to STCW 95, the purpose of an onboard assessment is to ascertain if the proficiency of the seafarers

onboard meets the criteria spelled out in the STCW Code. If the proficiency does not meet these criteria, and, in not meeting these criteria, poses a danger to persons, property and the environment, then the ship may be considered for detention. The intentions of the assessment itself must be differentiated from criteria for detention, even if the same words are used for each (i.e. clear grounds for the assessment are “ship being operated in such a manner as to pose a danger to persons, property or the environment”, detention is because assessment results indicate a “danger to persons, property or the environment”).

Detention is considered an option rather than a certainty after an assessment is conducted. Other options need to be considered. For example, currently, if a vessel’s crew fails a fire or lifeboat drill in a U.S. port twice, they may receive instruction in the port until they can try again. The purpose of detention then becomes remedial and not punitive. This idea deserves some attention because currently it appears that some MOUs operate on the concept that detention is a punishment for daring to bring a substandard ship into the MOU’s area. The seafarers on a ship often have no control over the ship on which they are working. Anecdotal evidence suggests that seafarers know about substandard conditions on their vessels, and the level of competency of their shipmates, yet they cannot speak out for fear of losing their jobs.

It is important for a PSCO to remember that onboard assessments ascertain the man-machine interface on a particular ship, not necessarily the competence of the mariner. He or she could have been put onboard at the last minute by the crewing company, and not have had time to familiarize himself or herself with all of the equipment. Despite familiarization procedures required by STCW Section A-VI/1, unfamiliarity with shipboard equipment is one problem which PSC officers run into quite often. An onboard assessment which points to lack of familiarity with the equipment on that particular ship could point to a company shortcoming, either in SMS procedures or in

internal management. This information is valuable from the knowledge-gathering role envisioned by some in the IMO.

In some instances, a shipmaster may welcome onboard assessments of competency. This gives him or her a third party opinion to use with intransigent owners. In the example in the preceding paragraph, the shipmaster could have been concerned about the practice of crew changes immediately prior to sailing, but could not speak out against it for fear of losing his or her job.

5.4 Reducing subjectivity

Reducing subjectivity is the next goal. To clarify the issue, a comment by the flag state Vanuatu entered into the record at a recent Flag State Implementation (FSI) Sub-Committee (FSI 8, November 1999) was made with regard to fire and boat drills:

In most countries such drills are accepted if it is demonstrated that the ship's personnel know what they are doing and can perform their tasks satisfactorily. However, in countries in which the PSCOs have been trained in a military environment, the PSCOs sometimes involve themselves as part of the operation . . . If the drill does not meet the PSCO's military training standards - which may be appreciably higher than merchant vessel standards - and expectations, the vessel is detained.

One conclusion of the USCG's study of conducting assessments on Sea River Maritime tankers, was that the more guidance which was given to the assessor, the less subjectivity was introduced into the assessment process. To reduce subjectivity inherent in the assessment process, detailed checklists with options were used in the Sea River Maritime trials. Although this approach is derided by some, it is the best

solution for reducing subjectivity, but only when accompanied by assessment training.

5.5 Legal issues

Many of the legal issues listed in the preceding chapter can be taken care of with a standard set of internationally agreed procedures for onboard assessments, including who may be contacted, who may be present, the right of appeal, and the confidentiality of results. In setting these standards, it is important to note that a PSCO must work rapidly in executing PSC, and that any intervention by agents or lawyers contributes to any delays which may occur. Since the conduct of onboard assessments is not new, there should be little cause for a change in procedures relating to legal issues during assessments.

Contact of the flag state representative is another matter. According to STCW 95, Article X, the flag state must be contacted if any deficiencies are found under paragraph one of that article or procedures in regulation I/4. Under the first paragraph of article X, if a fraudulent document is encountered or if a PSCO believes that the person presenting the certificate is not the person to whom it was issued, then, the master and the nearest diplomatic counsel or maritime administration of the flag state of the vessel should be contacted. The procedure for onboard assessment exists to determine if there are any deficiencies with regard to mariner competence. If credence is to be given to the stated objective of the IMO with regard to port state and flag state cooperation (as seen in Resolution A.787 (19) paragraph 1.3.3), it would be wise to inform the flag state at the earliest possible time, ideally, at the point at which an expanded inspection begins. However, the PSCO should not have to wait until the flag state representative appears, because the PSCO is well within his or her authority to assess the competency of seafarers, if the expanded inspection should lead in that direction.

5.6 Fraudulent seafarer documents

STCW Regulation I/9 makes it mandatory for a Party to develop and maintain a register of all seafarers (masters, officers and ratings), and the status of their certification. It further requires that they should make this information available to other Parties who inquire about the status of a seafarer. (STCW 95, pp. 28-29) Although many flag states do not have this register in place yet, the development of such registers and an easy way to access them worldwide in case a PSCO suspects a fraudulent certificate, should assist PSCOs in verifying certificates.

Morrison (1997, p. 78) addresses this requirement for a registry:

Port State control authorities may also seek verification of the certificates held by seafarers manning ships visiting their ports. Wherever possible, arrangements should be made to provide the information on demand 24 hours per day, seven days a week. This could be done through an operations center which acts at all times as the communications center for responding to distress messages, reports of oil spills and other incidents and emergencies.

Until these registers come on line, PSCOs should be trained to recognize legitimate seafarer documentation. Although frauds are increasingly sophisticated, training should be provided because this is one of only two reasons that certificates presented to PSCO should not be accepted.

5.7 Transitional provisions

As seen in the preceding chapter, transitional provisions are a potential issue until the year and beyond the year 2002. PSCOs need to have specific training to address these issues. Although it is not possible to know the status of every nation with regard to IMO conventions, a PSCO should, at a minimum, be aware of the different type of transitional provisions in place and how they could affect the conduct of a PSC Inspection.

5.8 The "White List"

Although the IMO did not intend to foster a negative view of parties not on the white list, this view has become a victim of speculation. Whatever the intention of the IMO, they cannot dictate to port states what their procedure should be. If a port state decides to target crews trained in non-white list nations, little can be done to stop that nation. Concerns about the white list must be addressed at the national level and the decisions reached by the port state with regard to operational prosecution of PSC regarding the white list needs to be communicated as soon as possible to PSCOs.

5.9 Corruption

Flag state surveyors may act as a check to the power of the PSCO. Involving the flag state at the earliest possible point when a detention is considered will serve to minimize any corruption which may result from PSC activities. In addition, appeal procedures for the master of a detained ship which are written into the maritime legislation of a nation will assist greatly in this area.

Chapter 6

The Port State Control Program in the United States

6.1 Introduction

It is important to note that the information contained in this chapter is based on several conversations with personnel involved in the U.S. PSC program during the months of March-June, 2000. While all gave permission to use their information, not one would give his or her permission to be quoted for this dissertation. It is therefore difficult to reference these sections, but every effort is made to differentiate between the author's personal knowledge and the information presented by the sources. Where there is no reference provided, the information was previously known by the author.

6.2 History and legal basis

The U.S. Port State Control Program officially began in 1994. Prior to that year, examinations of foreign vessels in U.S. ports were conducted under U.S domestic law. While foreign vessel examiners did check for compliance with international conventions to which the U.S. was a signatory, the authority and guidance for these examinations was found in domestic law. For example, in 1968, the U.S. Congress passed a law entitled "Fire Safety Standards for Foreign and Domestic Passenger Vessels." Since that year, the U.S. has examined all passenger vessels calling in U.S. ports to confirm compliance with that domestic law. This program was called the

Control Verification Exam program, and it still exists today, and “. . . remains the primary reason for the Coast Guard’s boarding of non-U.S. passenger ships.” (Schrinner, 1997)

Other domestic laws which provided for the examination of foreign vessels in U.S. ports were: the 1973 Federal Water Pollution Control Act (for all vessels operating in U.S. waters); The Port and Tanker Safety Act of 1978, which contained specific regulations for tankers and some that were also valid for all ships; and The Oil Pollution Act of 1990 (OPA 90) which required Certificates of Financial Responsibility (COFRs), Vessel Response Plans, and double hulls for tankers.

In the 1980s and 1990s, the international community, through the IMO, adopted conventions which were comparable to the standards which the U.S. was using as a basis for examining ships in U.S. ports. The U.S. adopted these regulations while keeping the previous domestic laws in force. This reliance on domestic law for some types of PSC activities creates many different types of vessel examinations into which the enforcement of international laws and Conventions under PSC are incorporated. Foreign flag tanker and passenger vessels are examined per U.S. law annually and issued U.S. documents. Cargo vessels are subject to PSC inspections per international conventions. (USCG, 2000)

In 1994, the U.S. Congress tasked the Coast Guard with designing and implementing a specific PSC program, with the primary purpose of eliminating substandard shipping of all types from U.S. ports. Instead of primarily focusing on tank and passenger vessels, the U.S. would now examine all types of foreign-flagged ships in U.S. ports for compliance with all international regulations, and continue enforcing U.S. domestic law for all types of vessels.

6.3 Training for Port State Control personnel

At the same time, training was modified to familiarize Coast Guard personnel with international conventions which would define the new program. From 1994-1998, a course of instruction specifically for PSCOs was offered. It took place at an operational unit, Marine Safety Office Hampton Roads, Virginia, and involved unit personnel as instructors. This particular unit had many foreign vessels calling and personnel at the unit had more familiarity than the Marine Safety School in Yorktown with the international conventions and regulations. In 1998, the elements of this stand-alone PSCO course were incorporated into the curriculum of the Marine Inspector Course (MIC) for junior officers and senior petty officers and the Marine Safety Petty Officer Course (MSPOC), for petty officers. Currently, when a graduate of either school returns to his or her unit after attending either of these courses, the command of each unit decides when that person is qualified to conduct PSC exams. This usually occurs after completion of a local job qualification record and sometimes an oral board. (USCG, 2000)

USCG Headquarters is currently performing a training needs analysis to determine what training is needed for PSCOs, and how to implement this training should the need materialize. (USCG, 2000)

6.4 Background of personnel involved in the U.S. Port State Control program

Current U.S. Coast Guard policy is to have a qualified marine inspector and a qualified boarding officer on all PSC examinations. (USCG MSM, Vol. II, 2000, p. D1-6) These persons are used in the execution of all types of Coast Guard inspections, examinations and boardings, in addition to PSC. The term "Port State Control Officer" is increasingly used however, there is no specific separate qualification for this role.

The background of those authorized to conduct PSC exams varies. Some officers are graduates of U.S. state maritime academies or the U.S. Merchant Marine Academy. Of these, some have sea time in a licensed merchant marine officer capacity after graduation from one of these academies, and some have no sea time as a licensed merchant marine officer but do have sea time as a cadet. Others are graduates of the U.S. Coast Guard Academy and have had between two and five years of sea time as either deck or engineer officers on Coast Guard ships before their first tour of duty in the marine safety field. Some are warrant officers with many years at sea, both as an enlisted person and/or as an officer. Others have no experience on ships at all. Of those with experience, some are engineers and some are deck personnel. Of those with sea time, some have pursued professional merchant marine qualifications based on their Coast Guard sea time. (USCG, 2000)

On the petty officer side, some are just out of a “A” school (vocational-level school) with no maritime experience. Others have three to fifteen years of sea time on various Coast Guard ships. As with officers, some have earned U.S. Merchant Marine licenses or ratings, but most have never served on commercial vessels.

Most of these qualified personnel are military members, which means they are transferred to a new assignment every two to four years. It is estimated that approximately 20% of the USCG workforce are reassigned each year. Many will never be reassigned to a PSC job again in their careers. Of the six senior PSCOs interviewed, five of six felt that lack of experience, both maritime (actually working on a ship, either Coast Guard or merchant) and in PSC was the most significant issue facing the Coast Guard’s PSC program. Neither wanted to be identified, however, one said: “Our people do not specialize and stay in PSC. We are losing them faster than we can train them.” Another said: “...we make due with what we have. The ships don’t stop entering port, so we just have to adapt.” All PSCOs stressed that, even with this lack of experience, the PSC program in the United States was

operating effectively, but that it would be more effective with the addition and retention of experienced personnel. Senior officials in each port were quick to point out that the lack of experience of marine inspectors and boarding officers is overcome in part by providing a mechanism to communicate with the office during any stage of a PSC exam. Marine inspectors and boarding officers from most ports carry cellular phones and a senior person is always on duty to answer questions from the PSCO regarding a particular exam. (USCG, 2000)

The quality of the skills of these persons varies as much as their background, so it is difficult if not impossible to draw conclusions as to the ideal background of a PSCO. Some senior PSC officials believe that willingness to learn the job and ask questions is what determines the quality of a PSCO. Others feel that maritime experience is a must. In any case, all personnel who conduct PSC exams in the U.S. have all completed a qualification based on a locally developed job qualification record. Training Center Yorktown is developing a standardized job qualification that will be completed in the fall of 2000 for implementation at the unit level. (USCG, 2000)

6.5 Current operational procedures in Port State Control exams

A PSC exam is conducted when a vessel is identified as a boarding target via what is known as the “Boarding Priority Matrix”. This system is based on risk assessment methodology and it focuses existing resources on those vessels which are most likely to pose a threat to persons, property and the environment. It is based on historical detention ratios and it contains five variables: flag state, classification society, vessel owners and operators, history of vessel, and ship type. Figure 6.1 on the next page contains the current Boarding Priority Matrix in use.

Figure 6.1 USCG Boarding Priority Matrix

OWNER	FLAG	CLASS	HISTORY	SHIP TYPE
5 points Listed Owner or Operator	7 points Listed Flag State	<p>Priority 1</p> <p>5 points >=10 arrivals with detention ratio more than 4 times the average OR <10 arrivals and involved with at least one detention in the previous three years.</p> <p>3 points >=10 arrivals with a detention ratio between 3 & 4 times the average.</p> <p>1 Point >=10 arrivals with a detention ratio between 2& 3 times the average.</p> <p>1 Point >= 10 arrivals with a detention ratio between the average and twice the average.</p> <p>0 Points >=10 arrivals with a detention ratio below the average OR <10 arrivals with no detentions in the previous 3 years.</p>	<p>5 Points Each</p> <p>Detention within the previous 12 months.</p> <p>1 Point Each Other operational control within the previous 12 months.</p> <p>1 Point Each Casualty within the previous 12 months</p> <p>1 Point Each Violation within the previous 12 months.</p> <p>1 Point Each Not boarded within the previous 6 months.</p>	<p>1 Point Oil or chemical tanker</p> <p>1 Point Gas carrier</p> <p>2 Points Bulk freighter over 10 years old</p> <p>1 Point Passenger ship</p> <p>2 Points Carrying low value commodities in bulk</p>

Source: USCG MSM, Vol. II, p. D4-13

Each of the five variables has a system for the distribution of points. The variables owner/operator and flag state vary. The Coast Guard maintains lists of targeted owner/operators which is based on the detention amount in each 12-month period. It is possible for an owner/operator to be removed from the owner/operator list if boarding performance changes in a twelve-month period. Similarly, it is possible for a flag state to be removed from the targeted list if its detention ratio (number of its

ships detained in last three years divided by total number of ships which called in U.S. ports in the same period) falls below the average detention ratio for all flag states. (USCG MSM, Vol. II, 2000, pp. D4-14-D4-16)

Classification society performance is seen as one of the most important factors in the Coast Guard's PSC program. Each classification society is evaluated as to performance over the past three years. Again, detention ratios are computed and compared to the average, and points are assigned accordingly.

The points are totaled and the vessels assigned a priority category. Priority I vessels either have 17 points on the matrix **or** the Captain of the Port has determined a vessel is a threat to persons, property or the environment, **or** the vessel has been involved in a marine casualty. The Coast Guard may make an attempt to restrict entry into a port until vessel is inspected. If the vessel is already in port, the vessel will be examined. Priority II vessels have either 7 points on the matrix **or** the vessel has outstanding deficiencies from a previous boarding in a U.S. port, **or**, it is inspected under domestic law for passenger vessels and tankers, and it is overdue for its annual exam. In this case, the Coast Guard may restrict the cargo operations of the ship until it is examined. Priority III vessels have either 4-6 points on the matrix **or** a report of alleged deficiencies have been reported **or** it is overdue for an annual exam for freight vessels. A priority IV vessel will have 3 or fewer points on the matrix. Such vessels will not be examined. (USCG MSM, Vol. II, 2000, pp. D4-14-D4-16)

After a vessel has been evaluated using the Boarding Priority Matrix, a PSC exam team is put together. The team usually consists of two persons, one of whom is a qualified marine inspector, and the other either a junior marine inspector or a boarding officer. A boarding officer is a petty officer who has completed requisite resident and on the job training, and then passed a local qualification board. The

boarding officer and the marine inspector will divide up the PSC tasks, depending on the experience of each. An exam lasts an average of four hours.

Guidance for PSC examinations in the U.S. is found in a number of publications. The domestic laws referred to earlier in this chapter form the authority for the Coast Guard to conduct these exams. The Marine Safety Manual, Vol. II, contains the purpose and philosophy behind these examinations, as well as guidance on the composition of exam teams, and operational procedures. In addition, various Navigation and Vessel Information Circulars (commonly known as NVICs), and standard messages (for interim guidance) contain specific policy guidance such as how to enforce STCW 95 and the ISM code in the course of PSC inspections. Most of these laws and policy have been combined into various “examination books”, which enable an examiner to go through the exam in a detailed, orderly manner by filling in a “checklist”. A PSC job aid has also been constructed to assist PSCOs in conducting PSC exams.

The Marine Safety Manual, Vol. II (USCG, 2000, p D1-7), states the purpose of Port State Control exams in the United States:

Port state control examinations . . . are intended to be of sufficient breadth and depth to satisfy a boarding team that a vessel’s major systems are in compliance with applicable international standards and domestic requirements, and that the crew possesses sufficient proficiency to safely operate the vessel. These examinations are designed to determine that required certificates are aboard and valid, and that a vessel conforms to the conditions required for issuance of required certificates. This is accomplished by a walk through examination and visual assessment of a vessel’s relevant components, certificates and documents, and may be

accompanied by a limited testing of systems and the crew. When the examination reveals questionable equipment, systems, or crew incompetence, the boarding team may expand the examination to conduct such operational tests or examinations as deemed appropriate.

6.6 Onboard assessments of crew competency

During the PSC inspection, PSCOs are authorized to assess crew competency under three major international Conventions, SOLAS, including the ISM Code, MARPOL, and STCW 78 and 95. Unlike the Paris and Tokyo MOUs, the U.S. conducts emergency drills (fire and boat) as part of a general inspection. In other words, no clear grounds are needed. The PSCO directs the Master or Chief Officer to start the drill in the customary fashion, and then watches the crew's response to the emergency. A comparison with the standards in the Marine Safety Manual will indicate to the PSCO if a crew has met the standards or whether the crew needs to do the drill again. A second poor performance will constitute a "failure" of fire and boat drills. The PSCO, in consultation with the Master, will then determine the time and date of the next attempt.

Under STCW 95, a PSCO can conduct assessments of competency under an expanded exam. An expanded exam can occur if the vessel has been involved in a collision, grounding, or illegal discharge of substances, or if the Captain of the Port determines that the vessel has been operated in an erratic or unsafe manner. Also, if a PSCO determines that a vessel poses a danger to persons, property or the environment, then an expanded examination can be ordered. These expanded examinations will always be completed in cooperation with the flag state. Although the Coast Guard has accepted this provision for onboard assessments of competency under STCW 95, USCG personnel could not cite a specific case where the provision

had been used. At this time, PSCOs use guidance found in NVIC 3-98 to cite STCW 95 deficiencies with regard to rest periods, crew familiarization training, Basic Seafarer Training for persons with emergency duties, and absence of certificates.

Under the ISM Code (SOLAS Chapter IX), Regulation I/14, vessel owners must require that seafarers serving onboard their vessels must be familiar with their specific duties and with all vessel arrangements, procedures and vessel characteristics relevant to their duties. They must also know what to do in emergency situations. If, in the course of a general exam, a PSCO feels that the crew cannot successfully carry out their responsibilities, an expanded exam with an assessment of competency (using the tables in STCW 95 part A) may be conducted, in cooperation with the flag state. Because of the transitional arrangements under STCW, an assessment of this type under an expanded exam has not been conducted. However, operational checks of equipment which rely on competency of the crew, are currently performed.

When a PSC exam is completed and deficiencies are noted, the Office of Compliance in the Office of Marine Safety and Environmental Protection (referred to as G-MOC) is notified. The vessel deficiencies are immediately reviewed to determine if they are severe enough to warrant a detention under an international convention. If they are, the detention stands. If not, the Captain of the Port is notified and if he or she decides that the vessel could be detained under a U.S. law, the detention will remain. The Captain of the Port will monitor the efforts of the vessel to rectify the situation which caused the detention. Shortly after the detention, G-MOC will review each detention and determine which body is responsible for the reason for the detention; flag state, classification society, or owner. Letters are sent to the involved parties within 30 days. Upon receipt of the letter, each entity may respond with an appeal if they feel the attribution is wrong. The Captain of the Port, the CG District containing that Captain of the Port office and finally, G-MOC review each case and issues a final decision of appeals. (Schinner, 1997)

Examining the statistics, the U.S. Port State Control program and subsequently, the number of ships detained has leveled off after initially increasing, as shown in Table 6.2:

Table 6.2 U.S. Coast Guard PSC Detentions 1992-1999

YEAR	DETENTIONS	DISTINCT ARRIVALS *
1992	16	7406
1993	55	7315
1994	275	7735
1995	514	7835
1996	476	7585
1997	547	7415
1998	373	7880
1999	257	7617

Source: U.S. Coast Guard, 1999

*note: "Distinct Arrivals" are the number of ships ≥ 300 GT that make at least one visit to a U.S. port in 1999. For example: a vessel which makes 12 U.S. port calls in 1999 would be counted as 1 distinct vessel arrival. (U.S. Coast Guard, 1999)

Detentions, on the whole, are clearly down, however, of particular interest is a statement in the official USCG PSC report for 1999:

. . . over 25% of the vessels detained in 1999 were detained because of the crew's poor performance during a fire or abandon ship drill. Despite improved standards that require basic familiarization training, and the implementation of STCW 95, many vessel crews still have difficulty

demonstrating emergency procedures related to ship safety. (U.S. Coast Guard, 2000, p. 2)

The 1999 Port State Control report categorized detention reasons as follows:

Table 6.3 U. S. Detention Category Statistics for 1999

Category	Frequency of deficiencies on detained vessels
Certificates/Logbooks	38
Crew	40
Accommodation	2
Food and Catering	1
Life Saving Appliances	99
Fire Fighting Appliances	98
Accident Prevention	4
Safety In General	73
Cargo	2
Load Lines	19
Mooring Arrangements	2
Propulsion and Auxiliary Machinery	41
Navigation	11
Radio	20
MARPOL, Annex I	32
Tankers	4
SOLAS Related Operational Deficiencies (Fire and Abandon Ship Drills)	133
ISM Related Deficiencies	34

Source: U.S. Coast Guard, 2000

As with detention data from the MOUs, detention data reveal that reasons for detention can sometimes be blurred. A ship with several detainable deficiencies could be listed in many categories. When investigating the number of detentions due specifically to crew competence issues, the “certificates,” “ISM,” and “safety in general” categories must also be checked in addition to the “drill deficiency” category.

6.7 Comments on the status of the U.S. Port State Control program

According to the six senior U.S. PSCOs surveyed, the U.S. Port State Control program is operating effectively despite trained personnel shortages and disparity in training procedures and professional backgrounds of personnel involved in the PSC program. Certainly, vessels are being detained, and deficiencies are being rectified. The U.S. appears to be on par with other nations of the Paris and Tokyo MOUs when number of ships detained is considered. However, it is difficult to determine measures of effectiveness for this program. Is world shipping safer because of the efforts of U.S. PSC officers? More specifically, are crews which pose a threat to persons, property or the environment identified through this program? If not, what organizational measures are needed to ensure that U.S. personnel involved in PSC can enforce all applicable conventions, specifically STCW 95, when the transitional periods are over in 2002? Specific issues relating to the training of U.S. PSCOs will be covered in the next chapter.

Chapter 7

Training of Port State Control Officers

7.1 Introduction

This chapter will only cover training of PSCOs in relation to what has been discussed in this paper, namely, the conduct of onboard assessments of competency. This area of PSC needs to be investigated separately from the inspection of ship structural systems because different skills are required to perform an assessment vice a check on a piece of equipment. Whereas investigations of hardware systems depend on the more black and white judgement of whether an item or a piece of equipment is present and operating effectively, assessments of competency involve the more gray area of human behavior and the man-machine interface.

7.2 Experience of PSCOs

The worldwide shortage of maritime officers has resulted in a corresponding shortage of experienced PSCOs. It is increasingly common for PSCOs worldwide not to have operational maritime experience. A good worldwide training program, taking into account this inexperience, is necessary. Those nations of developed MOUs need to tailor any training programs they offer as aid to nations with a less developed infrastructure to take into consideration the experience factor of potential PSCOs.

According to Resolution A787(19), a PSCO should be: “. . . an experienced officer qualified as a flag state surveyor” and “. . . able to communicate in English with key

crew.” In addition, if a particular PSCO will be conducting operational checks, he or she should either:

- be a master or chief engineer with sea time
- have a maritime related qualifications from an Administration-approved institution **plus** specialized training
- have an equivalent level of experience and training **and** be a qualified Administration officer.

Some MOUs go beyond these minimum qualifications. For example, the Paris MOU has determined that a PSCO must have completed at least one year as a flag state surveyor **and** be a master (1600 GT or more) with at least five years at sea as an officer **or** chief engineer (3000 KW or more) with at least five years at sea as an officer, **or** “a naval architect, mechanical engineer, or an engineer related to maritime fields and worked in that capacity for at least 5 years. An alternate route to qualification exists if a person has a “relevant university degree” **and** has been qualified as a result of training “at a school for ship safety inspectors”, **and** has been a flag state surveyor for at least two years. (Paris MOU, 1982, annex 6, chapter 1)

The level of experience required by the Paris MOU is only possible in nations which have a long-standing maritime infrastructure. The nations of the Paris MOU and Australia have a large labor pool of experienced seagoing personnel from which to choose. These nations can also afford to pay PSCOs a salary commensurate with their experience. Many nations do not have the candidates from which to choose, nor the resources to pay them a suitable wage. Some nations, such as the U.S., and others whose maritime authorities are under a military system, either Navy or Coast Guard, may or may not have the experience recommended by the IMO. This inexperience of PSCOs has both practical and legal implications.

Practically, the assessment procedure set up in the control provisions of STCW 95 are geared toward those nations with PSCOs with experience. The capacity for professional judgement is presupposed. However, because so many PSCOs around the world are inexperienced, it is no longer possible to rely on a previous qualification for the exercise of judgement. It must be a subject of training. But, is it possible to train judgement?

Legally, the judgement made by a PSCO during a control action may be open to question because the judgement is not backed up by experience. This potential liability has led many nations to adopt a “checklist” system of PSC inspection. Although this approach is derided by some nations, it is effective when the inspection needs to take place in a limited amount of time by persons who do not possess a large amount of shipboard experience. Also, because the checklist leaves little to chance, legal risk is reduced. As the supply of experienced officers dwindles in traditional maritime nations, more surveyors with less experience will be the result, so this is not just a problem in developing nations or in nations which use their military as a source for PSCOs.

7.3 Importance of PSCO training on onboard assessments of competency

Onboard assessments of competency are occurring every day in PSC Inspections around the world. However, a review of training programs (USCG, Tokyo MOU, Paris MOU) reveals that no training is provided in how to perform them. It would be valuable to have training standards for what is being performed now and for what could be performed in the future regarding assessments of competency under STCW 95. There are several other reasons for having a strong PSCO training program in assessments of competency:

1. Port State Control has many international implications, especially with regard to relations between nations. It is essential that PSCOs conduct their mission with

as little error and with as much consistency (both within the nation and with other nations) as possible. Solid initial training and periodic feedback will ensure with greater probability that this happens.

2. It is important from a legal standpoint to have trained PSCOs. A detention made on the basis of a judgement of an untrained or poorly trained PSCO will not stand up to retrospective legal scrutiny.
3. While not totally eradicating the element of lack of experience, a strong training program can go a long way toward ensuring that PSCOs are confident to conduct onboard assessments to the limits of their ability.
4. PSC has the potential to be a strong tool in assisting the IMO in its avowed mission of Safer Ships, Cleaner Seas. The statistical analyses of various assessments of competency during PSC inspections can be used to identify concerns with particular flag states, licensing states, and training nations.
5. Consistency of PSC efforts worldwide depends on a set of training standards. It is preferable that this consistency runs through all the “threads” of competency. In other words, an assessment of competency in the PSC world will be the same as a seafarer experienced in his or her training scheme.
6. Training in onboard assessments will facilitate the integration of onboard assessments into the PSC process without unduly increasing the time needed for PSC activities. The more a person is trained, the less time it will take to perform onboard assessments.
7. Lastly and most importantly, enhanced training will allow a PSCO to be less focused on a certificate check and more focused on broader actual reality onboard a ship. In other words, PSCOs can be trained to look for those ships in which the letter of the law has been observed (they have all of the certificates), but maybe not the spirit of the law (the certificates do not reflect the actual condition of the ship).

7.4 Specific aspects of training for PSCOs

This section will only cover training procedures that are relevant to a PSCO performing the three types of onboard assessments of competency identified in previous chapters. Briefly, these are: operational checks of equipment, fire and life boat drills, and onboard assessments of competency under STCW 95. Generally, STCW 95 advocates that a person performing onboard assessments of competency in the training situation be first, skilled in the task that he or she is assessing, and secondly, trained in assessment techniques. This standard should apply to PSCOs, also. In addition to these two qualifications recommended by the IMO, a discussion of training to enable PSCOs to effectively conduct onboard assessments of competency can begin with a task analysis of a PSCO in these three areas.

Operational checks of equipment

- recognize evidence that seafarers are not be familiar with equipment or procedures.
- know appropriate procedure for testing competency.
- judge action of seafarer against criteria (yet unestablished)
- if seafarer does not demonstrate competence adequately, determine to what extent lack of competency poses a danger to persons, property or the environment.

Fire and Lifeboat Drills

- determine whether demonstration of drill is required (irrelevant for U.S., Vina del Mar, and certain expanded inspections in the Paris MOU, where no clear grounds are required).
- ensure that drill is conducted safely.
- judge drill performance against a criteria to determine competency.
- if performance does not meet criteria, determine whether detention criteria are met.

Assessments of competency under STCW 95

- determine the validity of certificates and licenses presented to him/her. If there is reason to suspect the certificates are either fraudulent or fraudulently obtained, then he or she must confirm this.
- despite the validity of such certificates, determine whether or not the ship's certificates reflect the actual condition of the ship and crew (recognition and judgement of clear grounds)
- conduct an assessment of watchkeeping skills if there are clear grounds.
- judge this assessment against criteria
- determine whether or not the results of the assessment indicate a situation which is a danger to persons, property or the environment

In this analysis, it is clear that a lot of the PSCO's job with regard to onboard assessments is dependent on professional judgement of the PSCO. However, if the PSCO is not a mariner, he or she must develop this judgement through training and experience as a PSCO, not as a mariner. As the U.S. Coast Guard has advocated, you can be a professional PSCO without being a professional mariner.

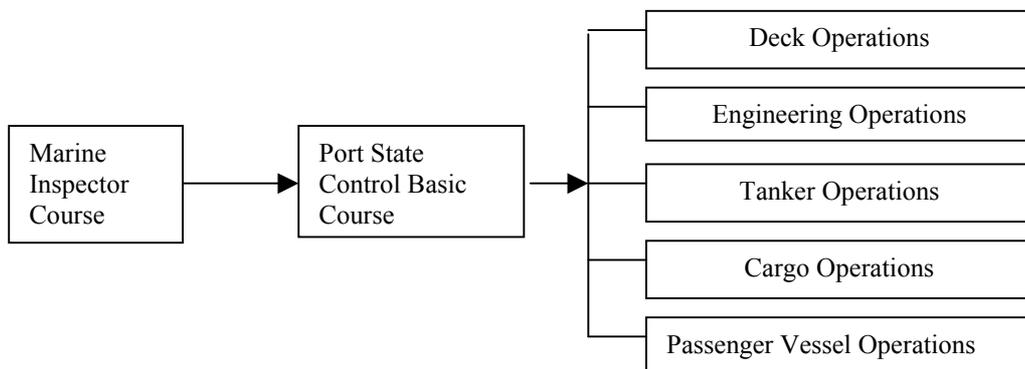
As stated previously, PSCOs conducting onboard assessments should be skilled in the task they are assessing and have been trained in assessment methods. While it appears that these criteria only pose a problem for new PSC enterprises, this is not the case. Nations with long-standing PSC programs are also affected in two ways: first, many surveyors from established nations were trained prior to 1995, before STCW, the ISM Code, GMDSS, ECDIS, and AIS were realities or possibilities. Possession of a license does not necessarily imply that a person has a skill that needs to be assessed. In fact, before Australia began their campaign on checking operational requirements of GMDSS in 1999, they needed to send most of the surveyors to a training class to become competent in the operational aspects of GMDSS (AMSA, 2000, p. 9). Secondly, checks of hardware during PSC inspections

have so dominated the PSC world that there are few PSCOs trained in assessment techniques.

7.5 Recommended training for the U.S. PSC program

The PSC program in the United States is operating effectively. As mentioned briefly in chapter six, the Coast Guard is reviewing PSC training procedures for a possible change from having PSC elements contained in the MIC course to a stand-alone course. Given the international importance of PSC, a stand-alone course is warranted. This is also a good time to change some of the PSC emphasis from structural systems to human systems. As owners, flag states and class societies allow less infractions of materiel condition, an emphasis on human systems which can be assessed during a PSC exam is appropriate and timely. At a minimum, enhanced training for the onboard assessments that already occur during a PSC inspection should be contemplated. Training PSCOs in assessment techniques is a necessity if detentions for operational deficiencies that meet international legal standards is to continue. The next section will outline recommendations regarding the U.S. Coast Guard PSC training program.

Figure 7.1 Recommended Training for U.S. PSCOs



One obvious solution is to hire civilian merchant mariners or use only Maritime Academy graduates (MARGGRADS) to fill PSCO billets. This is a good solution for ensuring a certain level of knowledge, however, it would require a change of billet structure and additional funding, which may or may not be possible any given year. In any case, training needs to address the need for PSCOs now. As shown in chapter 6, there are many levels of experience present in the ranks of PSCOs in the United States. It is possible to design a modular training program that would be appropriate for all levels. In other words, a person who is more experienced should be able to audit some of the training related to his or her experience. For example, a recent MARGGRAD does not need to attend Basic Safety Training again, however, a recent graduate of A school with little or no shipboard experience should attend it.

Figure 7.1 is a representation of optimum training for a PSCO. A good starting point for PSCO training is to complete the Marine Inspector Course (MIC). This will ensure that he or she has training in inspection procedures and the technical background necessary to execute the hardware side of PSC.

The next step should be a two-week course entitled PSC Basic, focusing on basic safety and shipboard administration. At a minimum, the course should contain training on:

1. PSC provisions of International Conventions and IMO Resolutions, with special emphasis on STCW 95 and IMO Resolution A787(19).
2. Worldwide PSC MOUs and their respective operations and statistics.
3. Recognition of valid certificates and understanding of transitional provisions.
4. Determination that certificates issued to the ship reflect the actual condition of the ship.
5. Recognition of the existence of a shipboard safety culture (ISM Code).
6. Merchant ship administration

7. Seafarer Basic Training including familiarization as outlined in Chapter VI of STCW 95, specifically, page 111, Tables A-VI/1-1, 1-2, 1-3, and 1-4 respectively, and Table A-VI/2-1. This section would include participation in several shipboard drills.
8. Onboard assessment techniques for:
 - English proficiency
 - basic safety operational checks
 - fire and lifeboat drills
 - basic safety demonstrations of competency under STCW 95 (relevant to the aforementioned tables).

Although having a military member of the USCG take a course containing these subjects may seem of dubious value, the recommended course content would serve several functions: first, it would meet the criteria recommended by the IMO with regard to a person being skilled in the task they are assessing and have training in assessment techniques; second, it would give a PSCO confidence that he or she possesses the skills necessary to conduct onboard assessments; third, it would serve to correlate CG knowledge with merchant marine knowledge; and fourth, it would be a self contained course which would be valuable for export to other nations and MOUs.

After the initial PSC basic, a PSCO would be authorized to conduct certain assessments up to the level of his or her knowledge. To further enhance this knowledge, a series of workshops could be introduced, including: deck operations (including GMDSS), engineering operations (including MARPOL), tanker operations, cargo operations, and passenger vessel operations. Course content should reflect competencies in the appropriate places in STCW 95, however, the objective of these workshops would not be to impart all knowledge in the competency tables. It would be appropriate to focus on several operational checks in each area that can be

performed in the limited time of a PSC exam. A USCG member or civilian who already possessed a license would need to take only the “how to assess” part of the workshop.

The philosophy of PSC is just as important as the procedures. With that in mind, all PSCOs need to know:

- the limits of their authority and ability
- that little used maritime skills inevitably deteriorate (there is a difference between competence and forgetting something).
- there is more than one way to do certain tasks,
- we are only testing the bare minimum of compliance when we use STCW 95.

7.6 Additional comments on USCG PSCO training

An important training element in modern maritime education and training is the increasing use of simulators, which can be a valuable tool in assessment as well as training. The use of simulators for training PSCOs in assessment techniques should be considered. There are several types of simulators in use today, including: full bridge, radar, GMDSS, engine room, liquid cargo handling, and bulk cargo handling. Warsash Maritime Center in Southampton, U.K. has used their engine room simulator to train PSCOs from the Paris MOU for two years. The results have been very promising, with the net effect that a PSCO has gained confidence in a training setting rather than a more high pressure actual PSC inspection.

Distance learning is another technology that can be incorporated into the training program. The European Port State Control Officer Training (EPSCOT) program uses a self contained CD-ROM to teach many of the preliminaries of PSC. With proper oversight, a potential PSCO could be required to complete a self-study program prior

to arrival at the PSC course. Subjects suitable for distance learning should be researched with this goal in mind.

A final note with regard to those cases in which a very high level onboard assessment is needed (for example for the Captain or Chief Engineer): a cadre of U.S. Navy officers who are also merchant mariners can be found in the U.S. Navy Merchant Marine Individual Ready Reserve Group (MMIRRG) program. Many of them are involved in either USMMA or state maritime academies. These officers are required to complete a minimum of two weeks a year of Annual Training (AT) per year. Currently, there is a standing billet for each two-week period of the year at the USCG National Maritime Center (NMC). These officers wear the Navy uniform but complete USCG missions at the NMC. A similar program for PSC can be constructed where MMIRRG officers complete PSCO training and make themselves available on a regional on-call basis for more difficult assessments. There are financial as well as practical benefits to such an arrangement, as the MMIRRG officers are funded by the Navy. The need for such expertise should be apparent within the first two years of operation of such a program. If enough “in-house” talent existed in the Coast Guard, or the need for such high level assessments did not materialize, then the program could be discontinued.

The point to remember is that the Coast Guard needs to be ready to exercise the PSC powers granted by various IMO Conventions to the fullest extent. A thorough training program coupled with an advanced plan would ensure that the USCG can accomplish all PSC missions, both those related to ship structural systems and human systems.

Chapter 8

Conclusions and Recommendations

8.1 Introduction

Any discussion of the feasibility of onboard assessments must certainly ask whether it is even necessary to have a provision for them in the first place. There are three reasons why they are necessary: first, the statistics of the MOUs and the U.S. indicate that questionable operational competence is an established problem in maritime world (see chapter 3 for statistics and comments). Two possible reasons for this are: some seafarers were trained under the pre-STCW 95 system (which did not offer criteria for minimum standards), and the crewing practice of some companies does not allow for the required vessel familiarization. Second, there are still flag states and class societies that do not provide any significant oversight to mariners that they certify under their flag. Fraudulent certification is a related problem. Third, it is clear from the words in STCW 95 and related documents referenced in this dissertation, that the authors of STCW 95 envisioned a purpose for onboard assessments of competency in the course of PSC inspections.

8.2 The need for onboard assessments: the GMDSS case

The case for the need for onboard assessments can be bolstered by a recent example. A significant change to shipboard communications occurred when the IMO adopted provisions for the Global Maritime Distress and Safety System. The radio officer

position on most ships was eliminated and the ship's deck officers absorbed radio functions. In order to comply with this change by the stated date of 01 February 1999, officers needed to have completed a training course in GMDSS to be certified to operate the equipment.

The transition has not been an easy one. During the time GMDSS has been operational, a significant number of false alarms are recorded every day. The disturbing number of false alarms have been commented on in the confidential reporting schemes MARS, maintained by the Nautical Institute. One report quantified the problem: "On a voyage from the U.S. to North Africa and up to Rotterdam a total of 552 alerts were received over a period of 26 days and at the worst point 38 were received during one watch alone. This equates to an average of 21 erroneous messages per day. A second ship maintained a similar record and noted 15/20 calls per day." The contributor goes on to state that all messages received were erroneous, and speculated most of these erroneous messages were caused by shipboard operator error. (MARS, 1999)

The amount of operator error certainly points to a perception of incompetence among those on ships charged with operating GMDSS. Reasons for this incompetence could include either substandard training or fraudulent certification. Preliminary results of the fraudulent seafarer documentation study sponsored by the IMO indicate that "GMDSS certificates in particular seem to be readily available." (IMO, 2000, p. 22)

Australia was particularly interested in ensuring the proficiency of GMDSS operators calling on their ports. In preparation for the 01 February 1999 enforcement deadline, AMSA provided all of its surveyors advanced training in GMDSS and prepared inspection guidelines. The amount of deficiencies was alarming. According to their 1999 report: "During the year a number of ships were detained due to their radio installation not complying with GMDSS requirements or ships' operators not being

competent in the equipment's operation.” (AMSA, 2000, p. 9) In fact, the total number of radio deficiencies increased almost 70% when compared with statistics from the previous year.

Clearly, this type of onboard assessment enhanced maritime safety by directly reducing the likelihood of more false alerts. The advent of standardization regulations for ECDIS and AIS could prompt similar campaigns in the future.

8.3 Review of the objectives of this dissertation

The specific objectives of this dissertation as outlined in chapter one were:

- to ascertain prevailing attitudes of those involved in PSC activities (MOUs, USCG personnel, people in the shipping industry, P&I clubs, and mariners) about the practicality of onboard assessments.
- to address concerns raised within the framework of the what is permitted under international conventions and what is practical under prevailing conditions in the shipping industry.
- to emphasize the need for international standardization of terms, operational procedures, purpose for detentions, reporting procedures, and analysis of information with regard to onboard assessments of competency.
- to propose a starting point for standardization.
- to investigate the training needs for a consistent application of PSC efforts in the area of onboard assessments of competency.

A look at these objectives will reveal that this dissertation was only a starting point for discussion of the issue of onboard assessments of competency. More research needs to be done in this area, especially by maritime authorities and the IMO.

8.4 Conclusions

Two of the elements of the IMO Secretary General's vision for the 2000s are "shifting emphasis onto people" and "ensuring the effective uniform implementation of existing IMO standards and regulations relating to maritime safety and environmental protection, placing particular emphasis on the implementation of the revised STCW Convention, and the ISM Code..." (IMO Res.A900(21), 1999)

Resolving the questions related to onboard assessments of competency so that PSCOs can use this valuable tool to check the human systems of a vessel will further both of those goals, and thus further the cause of maritime safety. Guidance for this task needs to come from the body which envisioned this provision, the IMO, after consistent, fair, and legal analysis of the provisions, comparison with current PSC practice, the limitations of PSC, and the practicality of onboard assessments during PSC inspections. An operational handbook for all onboard assessments of competency; operational checks, fire and lifeboat drills, and assessments of competency under STCW should be the result. Training for PSCOs should reflect the results of this analysis.

If the IMO is slow to act, individual nations and MOUs should develop their own handbooks for onboard assessments of competency, keeping in mind the issues presented in the preceding chapter and a methodology for standardizing all PSC activities in which a PSCO has to use his or her assess the competency of a mariner, and with special attention to what is currently being performed. Although standardization from the international level is the most desirable situation, standardization within a nation's or region's ports would be a start toward this goal.

8.5 Recommendations

As a result of the conclusions drawn in this paper, the following are recommended actions:

1. Nations and the IMO should survey current practice in PSC and determine to what level onboard assessments of competency are occurring.
2. Pursuant to agreement that what is occurring constitutes onboard assessment, then standard assessment methodology regarding procedure and training should be adopted and applied to all onboard assessments of competency during PSC Inspections.
3. Training of PSCOs in all MOUs should be changed to reflect a more equal balance of checks on structural systems and human systems, including an emphasis on assessment techniques
4. The IMO should promulgate a manual for onboard assessments, codifying current practice and adding all that is allowable under each convention, especially STCW 95, and recommended procedures.
5. The U.S. should re-instate a stand-alone PSCO course with more emphasis on skill acquisition and assessment techniques.
6. The IMO should standardize, catalogue, analyze and publicize statistics on onboard assessments of competency so that effectiveness of PSC efforts in this area can be gauged.

References

- American Psychological Association. (1997). Publication Manual of the American Psychological Association (4th edition). Washington, D.C.: American Psychological Association.
- Asia-Pacific Memorandum of Understanding on Port State Control [Tokyo MOU], Tokyo MOU Secretariat, Tokyo, (1996).
- Australia Maritime Safety Authority [AMSA]. (2000). Port State Control Report for 1999. Australia: Author.
- Bobb, J. (2000), Evaluating STCW practical demonstrations: what do I need?, Proceedings of the Marine Safety Council, 57(1), 4-7.
- Brusseau, J. (2000), Passing the port state control test, Proceedings of the Marine Safety Council, 57(1), 63-66.
- Centre Administratif des Affaires Maritimes [CAAM]. (2000). Annual Report for 1999 of the Paris Memorandum of Understanding on Port State Control. Saint-Malo, France: Author.
- Greenaway, Carrie. (1998). Port state control: A guide for members. United Kingdom Protection and Indemnity Club [UK P&I Club]. London: Thomas Miller & Co., Ltd.
- Hoppe, Heike. (2000). Port state control--an update on IMO's work. IMO News, 2000 (1), 9-19.

- IMO. (1978). International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 with resolutions adopted by the International Conference on Training and Certification of Seafarers, 1978 [STCW 78]. London: Author.
- IMO. (1995). International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 and 1997 [STCW 95] and Seafarer's Training, Certification and Watchkeeping Code [STCW Code]. London: Author.
- IMO. (1997). Consolidated Edition, Articles, Protocols, Annexes, United Interpretations of The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto [MARPOL 73/78], London: Author.
- IMO. (1997). Consolidated text of the International Convention for the Safety of Life at Sea, 1974, and its Protocol of 1978: articles, annexes and certificates [SOLAS 74]. London: IMO.
- IMO. (1997). STCW The new Convention. Focus on IMO, [Brochure]. London: Author.
- IMO Flag State Implementation Subcommittee papers from November, 1999, London, IMO (2000).
- IMO Maritime Safety Committee [MSC] Circular 853, Guidance on Shipboard Assessments of Proficiency, London, IMO (1998).

IMO Resolution A900(21), Objectives of the organization in the 2000's, London, IMO (2000).

IMO Resolution A787(19), Procedures for Port State Control, London, IMO (1995).

Nautical Institute. (1999). Marine Accident Reporting System (MARS) Report 99021

Too many GMDSS false alerts. Retrieved July 9, 2000 from the World Wide Web:

<http://www.nautinst.org/mars99/99021.htm>

Navigation and Vessel Inspection Circular 3-98, Port state control guidelines for the enforcement of the 1995 amendments to the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers, 1978, United States, USCG (1997).

Merchant Marine Personnel Advisory Committee [MERPAC]. (1999). Guidelines for assessment of various competencies in the STCW Tables. Retrieved May 25, 2000 from the World Wide Web:

<http://www.uscg.mil/hq/g-m/advisory/merpac/natassguide.htm>

Morrison, W. S. G. (1997). Competent Crews=Safer Ships. Malmo, Sweden: World Maritime University Publications.

Paris Memorandum of Understanding on Port State Control, Paris MOU, The Hague, (1982).

Schulte-Strathaus, R. (1998) Policing and monitoring STCW 95. Bimco Bulletin, 94 (3), p. 31.

- Schrinner, J. E. (1997, December). Port state control in the U.S. Paper presented at the Second International Conference on Port State Control. London, U.K.
- Smith, M. (2000), How do you assess mariner proficiency? Proceedings of the Marine Safety Council, 57(1), 15-17.
- Study reveals unlawful practices linked to seafarer certificates. (2000) IMO News, 2000 (1), 22-23.
- Survey exposes poor seamanship standards. (1999, Sep/Oct). The Sea, (141), 1.
- United States Coast Guard [USCG]. (1996). Prevention Through People Information Pamphlet. Retrieved June 13, 2000 from the World Wide Web:
<http://www.uscg.mil/hq/g%2Dm/moa/mao/a8.htm>
- USCG. (2000). USCG Port State Control Report for 1999. United States: Author.
- USCG. (2000). Marine Safety Manual, Vol. II. Retrieved August 10, 2000 from the World Wide Web:
<http://www.uscg.mil/hq/g%2Dm/psc/miscpages/pubspg.htm>
- USCG. (2000). Personal interviews conducted from March-June, 2000 with USCG personnel involved in Port State Control in six U.S. ports, Hampton Roads, VA; New York, Miami, New Orleans, Los Angeles/Long Beach, and Buffalo. Information used with permission, but participants would not permit identification of themselves.
- Young, C. (2000). The IMO 'white list'--what it is and what does it mean? Proceedings of the Marine Safety Council, 57(1), 60-62.

Appendix A

LIST OF NATIONS INVOLVED IN EACH MOU

Paris MOU	Vina del Mar MOU	Tokyo MOU
<p>Members: Belgium Canada Croatia Denmark Finland France Germany Greece Ireland Italy Netherlands Norway Poland Portugal Russian Federation Spain Sweden U.K.</p> <p>Observers: Japan USA IMO ILO Tokyo MOU Iceland</p>	<p>Members: Argentina Bolivia Brazil Chile Colombia Cuba Ecuador Mexico Panama Peru Uruguay Venezuela</p> <p>Observers: IMO CEPAL</p>	<p>Members: Australia Canada China Fiji Indonesia Japan Republic of Korea Malaysia New Zealand Papua New Guinea Philippines Russian Federation Singapore Solomon Islands Thailand Vanuatu Viet Nam Hong Kong (China)</p> <p>Observers: Brunei USA IMO ILO ESCAP Paris MOU Indian Ocean MOU</p>

Source IMO News, 2000, pp.16-19

Continued on next page

Appendix A

LIST OF NATIONS INVOLVED IN EACH MOU

Caribbean MOU	Mediterranean MOU	Indian Ocean MOU
<p>Members: Anguilla Antigua & Barbuda Aruba Bahamas Barbados British Virgin Islands Cayman Islands Dominica Grenada Guyana Jamaica Montserrat Netherlands Antilles St. Kitts & Nevis St. Lucia St. Vincent & the Grenadines Suriname Trinidad & Tobago Turks & Caicos</p> <p>Observers: IMO ILO CARICOM IACS Canada USA Netherlands Paris MOU Vina del Mar MOU Tokyo MOU</p>	<p>Members: Algeria Cyprus Egypt Israel Jordan Malta Lebanon Morocco Tunisia Turkey Palestinian Authority</p> <p>Observers: IMO ILO EC</p>	<p>Members: Djibouti Eritrea Ethiopia India Iran Kenya Maldives Mauritius Mozambique Seychelles South Africa Sri Lanka Sudan Tanzania Yemen</p> <p>Observers: IMO ILO PMAESA</p>

Source IMO News, 2000, pp.16-19

Continued on next page

Appendix A

LIST OF NATIONS INVOLVED IN EACH MOU

Abuja MOU	Black Sea MOU
<p>Members: Benin Cape Verde Congo Cote d'Ivoire Gabon Gambia Ghana Guinea Liberia Mauritania Namibia Nigeria Senegal Sierra Leone South Africa Togo</p> <p>Observers: IMO ILO MOWCA Burkina Faso Mali</p>	<p>Members: Bulgaria Georgia Romania Russian Federation Turkey Ukraine</p>

Source IMO News, 2000, pp.16-19

Appendix B

MERPAC ASSESSMENT TABLES

APPENDIX B

MERPAC ASSESSMENT TABLES