

# What should be done with Grandad?

## Discussing the application of new standards to the existing fleet

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### **ABSTRACT**

*The topic of this paper is a controversial one; the application of new standards to existing vessels. The paper reviews the current arrangements in Australia, the concept of grandfathering, the rationale behind the NSCV standards being applied to new vessels and why they are not immediately applicable to existing vessels. The paper then considers grandfathering in the context of broader safety obligations and the effect of time on the cost/benefit balance. The NMSC's proposed method for addressing the issue of existing vessels is described. This is then compared to the situation internationally under SOLAS and domestically in the European Union.*

### **1. INTRODUCTION**

On 22 January 1984, the 71 year-old Sydney ferry Karrabee sank at Circular Quay just seconds after some 390 passengers disembarked hurriedly when the vessel started taking water during the Great Ferry Race. The ensuing Court of Marine Inquiry<sup>i</sup> recommended that for vessels of that type and age “proper practices should be introduced based on up-to-date knowledge, technology and techniques to ensure that the intention of the Navigation Act is achieved”. The recommendation had partially been made in the context of verifying subdivision on existing older passenger vessels. It was never followed through for fear that the cost both to industry and to the agency of undertaking such a review and addressing deficiencies that might arise from the results would have been prohibitive. There had been no loss of life, and within a few years, Karrabee and her immediate contemporaries, five other similar 70 year-old vessels, had all been retired.

Those on the Karrabee were lucky. Just two years later, on the other side of the world, the 61 year-old passenger ship Amiral Nakhimov collided with the bulk carrier Pyotr Vasev in Tsemes Bay, Novorossiysk with the loss of 423 lives<sup>ii</sup>. No inquiry is readily available to the author, but it begs the question to what extent would the death toll have been mitigated had the ship met modern standards?

1987 and 1994 were to see the sudden and catastrophic capsizing of the Ro-Ro ferries Herald of Free Enterprise with the loss of 193 persons and Estonia with the loss of 852 persons respectively<sup>iii</sup>. The IMO regulations were amended to overcome what was identified as a latent defect in existing standards of the day. The issue was seen to be so serious that, not only were the new standards applicable to new vessels, but they were also progressively phased in to existing vessels over a period of years resulting in a number of vessels being withdrawn from service<sup>iv</sup>.

These events illustrate the range of responses applicable to existing vessels when new safety standards have been implemented.

So-called “grandfathering” is the practice of permitting existing vessels to operate to standards that predate current minimum standards. Grandfathering is widely practiced in the Australian domestic fleet. The extent to which new standards should be applied to existing vessels has been a vexed

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<sup>i</sup> Court of Marine Inquiry.No.1 of 1984. Before the Chief Judge His Honour Judge Staunton. 4 December 1984.

<sup>ii</sup> Wikipedia web pages. SS Admiral Nakhimov. As accessed 27 July 2010 at:  
[http://en.wikipedia.org/wiki/SS\\_Admiral\\_Nakhimov](http://en.wikipedia.org/wiki/SS_Admiral_Nakhimov)

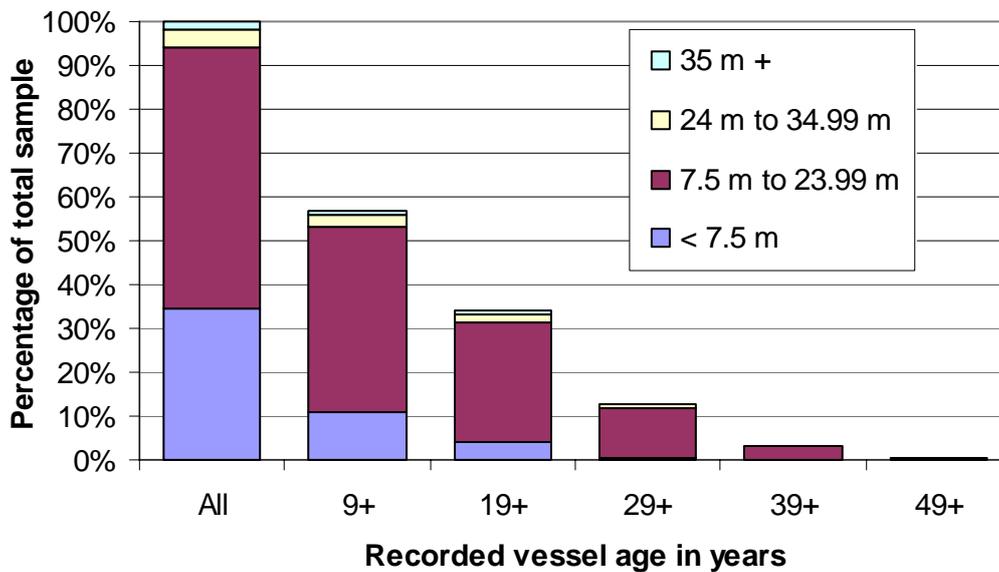
<sup>iii</sup> Wikipedia web pages. Herald of Free Enterprise and M/S Estonia. As accessed 27 July 2010 at:  
[http://en.wikipedia.org/wiki/MS\\_Herald\\_of\\_Free\\_Enterprise](http://en.wikipedia.org/wiki/MS_Herald_of_Free_Enterprise), [http://en.wikipedia.org/wiki/MS\\_Estonia](http://en.wikipedia.org/wiki/MS_Estonia)

<sup>iv</sup> Safety of Ro-Ro ferries. IMO webpage. Accessed 27 July 2010 at:  
[http://www.imo.org/safety/mainframe.asp?topic\\_id=1536](http://www.imo.org/safety/mainframe.asp?topic_id=1536)

question for decades, not only for vessels locally in Australia, but also across the entire maritime industry. This paper explores some of the issues in the context of work done developing standards over the last decade, and explains the background to the Administrative Protocol for Assessing the Application of the NSCV to Existing Vessels<sup>v</sup>.

**2. THE CURRENT SITUATION IN AUSTRALIA**

An indication of the age of commercial vessels in the Australian domestic fleet can be ascertained from Figure 1<sup>vi</sup>. Of the total, approximately 34 per cent were constructed 19 years or more before 2008. Over a third of these (13% of the total) could predate the Uniform Shipping Laws Code that was first published in 1979 but took some years to be picked up by enabling legislation. Figure 1 also illustrates that the average working life of vessels smaller than 7.5 metres is considerably less than that for larger vessels.



**Figure 1— Indicative cumulative distribution of Australian domestic commercial vessels built up to 2008 by vessel age and vessel length (Sample n=5372)**

The current situation regarding the application of new standards to existing domestic commercial vessels in Australia is ambiguous.

The previous USL Code Section 1<sup>vii</sup> Clause 2 stated:

*Unless expressly provided otherwise, the provisions of this Code apply to new vessels. For vessels the keels of which were laid or reached a similar stage of construction on or before 31 December 1991, the Authority may determine the extent to which the Code provisions in force on that date are required to be met.*

The scope and nature of the discretion granted under this Clause has never been systematically defined and the objectives have to be implied. The ambiguity is further highlighted by references to application in individual sections of the old USL Code:

For example, USL Code Subsection 5A Clause A.5 stated:

<sup>v</sup> Australian Transport Council. Guidance Manual for Transition Principles Administrative Protocol. 2010. Sydney. [http://www.nmsc.gov.au/media/pages\\_media\\_files/files/Guidance\\_Manual\\_-\\_Transition\\_Principles\\_Admin\\_Protocol.pdf](http://www.nmsc.gov.au/media/pages_media_files/files/Guidance_Manual_-_Transition_Principles_Admin_Protocol.pdf)

<sup>vi</sup> National Marine Safety Committee. Vessel database as of 2008. Only Queensland and Western Australia record year of build. Queensland records contain further 2292 with year built unspecified.

<sup>vii</sup> Australian Transport Council. Uniform Shipping Laws Code. 1979 as amended in 1981, 1983, 1989, 1991, 1996 and 1997. <http://www.nmsc.gov.au/index.php?MID=91&CID=99>

*This Section applies to every new vessel the keel of which is laid after the date of coming into force of this Section and which is to be constructed to the survey of an Authority.*

*Where alterations are made to an existing vessel this Section shall apply as far as is reasonable and practicable to the alterations as if the parts of the vessel so altered were parts of a new vessel.*

But USL Code Subsection 8A Clause A.2.1 states:

*This Section applies to every vessel subject to the survey of an Authority. Where difficulty is experienced in respect of a particular vessel's meeting these Requirements, the matter should be referred to the Authority for decision. Where alterations are made to an existing vessel, such as materially to affect the stability of the vessel, the Authority may require the vessel to be re-inclined and a re-assessment made as to the ability of the vessel to meet the applicable criteria.*

The subsection 8A clause seems to apply to every vessel including existing vessels, while the subsection 5A clause only applies to new vessels and alterations to existing vessels.

The lack of clarity as to the application of new standards to existing vessels becomes even more manifest when items such as fire and/or safety equipment are considered. Most jurisdictions have regulations that set requirements. A number of these have been frozen in time, being based on the 1981 or 1984 USL Code, with or without modifications. However, in the field, jurisdictions have often been applying current standards for some items of equipment and exemptions from compliance with others.

### **3. DEVELOPMENT OF THE NATIONAL STANDARD FOR COMMERCIAL VESSELS**

The Uniform Shipping Laws Code is being progressively replaced by a new standard, the National Standard for Commercial Vessels (NSCV). The question of application of the NSCV to existing vessels was considered during the development of Part B of the standard that was to replace Section 1 of the USL Code. Early drafts included the application of the new standards to existing vessels in the application clause. However, it became clear that the clause was quasi-legislative and more reflective of policy than a technical standard. Application of new standards to existing vessels requires a policy decision on the balance between available government resources and public expectations as to safety. Furthermore, retrospective application of standards is a sensitive issue that can have political implications and so should not be dealt with lightly. It had been recognized that the inclusion of quasi-legislative clauses had been one of the failings of the USL Code<sup>viii</sup>, so the clause was amended to just apply to new vessels, existing vessels entering survey for the first time and existing vessels upgrading service. Specifying what happens to existing vessels that have been modified and existing vessels without change was left to be specified in the enabling legislation.

This decision had important implications for the development of the NSCV. It allowed drafters to focus on the vision of the fleet in the future, rather than being constrained by potential impacts on the current fleet. In accordance with COAG Guidelines<sup>ix</sup>, each new Part, Section or Subsection of the NSCV was supported by a Regulatory Impact Statement (RIS) that considered the cost / benefit of reforms contained within the new standard. It is important to note that the cost / benefit analysis in the RIS was based on the application of the standards being limited to new vessels, see Figure 2.

### **4. WHY NOT JUST APPLY NEW STANDARDS TO EVERYTHING?**

Because of the different costs associated with applying the new standards to existing vessels, the conclusions that justify the new provisions for new vessels are invalid when applied to the existing fleet, see Figure 3. While the benefits of the new standard stay the same, the costs of applying the new standard to existing vessels are frequently considerably more.

<sup>viii</sup> Flapan, Mori. Regulatory Reform in the Australian Domestic Industry. Pacific 2002. Sydney. [http://www.nmsc.gov.au/media/pages\\_media\\_files/files/Pacific%202002%20Regulatory%20Reform.pdf](http://www.nmsc.gov.au/media/pages_media_files/files/Pacific%202002%20Regulatory%20Reform.pdf)

<sup>ix</sup> Council of Australian Governments. [COAG Best Practice Regulation - A Guide for Ministerial Councils and National Standard Setting Bodies](#), October 2007.

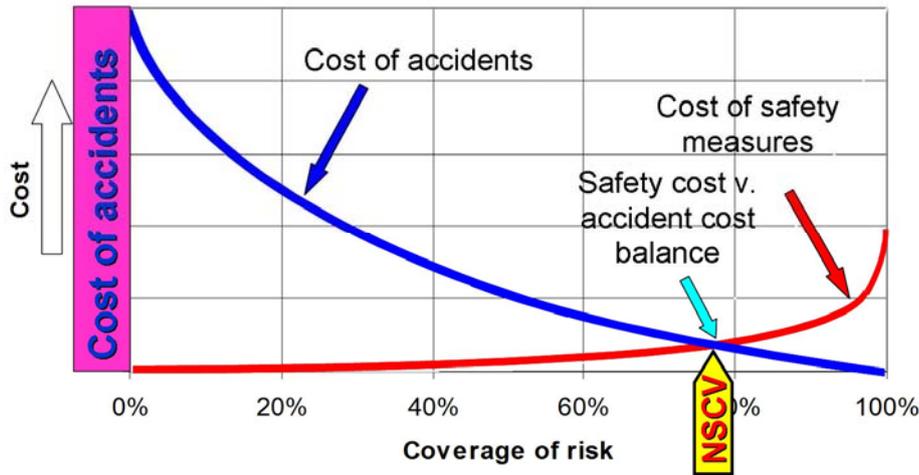


Figure 2—Indicative cost-benefit balance for a standard applicable to new vessels

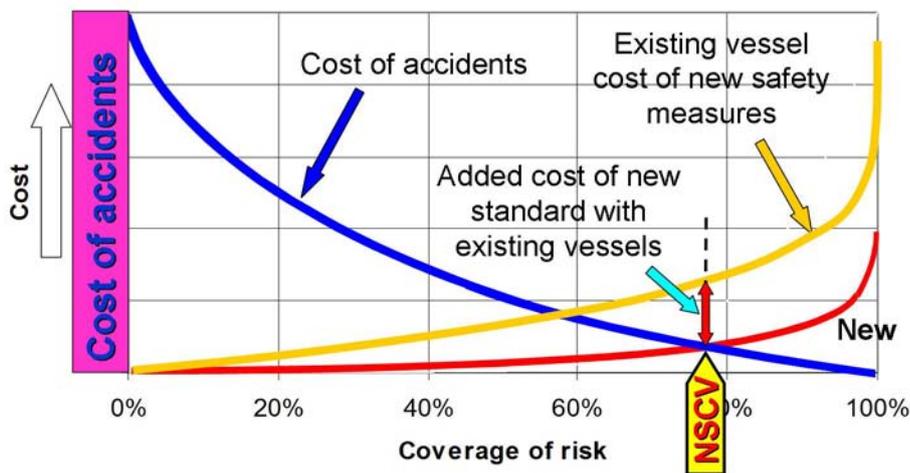


Figure 3—Indicative effect on the cost-benefit relationship when standards intended for new vessels are applied in full to existing vessels

In addition to the cost of supplying, building or otherwise providing for the thing required by a specific provision in the new standard, an existing vessel faces additional cost through:

- The cost of removing any existing arrangements
- The loss of any residual capital value inherent in the existing arrangements
- The cost of alterations to structure needed to accommodate the new arrangement
- The cost of fitting or modifying ship systems required to supply the new arrangements
- Loss of earnings during alterations while the vessel is out of service
- Adverse changes in the vessel’s earning capabilities that might come about due to the impact of the new regulations or the arrangements put in place to accommodate them.

Policies that apply new standards to existing vessels need to take these differences into account. As can be seen in Figure 3, the cost/benefit balance lies well to the left of the point where the NSCV lies. Except where there is an urgent safety concern that needs to be addressed, existing standards should be recognised as remaining appropriate and relevant to the existing fleet when new standards are introduced. This continues at least for the short to medium term. However, there are factors that change over time which will affect the assumptions behind this stance in the medium to long term.

**5. ISSUES ASSOCIATED WITH GRANDFATHERING**

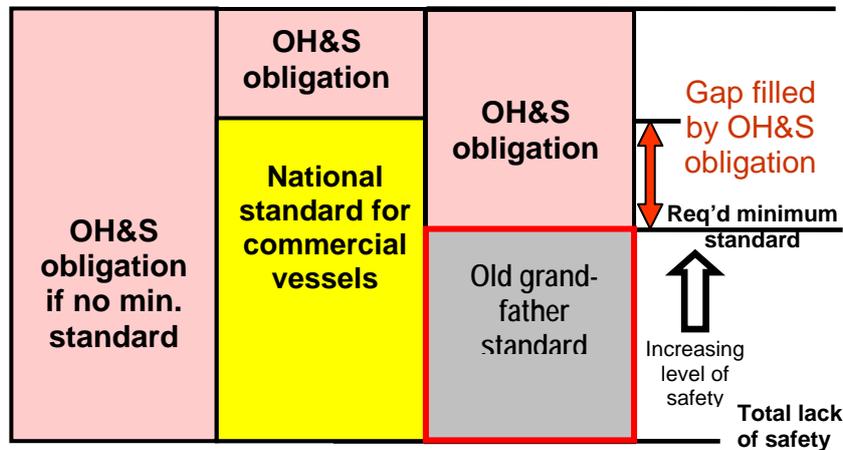
There is a perception that grandfathered vessels are substandard; i.e. below acceptable standard, because grandfathered vessels do not meet latest standards. This is particularly so when such vessels are involved in serious incidents such as illustrated by the Karrabee and Amiral Nakimov above.

But is it reasonable to say that a vessel that was acceptable today should suddenly and automatically become unacceptable tomorrow because of the introduction of a new standard? Surely it depends upon the particular content of the changes. A new standard that applies to new vessels takes time to impact on the fleet as a whole. Assuming the average commercial life of a vessel is 20 to 25 years, the new standard might be better viewed as a vision of the fleet in 15 to 20 years as new vessels progressively enter the fleet.

The reality is that most jurisdictions apply at least some parts of new standards to the existing fleet. Frequently, it is the new safety equipment requirements that are applied but construction is not. Between these two extremes lie less well defined topics such as stability, fire safety, electrical installations, subdivision and so on. The extent to which new standards are applied to the existing fleet is not consistent between jurisdictions and even within jurisdictions. This leads to uncertainty and barriers to mutual recognition.

There is a real risk with grandfathering that vessels can be frozen in time, notwithstanding that public expectations regarding safety are continually evolving. While a vessel meeting standards of twenty years ago may be acceptable, chances are that a vessel meeting safety standards of one hundred years ago will not. A vessel grandfathered today should not be seen as having been grandfathered forever.

The lack of a consistent policy on existing vessels has arguably led to interstate transfer being used as a de-facto standard, as it has provided the receiving jurisdiction with a rare opportunity to review the newly arrived existing vessel against current standards.



**Figure 4—Relationship between specified minimum standards for survey and safety obligations under OH&S legislation**

**6. GRANDFATHERING AND BROADER SAFETY OBLIGATIONS**

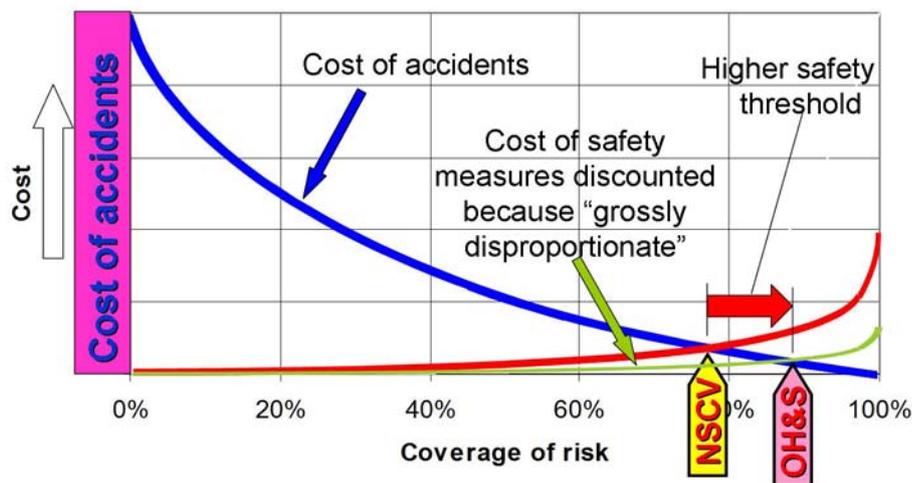
Grandfathering does not provide immunity from having to fulfil broader safety obligations. Occupational Health and Safety Legislation (OH&S) and the general law of negligence have no provision for grandfathering<sup>x</sup>. For example OH&S legislation does not differentiate whether the workplace is old or new. It can be concluded that any shortfall in safety arising from applying old required minimum standards must still be compensated for by safety obligations under Occupational Health and Safety, see Figure 4. This discussion on grandfathering is therefore

<sup>x</sup> Stokes, Noel C. The Glass and Glazing Handbook. Standards Australia 1998. Referring to Cardone v Christian Brothers Trustees.

limited to the context of prescribed minimum standards for the purposes of a proactive survey licensing regime. Arguably, the greater the gap between current survey standards and previous survey standards, the greater the likelihood that the onus will be on the operator to identify and address any residual risks that may be unacceptable in terms of broader safety obligations.

Looking at Figure 4, the question may be asked: Why is the threshold of safety of the NSCV not the same as that needed to satisfy all OH&S objectives? Quite apart from considerable practical hurdles of a third party proactively certifying “adequate” safety, the test for an acceptable regulatory intervention under the NSCV is very different to the test for fulfilling safety obligations under OH&S.

COAG Guidelines<sup>xi</sup> which underpin the NSCV apply a cost-benefit rule “government action is only justified where there are positive net social benefits...”; i.e. benefit is at least greater (or proportionate) to costs. OH&S requires reasonably practicable steps be undertaken to eliminate or minimise risks. Discussions with the relevant agency have indicated this is something more than a bare comparison of whether benefit exceeds costs, though what that might be they were not prepared to say. Case law on the subject has given rise to the ALARP principle that states: “as low as reasonably practicable” suggests steps [to reduce risk] are reasonable unless there is a “gross disproportion between benefit and cost - the risk being insignificant in relation to the sacrifice”<sup>xii</sup>. Clearly the term “gross disproportion” means something different to “positive net social benefits”. The test for OH&S provisions would appear to be much more onerous that would be considered acceptable under the COAG Guidelines.



**Figure 5—Indicative effect of the different thresholds for acceptability under OH&S and COAG Guidelines as reflected in the NSCV**

Figure 5 illustrates the rationale behind Figure 4 in terms of cost/benefit. The OH&S threshold of “gross disproportion” effectively discounts the cost of safety measures relative to the benefits, shifting the balance point of acceptability far to the right.

**7. TIME CHANGES EVERYTHING**

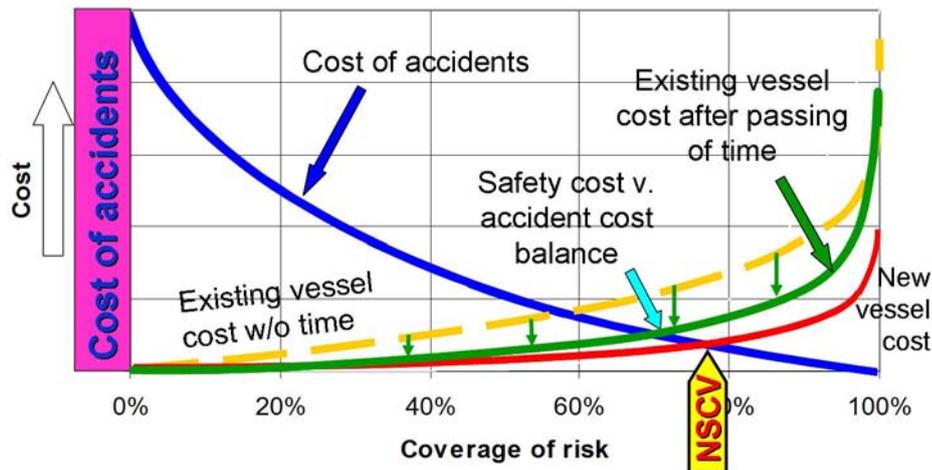
The discussions so far have been mainly focused on the immediate effects of applying a new standard to the existing fleet. However, the factors that supported the continuance of previous standards under the new regime in the short term will in themselves change over time. These changes affect both the cost and benefit aspects in such a way that retrospective application of provisions that could not be justified in the short term may become essential, and at the same time more viable in the long term. Referring to the list of additional costs associated with existing vessels was provided under Heading 4 above, these costs will gradually reduce with time because of the following factors:

<sup>xi</sup> Council of Australian Governments. op cit.

<sup>xii</sup> Edwards v. National Coal Board. Court of Appeal CA (UK). 1949 Mar 8,9,10,21. Asquith L.J.

1. Time allows the vessel to work and provide a return on existing capital investment;
2. Time permits full application of any capital depreciation allowance<sup>xiii</sup>;
3. Many items of equipment will in any case expire, or become outdated or unserviceable over time;
4. The likelihood of ongoing repairs, refits, upgrades and refurbishments for reasons other than safety increases with time. The reasons include changes in operation, competitive advantage, economy of operation, reliability and ease of maintenance. These can offset some or all of the cost of the safety upgrade;
5. Time permits the owner to schedule downtime and expenditure to best fit in with business needs and opportunities, reducing the cash flow burden, business disruption and ultimately the cost of the upgrade;
6. Time gives the owner the opportunity to factor future safety expenditure into the broader strategic decisions that determine the economic service life of the vessel, and whether to scrap and replace.

The effect on the cost/benefit balance is illustrated in Figure 6. As an example, consider the fire safety aspects of a passenger vessel built just before introduction of new standards in Part C Section 4. To immediately upgrade the vessel to changes in the standard may be impractical and unwarranted. However, after 10 or 15 years of operation, the interior décor and service areas would likely be due for refurbishment. This might provide an appropriate opportunity to upgrade the fire rating of linings and furnishings, fit smoke detectors, smoke barriers, and so on. The comparative costs of retrospectively meeting relevant fire provisions would at this juncture be much reduced.



**Figure 6—Indicative effect of the passing of time on the relative cost of applying new standards to existing vessels (balance point shifts to the right)**

The relative benefit of safety measures is also likely to change with time. The long term trend is for society to become more risk adverse; i.e., to place a higher value on the benefit. Community expectations will also be changed by the incremental improvements that arise from the gradual take up of new standards into the fleet as new vessels are built. Our society in the future will likely gradually increase the value placed on avoiding death or injury relative to today’s levels. Referring to Figure 7, a long term increase in the benefit of the new safety measures relative to today’s values takes the cost-benefit balance point from the intersection of the dark blue curve with the green curve to the intersection of the light blue curve with the green curve.

<sup>xiii</sup> Australian Taxation Office. Income tax: effective life of depreciating assets (applicable from 1 July 2010). Commercial Vessels <http://law.ato.gov.au/atolaw/view.htm?docid=TXR/TR20102/NAT/ATO/00001#PB>

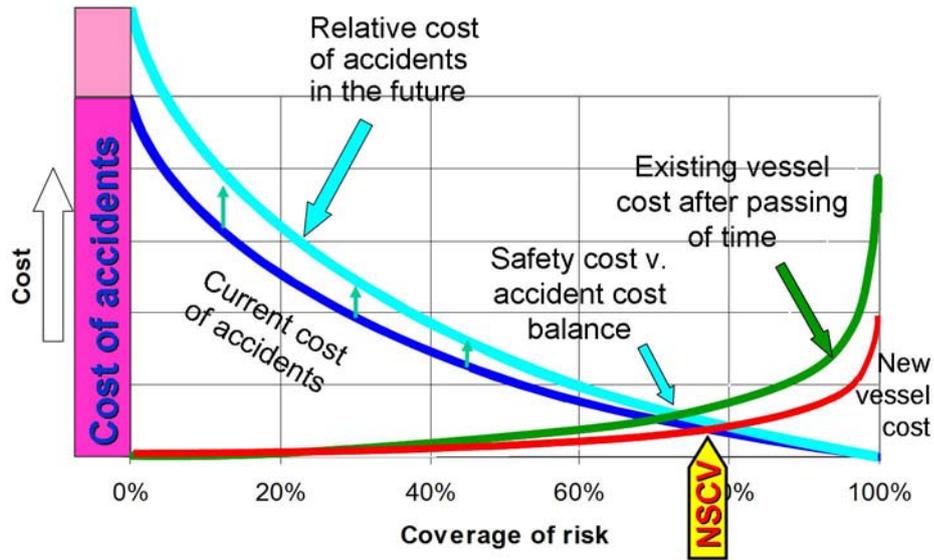


Figure 7—Indicative effect of the passing of time on the relative benefit of applying new standards to existing vessels (balance point shifts further to the right)

### 8. GUIDELINES FOR ASSESSING THE APPLICATION OF THE NSCV TO EXISTING VESSELS

Figure 7 confirms that full implementation of the NSCV to existing vessels may not be viable even in the long term. However, it does show that over time there is capacity for upgrades in safety if warranted by risk. NSMC has published the Administrative Protocol for Assessing the Application of the NSCV to Existing Vessels<sup>xiv</sup> to provide a systematic approach to determining what upgrades are needed and how they should be applied. The Protocol is not mandatory in itself. The Protocol is intended to provide principles for developing relevant legislation and modifying the application of new standards for existing vessels.

The principles operate by reviewing each provision in the NSCV standard for new vessels to establish its relevance and priority in terms of the safety of existing vessels.

#### 8.1 Assigning a status to provisions

The process starts by identifying which provisions have been changed between the old and new standards.

Each provision of the new standard that differs from the old should be assessed as to the rationale for the change and the benefits of its effects. Depending upon the outcome, each provision is classified as being one of three types: Urgent, Benign or Progressive.

Provisions are given urgent status where the matter has an immediate and significant impact on safety; or there is a manifest deficiency in the safety standard of the existing fleet which has been highlighted by an incident, product recall or similar event. The risks that arise if the new provision were not applied would be considered to be intolerable<sup>xv</sup>. Typically, the difference in risk between new and old provisions that determines whether it is urgent is in the order of 100 times greater risk.

An example of provisions that were given the equivalent of urgent status in the IMO was those pertaining to Ro-Ro passenger vessels that arose from the loss of the Herald of Free Enterprise and Estonia.

<sup>xiv</sup> National Marine Safety Committee. [Administrative Protocol for Assessing the Application of the NSCV to Existing Vessels](#). March 2010. Edition 1.

<sup>xv</sup> For an explanation of intolerable, tolerable and negligible risk, refer to NSCV Part B Annex C Guidance on Acceptable Risk. [http://www.nmsc.gov.au/media/pages\\_media\\_files/files/PARTB.PDF](http://www.nmsc.gov.au/media/pages_media_files/files/PARTB.PDF)

A provision is given benign status where either the change has been for largely administrative, industry efficiency, or other non-safety related reasons; or the benefits would be grossly disproportionate to the costs. The risks associated with not applying the new provision to a vessel complying with the old provision would be considered to be negligible. Typically the difference in risk between new and old provisions associated with benign provisions is less than a factor of 2.

An example of a new provision having benign status might be application of Lloyds Rules for the structure of vessels in NSCV Section 3. The provision was changed for largely for administrative and industry efficiency reasons. The application of Lloyds Rules will almost certainly result in different scantlings to those that came from the old Section 5 of the USL Code. However, for the majority of vessels, the scantlings derived under the USL Code should suffice. Hence this might be a provision that would be assigned benign status.

The third level of status, progressive status, is assigned where the issue is not considered urgent, but where there is likely to be a significant deficiency relative to safety expectations over the long term. The difference between the old and new standards can be considered a tolerable risk. Over time, a tolerable risk that was initially considered acceptable becomes unacceptable because of the change in the cost/benefit balance.

Examples of provisions with progressive status might be the upgrading of fire safety measures, safety equipment, or subdivision standards.

**Table 1 — Indicative transition times for various levels of provision status**

Provision status	Typical example	Typical transition time
Urgent	Ro-Ro vessel bow door integrity	1 to 3 years
Benign	Hull scantlings on conventional vessels	Never required
Progressive	Quantity of life-saving equipment	1 to 2 years
	Build standard of life-saving equipment	5 to 10 years
	Mass of persons for stability	10 years
	Subdivision	20 years

**8.2 Assigning transition periods**

As already indicated, the passing of time is the key parameter for creating a viable framework for the application of new standards to existing vessels. Once provisions have been sorted by status, transition periods are assigned that are intended to minimise the impact on business while achieving short and long term safety goals. Factors that should be used to determine transition periods include:

1. The need to resolve any identified intolerable risks as soon as practicable
2. Manufacturers periods of expiry for equipment
3. Typical service life of equipment, components and systems from wear and tear
4. Dates at which parts, infrastructure or maintenance support will no longer be available
5. Typical service life of the vessel between major refits or replacement
6. Periods assigned for effective life of depreciating assets

Regulators are sometimes tempted to accelerate implementation for administrative convenience or consistency. Unrealistically short transition dates will spark political resistance that could easily undermine the long term benefit of the proposal. Table 1 illustrates indicative transition times that might be assigned against provisions of varying status.

### 8.3 Flexible approaches to compliance

As for new vessels under the NSCV, the Protocol provides that an existing vessel has options as to how it is to achieve the safety outcomes<sup>xvi</sup>. Prior to the expiry of the specified transition period, the existing vessel can either apply the deemed-to-satisfy solution specified for the particular provision, or it can apply an equivalent solution as specified in Part B of the NSCV. A third option has been devised for existing vessels that is not available for new vessels; a so-called Remedial solution. Remedial solutions are solutions that are not fully equivalent, but can deliver most of the safety gains of the deemed-to-satisfy solution at a more practicable cost. These are particularly suited to 'construction' type issues where major structural changes might otherwise be required. The inclusion of remedial solutions is a pragmatic solution to avoid the inevitable resistance that arises when trying to make a square peg fit in a round hole.

## 9. COMPARISON WITH RELEVANT INTERNATIONAL STANDARDS

### 9.1 Application of SOLAS standards to existing vessels

One would expect that the principles of application of new standards to existing vessels would be well established at an international level. However, understanding the application of SOLAS regulations to any vessel, let alone existing vessels, can provide significant challenges. One frequently hears reference to "SOLAS ships" being used to indicate passenger ships and cargo ships over 500GT limited to those engaged in international trade. This is a misnomer because there are provisions in SOLAS applicable to "All vessels" (Chapter V Safety of Navigation for example). These include vessels engaged in domestic trade, vessels engaged in fishing, existing vessels, pleasure vessels, and so on. In theory, *any* vessel is potentially a SOLAS vessel. The structure of the document is such as to require the user to read large portions of the Convention to establish whether and the extent to which it does or does not apply. Furthermore, the wording used in the various application clauses requires considerable skill of legal interpretation in order to appreciate the full impact of what is being said. For example:

SOLAS Article VIII Amendments states

*(e). Unless expressly provided otherwise, any amendment to the present Convention made under this article, which relates to the structure of a ship, shall apply only to ships the keels of which are laid or which are at a similar stage of construction, on or after the date on which the amendment enters into force.*

This grandfather clause, applicable to vessels that predate the date the amendment enters force, is apparently intended to provide the shipping industry with some certainty when making investments.

However, there are a lot of implications that can be read into the wording of this Clause.

1. Amendments that do not relate to the structure are applicable to existing vessels.
2. There are amendments specified within the Convention relating to the structure that are applicable to an existing vessel, you just have to find them.
3. A key factor will be what is meant by the term "relating to the structure".
4. The clause is limited to amendments to the "present" (SOLAS 1974) convention which first came into force on 25 May 1980.

Focusing on the last point, for the ordinary user, a clear determination of the applicable standard to be applied to an existing vessel prior to 1980 from the face of the Convention can be quite problematic. The grandfather clause in Article VIII does not help as it apparently just applies to new vessels since 1980, and any retrospective provisions applicable to existing vessels contained within the present convention.

Article VI of the SOLAS Convention states:

<sup>xvi</sup> Refer to NSCV Part B Chapter 2 Deemed-to-satisfy solutions and Equivalent solutions at: [http://www.nmsc.gov.au/media/pages\\_media\\_files/files/PARTB.PDF](http://www.nmsc.gov.au/media/pages_media_files/files/PARTB.PDF)

*(a). As between the Contracting Governments, the present Convention replaces and abrogates the International Convention for the Safety of Life at Sea which was signed in London on 17 June 1960.*

By use of the terms “replaces and abrogates”, this effectively terminates SOLAS '60. The result could be construed as indicating that the 1974 Convention is now the minimum required standard for existing vessels. However, the Administrations in both Australia and the USA have indicated that their approach has been to continue to apply under their National Law the relevant provisions of SOLAS '60 (or even SOLAS '48) where the corresponding chapter or regulation of SOLAS '74 is not expressed to apply to ‘existing ships’ or ‘all ships’. This approach relies on Article VI (d) that states:

*(d). All matters which are not expressly provided for in the present Convention remain subject to the legislation of the Contracting Governments.*

But as a solution, even this raises problems for the user. Where can one acquire a copy of SOLAS '60 or SOLAS '48 to establish and/or verify what is the standard? These documents are no longer published by IMO; and of course they too will have been subject to amendments over the years. Unravelling the trail to establish a definitive answer for existing vessels is probably beyond the resources, competencies and ken of the ordinary person.

The concept of “relating to the structure” appears to be a fundamental driver as to whether provisions should be retrospective. The Convention does not define what this means; it provides clues but is not definitive. Table 2 indicates that the application of Chapters II-1 Construction – Structure, subdivision and stability, machinery and electrical installations and II-2 Construction – Fire protection, fire detection and fire extinction are largely excluded from retrospective application, however each contains a number of provisions that are retrospectively applied that can have significant structural implications. Similarly, Chapters III and V which are largely concerned with what are considered to be non-structural aspects have caveats on their retrospective application for specific clauses pertaining to survival craft launching arrangements, navigating bridge visibility and navigational equipment carriage requirements.

Individual clauses relevant to the application of new standards to existing vessels contained in SOLAS become clearer when viewed in the context of the NMSC's Protocol on transition principles. IMO has effectively carried out assessments as to status of changes, some being given urgent status while others are considered benign. However, the position of changes lying between the extremes remains uncertain under SOLAS, especially the issue of standards on vessels predating 1980.

The simplistic exclusion of retrospective application because of structural implications is not in itself enough. In recent times, IMO itself has questioned the acceptability of the grandfather clauses. The Preamble to the IMO Interim Guidelines for the Systematic Application of the Grandfather Clauses<sup>xvii</sup> states:

*2... With each constructional improvement of new ships, the gap in standards, i.e. safety and pollution prevention standards, between new and existing ships increases. Recognizing that it is often the record of existing ships that demonstrates the compelling need to improve on certain aspects of their standards, it seems quite unjustifiable that existing ships should be deliberately exempted from improvements of their standards. So, on the one hand, extensive and costly constructional modifications should be avoided on existing ships, while on the other hand, the standards of existing ships may become unacceptable when compared to requirements adopted for new ships only.*

*3 The Interim guidelines for the systematic application of the grandfather clauses, hereafter "the guidelines", provide a strategy for avoiding undue gaps in standards between new and existing ships. The strategy aims to ensure that when such gaps could increase through the adoption of more stringent constructional requirements for new ships, the standards of existing ships would be likewise improved to an acceptable extent, although the measures to*

<sup>xvii</sup> MSC/Circ.765 23 July 1996

*be taken may differ in nature from those agreed for new ships. Ideally, this would in the long run result in equivalent standards for new and existing ships.*

Advice received has indicated that the IMO guidelines themselves have not been widely applied, largely because of difficulties finding consensus. The last sentence in paragraph 3 above could give an insight into one reason for this: the suggestion that the process might in the long run result in equivalent standards for new and existing ships.

The NMSC Protocol differs from the IMO guidelines in that the former has been formulated on the basis that alignment of existing vessels to the same standard of new vessels is not achievable, nor in fact appropriate on cost/benefit grounds as illustrated in Figure 7. This means that decision makers need no longer fear the repercussions of being charged with a responsibility to achieve the impossible by placing a burden on industry that they know would be untenable.

## 9.2 The European Union

The European Union have addressed the issue of existing ships in their Council Directive 98/18/CE on safety rules and standards for passenger ships<sup>xviii</sup>. The scope includes existing passenger ships of 24 metres in length and above. The directive states:

*(12) Whereas the various classes of both new and existing passenger ships require a different approach for establishing safety requirements guaranteeing an equivalent safety level in view of the specific needs and limitations of these various classes; whereas it is appropriate to make distinctions in the safety requirements to be respected between new and existing ships since imposing the rules for new ships on existing ships would imply such extensive structural changes as to make them economically unviable;*

The Clause specifies an objective of “*establishing safety requirements guaranteeing an equivalent safety level*” but at the same time acknowledges that distinctions need to be made in the safety requirements to be applied. Within the Directive there are clauses that highlight the importance of time on viability of applying new standards to existing vessels, in particular the following clause:

*(13) Whereas the financial and technical implications arising from the upgrading of existing ships to the standards provided for by the Directive justify certain transitional periods; whereas in the light of the very significant number of islands in Greece, and the need to maintain constant frequent maritime connections between them and the serious effect on such transport operations and related employment which would arise by immediate application of major upgrading requirements to existing ships of more than 27 years of age on 1 October 2000, it is appropriate to provide for derogations from these requirements for such vessels operating exclusively between ports in Greece, the operation of which will cease on all domestic voyages in the Community not later than on the date on which they reach the age of 35 years;*

Article 6 Clause 3 of the Directive focuses on existing vessels. Clause 3 specifies standards that apply to existing vessels which are graded to the EU equivalent of NSCV operational areas with the most stringent requirements applying to passenger ships operating the equivalent of Operational Area A. Clause 3 refers to standards contained in Annex 1 of the Directive. Annex 1 clearly specifies the application of each provision, whether to new or existing vessels, and also to which operational area. The grading of operational area allows a vessel to downgrade service as an alternative to having to upgrade arrangements to remain in the same service. Clause 3 specifies a transition period for application to existing vessels depending upon the year of build of the vessel, the minimum being about 9 years after the date of the Directive, the maximum being 12 years.

The EU Passenger Ship directive is much clearer than SOLAS in respect of what applies to an existing vessel. It provides a good example of an attempt to address the issues of existing vessels and incorporates a graded response to risk and transition periods. But the basis of the decision making behind the provisions as applied to existing vessels is not readily ascertainable. Whether the cost of applying provisions to existing vessels is matched by the benefit is not discussed.

<sup>xviii</sup> European Union. Council Directive 98/18/EC. 17 March 1998. (OJ L 144, 15.5.1998, p.1) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1998L0018:19980604:EN:PDF>

## 10. MUSEUM VESSELS

A particular issue that is raised from time to time is the status of museum vessels. For these vessels, there is an additional ‘cost’ to updating; that is the loss of authenticity and/or originality. For such vessels, the option of applying a ‘remedial solution’ may be of special importance. Remedial solutions provide more flexibility to adopt operational measures that help reduce risk. Notwithstanding the flexibility provided by the Protocol, the status of museum vessels may need to be specially considered on public policy grounds, remembering though that they are still subject to broader safety obligations discussed under heading 6 Grandfathering and broader safety obligations<sup>xix</sup>.

## 11. CONCLUSIONS

The transition principles and, where necessary, the option of a remedial solution provides the means to apply a “modified NSCV solution” suited to the point of safety cost versus accident cost balance in Figure 7. The process requires a fresh look at the standards for new vessels to determine whether and how they might apply to existing vessels taking into account risks, safety expectations, cost implications and time.

The Protocol is seeking to find a middle ground between two extremes. On one hand it does not accept the creation of vessels that are grandfathered in perpetuity. At the same time, it does not purport to ensure existing vessels have safety equivalent to that of new vessels. Instead, the objective is to incrementally improve safety on existing vessels as and when the opportunity arises so that they can keep pace with changing community expectations. It is hoped that this pragmatic approach will lead to requirements that are much more likely to be actually implemented.

The NMSC is currently trialling the application of the Protocol for Transition to Section 7A – Life-saving equipment. A reference group comprising both industry and government representatives have been looking at the provisions one by one; considering their urgency, and whether they should be progressive or benign status. Where appropriate, transition periods are being assigned. The outcome of this work will be a draft proposal for application of the standard to existing vessels. The NMSC will prepare a regulatory impact statement that will consider the cost benefit of the proposals that will apply to existing vessels. The draft and draft RIS will go to public comment. You will have the opportunity to comment. The responses should provide good feedback on the effectiveness of the principles in the Protocol.

## 12. ACKNOWLEDGEMENTS

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<sup>xix</sup> Flapan, Mori. Museum vessels: To be or not to be—In Survey? AMMC Conference. Hobart. February. 2009. at: [http://www.nmsc.gov.au/media/pages\\_media\\_files/files/Museum\\_Vessels.pdf](http://www.nmsc.gov.au/media/pages_media_files/files/Museum_Vessels.pdf)

**Table 2 — Summary of application, exclusions, additions and discretions by Chapter in SOLAS 1974**

Chapter	Application	Exclusions	Additions	Discretions
Articles of the Convention	Ships entitled to fly the flag of contracting governments			
I. General Provisions	Apply only to ships engaged on international voyages subject to exclusions	Ship of war Cargo < 500 GT Dumb Wood + primitive Pleasure yachts Fishing vessels Great Lakes	Plus where expressly provided otherwise (also applies to exclusions except Great Lakes)	
II-1. Construction – Structure, subdivision and stability, machinery and electrical installations	Ships as per I. General provisions, excepting exclusions and limited further to: Ships the keels of which are laid on or after 2009/01/01 Cargo ship converted to passenger ship on or after 2009/01/01	Ships as per I. General provisions plus: Ships the keels of which are laid before 2009/01/01 subject SOLAS '74 and additions	Plus where expressly provided otherwise	Ships operating 20 miles or less from land Special trade passenger vessels such as pilgrim trade
II-2. Construction – Fire protection, fire detection and fire extinction	Ships as per I. General provisions, excepting exclusions and limited further to: Ships the keels of which are laid on or after 2002/07/01 Cargo ship converted to passenger ship on or after 2002/07/01	Ships as per I. General provisions plus: Ships the keels of which are laid before 2002/07/01, but subject to SOLAS '74 and additions	Ships the keels of which are laid before 2002/07/01	Ships operating 20 miles or less from land Special trade passenger vessels such as pilgrim trade
III. Life-saving appliances and arrangements	Ships as per I. General provisions, excepting exclusions and limited further to: Ships the keels of which are laid on or after 1998/07/01 Cargo ship converted to passenger ship on or after 1998/07/01	Ships as per I. General provisions plus: Ships the keels of which are laid before 1998/07/01, but subject to SOLAS '74 and additions Existing survival craft with dedicated launching appliance other than inflatable life raft	LSA replacements, additions, major repairs subject to exclusions	Ships operating 20 miles or less from land Special trade passenger vessels such as pilgrim trade
IV. Radio-communications	Ships as per I. General provisions, excepting exclusions plus additions	Ships as per I. General provisions plus: Ships as per application while being navigated in Great Lakes	Cargo ships between 300GT and 500GT	Regulations 7 to 11 if single voyage or otherwise unreasonable subject to conditions.
V. Safety of Navigation	All ships on all voyages subject to exclusions but limited: for Regs.19, 20, 22 ships the keels of which are laid on or after 2002/07/01; and for Reg.18 to equipment installed on or after 2002/07/01	Warships Govt ships in non-commercial service Great Lakes		Ships operating solely in waters landward of the baselines established with international law Ships > 150GT on international voyages Ships > 500GT on domestic voyages Fishing vessels Limited low risk voyages

Chapter	Application	Exclusions	Additions	Discretions
VI. Carriage of cargoes	Ships as per I. General provisions, excepting exclusions plus additions	Ships as per I. General provisions, plus for ships within application: Liquids in bulk Gases in bulk Cargoes that do not present a particular hazard	Cargo ships < 500GT with discretion	Cargo ships < 500GT subject to nature and conditions of voyage
VII. Carriage of dangerous goods	Ships as per I. General provisions, excepting exclusions plus additions	Ships as per I. General provisions, plus for ships within application: Ships' stores and equipment	Cargo ships < 500GT	
VIII. Nuclear ships	All nuclear ships excepting exclusions	Ships of war		
IX. Management for the safe operation of ships	Ships as per I. General provisions, excepting exclusions	Ships as per I. General provisions, plus for ships within application: Government operated for non-commercial		
X. Safety measures for high speed craft	HSC as per Ships in I. General provisions as an alternative to Chapters I to IV and specified clauses in Chapter V, excepting exclusions	HSC as per Ships in I. General provisions, plus for HSC within application: Passenger craft voyage > 4 hrs. Cargo craft voyage > 8 hrs HSC constructed between 1996/01/01 and 2002/07/01, but subject to HSC 1994.		What happens to HSC built before 1996/01/01?
XI-1 Special measures to enhance maritime safety	Ships as per I. General provisions, excepting exclusions plus additions	Ships as per I. General provisions	Cargo ships between 300GT and 500GT	
XI-2 Special measures to enhance maritime security	Ships as per I. General provisions, excepting exclusions	Ships as per I. General provisions	Mobile offshore drilling units	
XII. Additional safety measures for bulk carriers	Ships as per I. General provisions, excepting exclusions and further limited to bulk carriers	Ships as per I. General provisions, plus ships not being bulk carriers		