



# ST. VINCENT AND THE GRENADINES

## MARITIME ADMINISTRATION

### CIRCULAR N° SOL 045

### RESOLUTION MSC.273 (85)

### REVISED ISM CODE 2010 - REQUIREMENTS AS FROM 1<sup>ST</sup> JULY 2010 – EMPHASIS ON THE RISK ASSESSMENT PROCESS

**TO: SHIPOWNERS, SHIPS' OPERATORS AND MANAGERS, MASTERS, FLAG STATE SURVEYORS, RECOGNIZED ORGANIZATIONS**

**APPLICABLE TO: ALL SHIPS SUBJECT TO THE IMPLEMENTATION OF THE ISM CODE**

**EFFECTIVE AS FROM: 1<sup>st</sup> July 2010**

Monaco, 16<sup>th</sup> September 2010

The ISM Code changes introduced by the annexed Resolution **MSC.273 (85)** are as follows:

- a) Revised definition for major non-conformances. (clause 1.1.10)
- b) **Assessment of all identified risks** (clause 1.2.2)
- c) Master's responsibility to periodically review the SMS (clause 5.1.5)
- d) Need to ensure that in all assessments the risk to personnel is considered together with the risk to the ship and to the environment (clause 7)
- e) Corrective actions include measures to prevent reoccurrence (clause 9)
- f) Internal audits to be carried out on ships and in the company's office at intervals not exceeding 12 months (clause 12.1)
- g) Improvement to SMS following the company's review and following the Guidelines MSC-MEPC 7/Circ.5 (clause 12.2)
- h) SMC extensions brought in line with the Statutory Certificates (clause 13)
- i) Internal audits should be carried out within 3 months after an interim audit. (clause 14)

Particular emphasis should be given to item b) which is a revision of clause 1.2.2.2. It is a requirement for the Companies to assess the risks to ships, personnel and the environment which may arise from shipboard operations.

The "Objective" of the ISM Code was that the SMS should "establish Safeguards against all identified risks"

This has now been revised to "assess all identified risks to its ships, personnel and the environment and establish appropriate safeguards"

This makes a mandatory issue of risk assessment in the Safety Management System (SMS).

- 1) Companies should first identify all the risks to their operations and then assess them;
- 2) Companies should demonstrate that they have carried out a systematic examination of their operations identified in 1), where things may go wrong and develop adequate controls;
- 3) Policies regarding risk assessment should be documented
- 4) Procedures and instructions should be in place for methods chosen for risk assessment;

- 5) Responsibilities and authorities concerning risk assessment process should be defined in the SMS;
- 6) Adequate training should be provided to the personnel to the extent and level of their involvement in the risk assessment process;
- 7) Records of risk assessment should be maintained

When carrying out risk assessment, companies may apply various methods of risks assessment. Annexed to this Circular is "A guide to risk assessment in ship operations" by IACS which may assist the Companies in their risk assessment process.

Title	RESOLUTIONS / MSC Resolutions / Res.MSC.273(85)
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## RESOLUTION MSC.273(85)

(adopted on 4 December 2008)

### ADOPTION OF AMENDMENTS TO THE INTERNATIONAL MANAGEMENT CODE FOR THE SAFE OPERATION OF SHIPS AND FOR POLLUTION PREVENTION (INTERNATIONAL SAFETY MANAGEMENT (ISM) CODE)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution A.741(18), by which the Assembly adopted the International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management (ISM) Code) (hereinafter referred to as "the ISM Code"), which has become mandatory under chapter IX of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"),

NOTING ALSO article VIII(b) and regulation IX/1.1 of the Convention concerning the procedure for amending the ISM Code,

HAVING CONSIDERED, at its eighty-fifth session, amendments to the ISM Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the ISM Code, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 January 2010 unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 July 2010 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Contracting Governments to the Convention;
5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Contracting Governments to the Convention.

## ANNEX

### AMENDMENTS TO THE INTERNATIONAL MANAGEMENT CODE FOR THE SAFE OPERATION OF SHIPS AND FOR POLLUTION PREVENTION (INTERNATIONAL SAFETY MANAGEMENT (ISM) CODE)

#### 1 GENERAL

##### Section 1.1 Definitions

- 1 In paragraph 1.1.10, the words "and includes" are replaced by the word "or".

##### Section 1.2 Objectives

- 2 The existing subparagraph .2 of paragraph 1.2.2 is replaced by the following:  
".2 assess all identified risks to its ships, personnel and the environment and establish appropriate safeguards; and".

#### 5 MASTER'S RESPONSIBILITY AND AUTHORITY

- 3 The word "periodically" is added at the beginning of paragraph 5.1.5.

#### 7 DEVELOPMENT OF PLANS FOR SHIPBOARD OPERATIONS

- 4 The existing section 7 is replaced by the following:

##### "7 SHIPBOARD OPERATIONS

The Company should establish procedures, plans and instructions, including checklists as appropriate, for key shipboard operations concerning the safety of the personnel, ship and protection of the environment. The various tasks should be defined and assigned to qualified

personnel."

## 8 EMERGENCY PREPAREDNESS

5 The existing paragraph 8.1 is replaced by the following:

"8.1 The Company should identify potential emergency shipboard situations, and establish procedures to respond to them."

## 9 REPORTS AND ANALYSIS OF NON-CONFORMITIES, ACCIDENTS AND HAZARDOUS OCCURRENCES

6 The existing paragraph 9.2 is replaced by the following:

"9.2 The Company should establish procedures for the implementation of corrective action, including measures intended to prevent recurrence."

## 10 MAINTENANCE OF THE SHIP AND EQUIPMENT

7 In paragraph 10.3, the words "establish procedures in its safety management system to" are deleted.

## 12 COMPANY VERIFICATION, REVIEW AND EVALUATION

8 Paragraph 12.1 is replaced by the following:

"12.1 The Company should carry out internal safety audits on board and ashore at intervals not exceeding twelve months to verify whether safety and pollution-prevention activities comply with the safety management system. In exceptional circumstances, this interval may be exceeded by not more than three months."

9 In paragraph 12.2, the words "efficiency of and, when needed, review" are replaced by the words "effectiveness of".

## 13 CERTIFICATION AND PERIODICAL VERIFICATION

10 The following new paragraphs 13.12, 13.13 and 13.14 are added after the existing paragraph 13.11:

"13.12 When the renewal verification is completed after the expiry date of the existing Safety Management Certificate, the new Safety Management Certificate should be valid from the date of completion of the renewal verification to a date not exceeding five years from the date of expiry of the existing Safety Management Certificate.

13.13 If a renewal verification has been completed and a new Safety Management Certificate cannot be issued or placed on board the ship before the expiry date of the existing certificate, the Administration or organization recognized by the Administration may endorse the existing certificate and such a certificate should be accepted as valid for a further period which should not exceed five months from the expiry date.

13.14 If a ship at the time when a Safety Management Certificate expires is not in a port in which it is to be verified, the Administration may extend the period of validity of the Safety Management Certificate but this extension should be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be verified, and then only in cases where it appears proper and reasonable to do so. No Safety Management Certificate should be extended for a period of longer than three months, and the ship to which an extension is granted should not, on its arrival in the port in which it is to be verified, be entitled by virtue of such extension to leave that port without having a new Safety Management Certificate. When the renewal verification is completed, the new Safety Management Certificate should be valid to a date not exceeding five years from the expiry date of the existing Safety Management Certificate before the extension was granted."

## 14 INTERIM CERTIFICATION

11 In paragraph 14.4.3, the word "internal" is inserted after the words planned the".

### Appendix

#### Forms of the Document of Compliance, the Safety Management Certificate, the Interim Document of Compliance and the Interim Safety Management Certificate

#### SAFETY MANAGEMENT CERTIFICATE

12 The following new form is added after existing form of "ENDORSEMENT FOR INTERMEDIATE VERIFICATION AND ADDITIONAL VERIFICATION (IF REQUIRED)":

"Certificate No.

#### ENDORSEMENT WHERE THE RENEWAL VERIFICATION HAS BEEN COMPLETED AND PART B 13.13 OF THE ISM CODE APPLIES

The ship complies with the relevant provisions of part B of the ISM Code, and the Certificate should, in accordance with part B 13.13 of the ISM Code, be accepted as valid until .....

Signed .....  
(Signature of authorized official)  
Place .....  
Date .....

*(Seal or stamp of the authority, as appropriate)*

**ENDORSEMENT TO EXTEND THE VALIDITY OF THE CERTIFICATE UNTIL REACHING THE PORT OF VERIFICATION WHERE PART B 13.12 OF THE ISM CODE APPLIES OR FOR A PERIOD OF GRACE WHERE PART B 13.14 OF THE ISM CODE APPLIES**

This Certificate should, in accordance with part B 13.12 or part B 13.14 of the ISM Code, be accepted as valid until .....

Signed .....  
(Signature of authorized official)  
Place .....  
Date .....

*(Seal or stamp of the authority, as appropriate)*"

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# A GUIDE TO RISK ASSESSMENT IN SHIP OPERATIONS

## INTRODUCTION

Although it is not often referred to as such, the development and implementation of a documented safety management system is an exercise in risk management. The drafting or amendment of written procedures involves looking at the company's activities and operations, identifying what could go wrong, and deciding what should be done to try to prevent it. The documented procedures are the means by which the controls are applied.

There is no universally accepted definition of risk, but the one commonly applied and regarded as authoritative in most industrial contexts is:

“A combination of the probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence.”

(ISO 8402:1995 / BS 4778)

IMO defines risk as:

“The combination of the frequency and the severity of the consequence.”

(MSC Circ 1023/MEPC Circ 392)

In other words, risk has two components: likelihood of occurrence and severity of the consequences.

A hazard is a substance, situation or practice that has the potential to cause harm. Briefly, what we are concerned with, therefore, is:

- the identification of hazards
- the assessment of the risks associated with those hazards
- the application of controls to reduce the risks that are deemed intolerable
- the monitoring of the effectiveness of the controls

The controls may be applied either to reduce the likelihood of occurrence of an adverse event, or to reduce the severity of the consequences. The risks we are concerned with are those that are reasonably foreseeable, and relate to:

- the health and safety of all those who are directly or indirectly involved in the activity, or who may be otherwise affected
- the property of the company and others
- the environment

## 1. WHAT THE CODE SAYS ABOUT RISK ASSESSMENT

Paragraph 1.2.2.2 of the ISM Code states, “*Safety management objectives of the company should .... establish safeguards against all identified risks*”. Although there is no further, explicit reference to this general requirement in the remainder of the Code, risk assessment of one form or another is essential to compliance with most of its clauses.

It is important to recognize that the company is responsible for identifying the risks associated with its particular ships, operations and trade. It is no longer sufficient to rely on compliance with generic statutory and class requirements, and with general industry guidance. These should now be seen as a starting point for ensuring the safe operation of the ship.

The ISM Code does not specify any particular approach to the management of risk, and it is for the company to choose methods appropriate to its organizational structure, its ships and its trades. The methods may be more or less formal, but they must be systematic if assessment and response are to be complete and effective, and the entire exercise should be documented so as to provide evidence of the decision-making process.

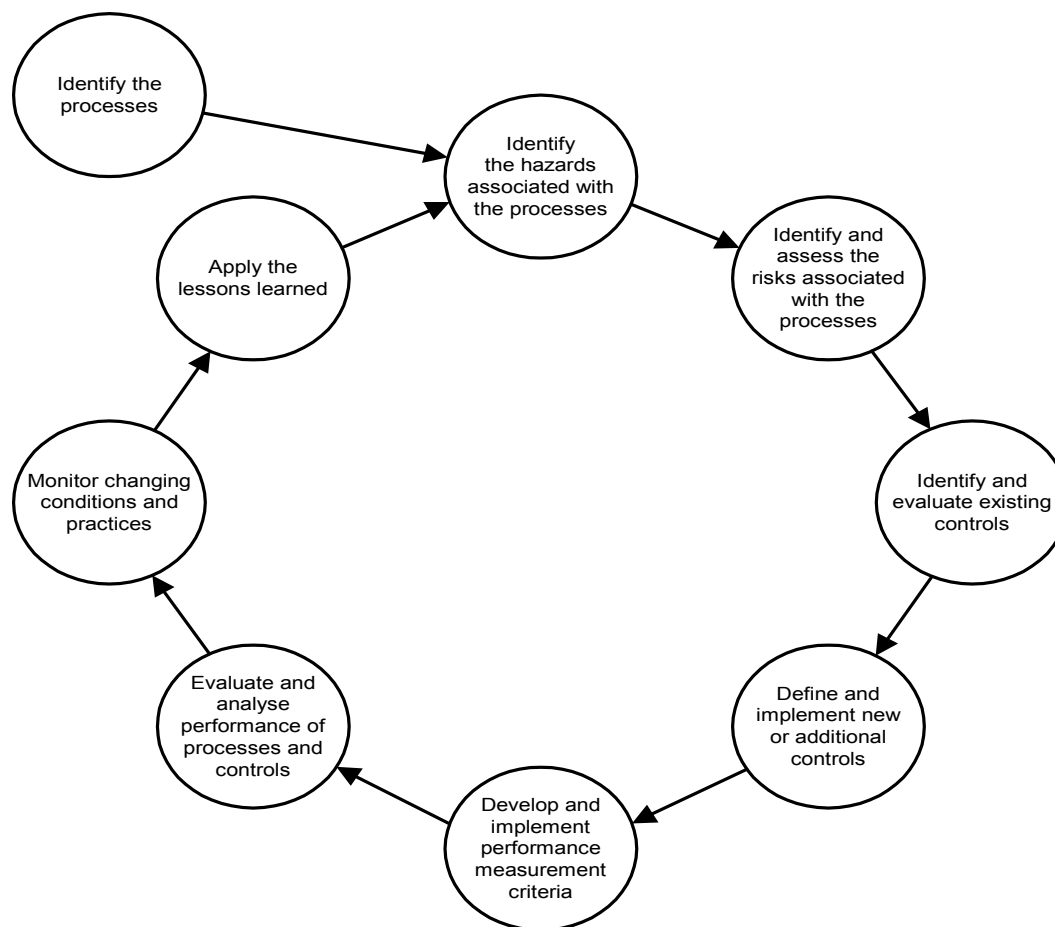
## 2. THE RISK MANAGEMENT PROCESS

Risk management may be defined as:

“The process whereby decisions are made to accept a known or assessed risk and/or the implementation of actions to reduce the consequences or probability of occurrence.”

(ISO 8402:1995 / BS 4778)

The risk management process may be summarized by the flowchart below.



The identification of hazards is the first and most important step since all that follows depends on it. It must be complete and accurate, and should be based, as far as possible, on observation of the activity. But hazard identification is not as easy as it may first appear. Completeness and accuracy can be achieved only if the process is systematic. Those charged with the task must have sufficient training and guidance to ensure that it is conducted in a thorough and consistent manner. The terms used should be clearly defined and the process must be fully described; for example, hazards must not be confused with incidents, and incidents must not be confused with consequences.

The risks associated with each hazard are evaluated in terms of the likelihood of harm and the potential consequences. This, in turn, enables the organization to establish priorities and to decide where its scarce resources may be used to greatest effect.



The combination of likelihood and consequence is normally illustrated as follows:

RISK ESTIMATOR		Consequence		
		Slightly Harmful	Harmful	Extremely Harmful
Likelihood	Highly Unlikely	<b>Trivial Risk</b>	<b>Tolerable Risk</b>	<b>Moderate Risk</b>
	Unlikely	<b>Tolerable Risk</b>	<b>Moderate Risk</b>	<b>Substantial Risk</b>
	Likely	<b>Moderate Risk</b>	<b>Substantial Risk</b>	<b>Intolerable Risk</b>

The table below indicates the recommended response in each case.

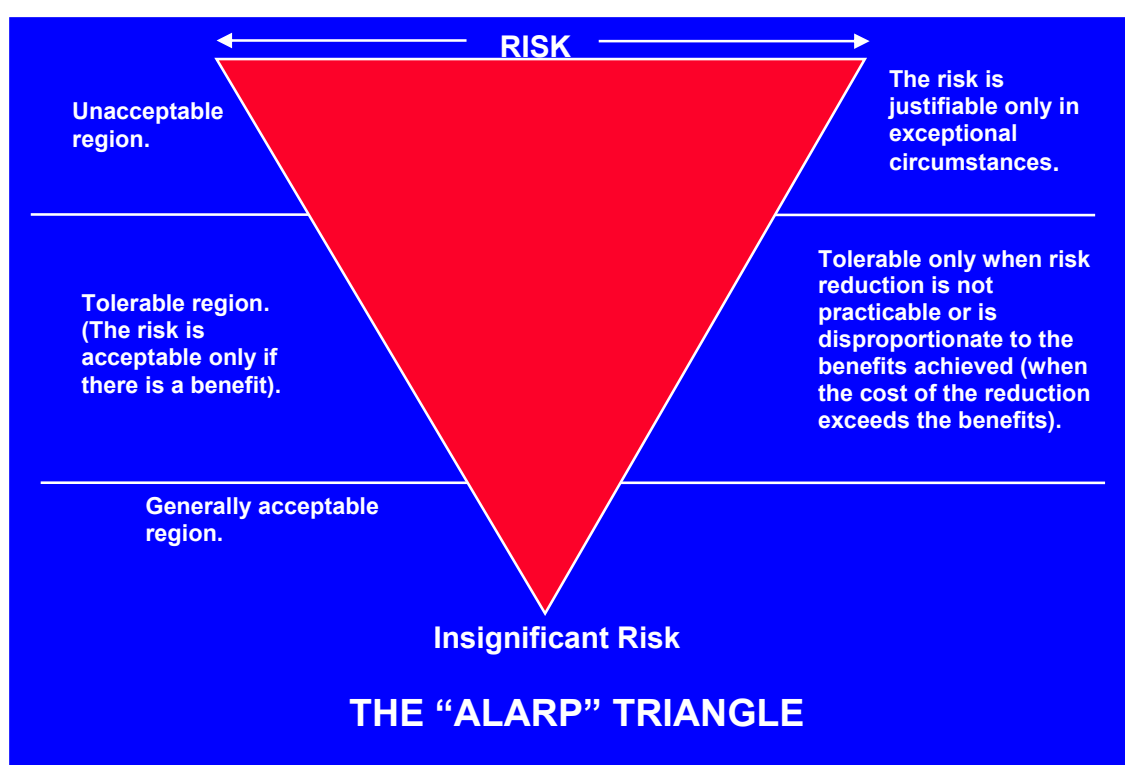
Trivial	No action is required
Tolerable	No additional controls are required. Monitoring is required to ensure control is maintained.
Moderate	Efforts are required to reduce risk. Controls are to be implemented within a specified time.
Substantial	New work not to start until risk reduced. If work in progress, urgent action to be taken. Considerable resources may be required.
Intolerable	Work shall not be started or continued until the risk has been reduced. If reduction is not possible, the activity shall be prohibited.

The tables above are shown in the form in which they most commonly appear, but they are not mandatory. The risk matrix may be expanded to include more rows and columns, depending on how finely the company wishes to distinguish the categories. The terms used for likelihood and consequence may be changed to assist understanding. For example, likelihood may be expressed in terms of “once per trip”, “once per ship year” or “once per fleet year”, and consequence may be made more specific by the use of “first aid injury”, “serious injury” or “death”, not forgetting the consequences for property and the environment.

When deciding on priorities for the application of controls, the frequency of the activity should also be taken into account; for example, it may be more urgent to address a “moderate” level of risk in a process that occurs every day than to impose controls over an activity that involves “substantial” risk, but will not be carried out in the near future.

Furthermore, the terms applied to the levels of risk in the table above should not be interpreted too rigidly. Risk should be reduced to a level that is as low as is reasonably practicable (ALARP). If a “tolerable” level of risk can be reduced still further for a reasonable cost and with little effort, then it should be. Standards of tolerability tend to be far stricter after an accident than before.

The ALARP concept is often illustrated thus:



The people chosen to undertake risk assessments should be those most familiar with the area, and who have most experience of the task to be assessed. The process must be systematic, and in order to make it so, it may help to categorize areas and activities as in the following example.

<b>Assessment Unit:</b>	<b>Deck</b>
<b>Activity:</b>	<b>Tank cleaning</b>
<b>Hazard:</b>	<b>Toxic atmosphere or lack of oxygen</b>
<b>Risk (before controls):</b>	<b>Intolerable (likely and extremely harmful)</b>
<b>Recommended Controls:</b>	<b>Atmospheric testing, ventilation, use or availability of breathing apparatus</b>

### **3. ENSURING CONTINUITY AND FLEXIBILITY**

All too often, companies carry out risk assessment exercises as separate, isolated activities. The process is regarded as complete once the forms are filled in and filed away. But if new or enhanced controls have been identified, they must be implemented, usually by inclusion in the company's documented procedures.

If it is to make a real, practical contribution to improving safety and preventing pollution, the management of risks must be continual and flexible. A risk assessment is nothing more than a "snapshot". The organization, the technology, working practices, the regulatory environment and other factors are constantly changing, and subsequently arising hazards will not be included. Assessments must be reviewed regularly and in the light of experience; for example, an increase in the number of accidents or hazardous occurrences may indicate that previously implemented controls are no longer effective. Additional risk assessments will be needed for infrequent activities or those being undertaken for the first time.

The formal risk assessment exercise is only one of many contributions to risk management. Much more important are flexibility and responsiveness to a dynamic environment and its dangers. The organization must ensure that it is sensitive to the signals provided by internal audits, routine reporting, company and masters' reviews, accident reports, etc., and that it responds promptly and effectively.

### **4. PEOPLE**

It is important to remember the subjective nature of risk perception; for example, one person swinging 30m above the deck in a bosun's chair may have a very different view of the risks involved from that of another person in the same situation. This divergence in responses to risk arises from differences in experience, training and temperament, and it can be considerable. Who decides what is tolerable and what is acceptable? Because the judgements of the people engaged in an activity may not coincide with those of the assessors, it is essential that operational staff be involved in the assessment process. They have knowledge of the activities and experience in their conduct, and they have to live with the consequences of the decisions that are taken.

Furthermore, different levels of experience and training mean that the hazards and risks associated with an activity can vary greatly with the people who carry it out, and conditions may be very different from those prevailing at the time of the assessment.

Risk is not a constant, measurable, concrete entity. Quantitative assessments of risk must be understood as estimates that are made at particular moments and are subject to considerable degrees of uncertainty. They are not precise measurements, and the rarer

(and usually more catastrophic) the event, the less reliable the historical data and the estimates based on them will be.

**The best safeguard against accidents is a genuine *safety culture* - awareness and constant vigilance on the part of all those involved, and the establishment of safety as a permanent and natural feature of organizational decision-making.**

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