



***Setrac College of Offshore Training***

**Personal Safety & Social Responsibility**



***Trainee Handout***

## OBJECTIVES OF THE COURSE

To impart knowledge and skills to make a seafarers competent :

1. To take effective steps to observe “Safe Working Practices” and eliminate personal injuries and accidents to self and shipmates.
2. To prevent pollution “Safer Ships and Cleaner Oceans”
3. To create a healthy atmosphere through behavior Interpersonal relationship, Co-operation and belongingness

## COURSE OUTLINE

SR · NO	SUBJECT	HOUR S
1	<b>EMERGENCY PROCEDURES ON BOARD</b> Types of Emergency: collision, fire, foundering Shipboard contingency plans for response to emergencies. Emergency signals, muster list, muster stations, correct use of personal safety equipment. Action to take on discovering potential emergency. Action to take on hearing emergency alarm signals. Value of training and drills. Knowledge of escapes routes and internal communication and alarm systems.	3
2	<b>POLLUTION PREVENTION</b> Effects of operational or accidental pollution of the marine Environment Basic environmental protection procedures	3
3	<b>SAFETY PHILOSOPHY AND SAFE WORKING PRACTICES</b> Importance of adhering to safe practices Safety and protective devices. Entering enclosed spaces: procedures and precautions.	1.5
4	<b>SAFE THINKING AND ACCIDENT PREVENTION ON BOARD</b>	1.5

	Familiarization with international measures concerning Accident protection and occupational health.	
5.	<b>COMMUNICATION ON BOARD</b>  Fundamentals of Communication Effective Transmission Skills. Effective Listening Skills. Methods to improve Communication Transactional analysis Shipboard Examples.	3
6	<b>INTERPERSONAL RELATIONSHIPS</b>  Elements involved in team building Effective working in multilingual / multicultural environment. Interdependence and mutual respect. Discipline, self-control and professionalism case studies and discussion.	3
7	<b>SOCIAL RESPONSIBILITIES</b>  Employment conditions. Individual rights and obligations Drug and alcohol abuse	1.5
8	<b>COURSE DISCUSSION AND EVALUATION</b>	1.5
	<b>TOTAL</b>	<b>18</b>

**COURSE TIME TABLE**

<b>PERIOD</b>	<b>DAY 01</b>	<b>DAY 02</b>	<b>DAY 03</b>
<b>1<sup>st</sup> PERIOD 0900 – 1030</b>	EMERGENCY PROCEDURES ON BOARD  <b>SH</b>	SAFE WORKING PRACTICES <b>VIDEO – 03</b>  <b>SH</b>	INTERPERSONAL RELATIONSHIP  <b>SH</b>
1030-1040	<b>Tea Break</b>		
<b>2<sup>nd</sup> PERIOD 1040 – 1140</b>	EMERGENCY PROCEDURES ON BOARD – Contd  <b>SK</b>	SAFE WORKING PRACTICES  <b>SK</b>	INTERPERSONAL RELATIONSHIP  <b>AM</b>
<b>3<sup>rd</sup> PERIOD 1140-1240</b>	EMERGENCY PROCEDURES ON BOARD  <b>AM VIDEO – 01</b>	ACCIDENT PREVENTION ON BOARD  <b>AM VIDEO – 04</b>	INTERPERSONAL RELATIONSHIP  <b>AM</b>
<b>1240 - 1320 - LUNCH BREAK</b>			
<b>4<sup>th</sup> PERIOD 1320-1420</b>	POLLUTION PREVENTION  <b>AK</b>	COMMUNICATION ON BOARD  <b>SK</b>	SOCIAL RESPONSIBILITIES  <b>SK</b>
1420 - 1430	<b>Tea Break</b>		
<b>1430 – 1600</b>	POLLUTION PREVENTION  <b>AK VIDEO – 02</b>	COMMUNICATION ON BOARD  <b>AM</b>	COURSE DISCUSSION AND EVALUATION  <b>AK</b>

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## Chapter 1

### Human relationships on board ship

An **interpersonal relationship** is an association between two or more people that may range from fleeting to enduring. This association may be based on limerence, love, solidarity, regular business interactions, or some other type of social commitment. Interpersonal relationships are formed in the context of social, cultural and other influences. The context can vary from family or kinship relations, friendship, marriage, relations with associates, work, clubs, neighbourhoods, and places of worship. They may be regulated by law, custom, or mutual agreement, and are the basis of social groups and society as a whole.

A relationship is normally viewed as a connection between two individuals, such as a romantic or intimate relationship, or a parent–child relationship. Individuals can also have relationships with groups of people, such as the relation between a pastor and his congregation, an uncle and a family, or a mayor and a town. Finally, groups or even nations may have relations with each other, though this is a much broader domain than that covered under the topic of interpersonal relationships. See such articles as international relations for more information on associations between groups. Most scholarly work on relationships focuses on romantic partners in pairs or dyads. These intimate relationships are, however, only a small subset of interpersonal relationships. Interpersonal relationships can also include friendships, such as relationships involving individuals providing relational care to marginalized persons.

These relationships usually involve some level of interdependence. People in a relationship tend to influence each other, share their thoughts and feelings, and engage in activities together. Because of this interdependence, most things that change or impact one member of the relationship will have some level of impact on the other member.<sup>[1]</sup> The study of interpersonal relationships involves several branches of the social sciences, including such disciplines as sociology, psychology, anthropology, and social work. The scientific study of relationships is referred to as "Relationship Science" and distinguishes itself from anecdotal evidence or pseudo-experts by basing conclusions on data and objective analysis.<sup>[2]</sup>

#### **Development**

Interpersonal relationships are dynamic systems that change continuously during their existence. Like living organisms, relationships have a beginning, a lifespan, and an end. They tend to grow and improve gradually, as people get to know each other and become closer emotionally, or they gradually deteriorate as people drift apart, move on with their lives and form new relationships with others. One of the most influential models of relationship development was proposed by psychologist George Levinger.<sup>[3]</sup> This model was formulated to describe heterosexual, adult romantic relationships, but it has been applied to other kinds of interpersonal relations as well. According to the model, the natural development of a relationship follows five stages:

1. *Acquaintance* – Becoming acquainted depends on previous relationships, physical proximity, first impressions, and a variety of other factors. If two people begin to like each other, continued interactions may lead to the next stage, but acquaintance can continue indefinitely.
2. *Buildup* – During this stage, people begin to trust and care about each other. The need for intimacy, compatibility and such filtering agents as common background and goals will influence whether or not interaction continues.
3. *Continuation* – This stage follows a mutual commitment to a long-term friendship, romantic relationship, or marriage. It is generally a long, relative stable period. Nevertheless, continued growth and development will occur during this time. Mutual trust is important for sustaining the relationship.

4. *Deterioration* – Not all relationships deteriorate, but those that do tend to show signs of trouble. Boredom, resentment, and dissatisfaction may occur, and individuals may communicate less and avoid self-disclosure. Loss of trust and betrayals may take place as the downward spiral continues, eventually ending the relationship. (Alternately, the participants may find some way to resolve the problems and reestablish trust.)
5. *Termination* – The final stage marks the end of the relationship, either by death in the case of a healthy relationship, or by separation.

Friendships may involve some degree of transitivity. In other words, a person may become a friend of an existing friend's friend. However, if two people have a sexual relationship with the same person, they may become competitors rather than friends. Accordingly, sexual behavior with the sexual partner of a friend may damage the friendship (see love triangle). Sexual activities between two friends tend to alter that relationship, either by "taking it to the next level" or by severing it.

Legal sanction reinforces and regularizes marriages and civil unions as perceived "respectable" building-blocks of society. In the United States of America, for example, the de-criminalization of homosexual sexual relations in the Supreme Court decision, *Lawrence v. Texas* (2003) facilitated the mainstreaming of gay long-term relationships, and broached the possibility of the legalization of same-sex marriages in that country.

### ***Flourishing relationships***

Positive psychologists use the term "flourishing relationships" to describe interpersonal relationships that are not merely happy, but instead characterized by intimacy, growth, and resilience.<sup>[4]</sup> Flourishing relationships also allow a dynamic balance between focus on the intimate relationships and focus on other social relationships.

## **Background**

While traditional psychologists specializing in close relationships have focused on relationship dysfunction, positive psychology argues that relationship health is not merely the absence of relationship dysfunction.<sup>[5]</sup> Healthy relationships are built on a foundation of secure attachment and are maintained with love and purposeful positive relationship behaviors. Additionally, healthy relationships can be made to "flourish." Positive psychologists are exploring what makes existing relationships flourish and what skills can be taught to partners to enhance their existing and future personal relationships.

### **□ Adult attachment**

Healthy relationships are built on a foundation of secure attachments. Adult attachment models represent an internal set of expectations and preferences regarding relationship intimacy that guide behavior.<sup>[5]</sup> Secure adult attachment, characterized by low attachment-related avoidance and anxiety, has numerous benefits. Within the context of safe, secure attachments, people can pursue optimal human functioning and flourishing.<sup>[5]</sup>

### **□ Love**

The capacity for love gives depth to human relationships, brings people closer to each other physically and emotionally, and makes people think expansively about themselves and the world.<sup>[5]</sup> In his triangular theory of love, psychologist Robert Sternberg theorizes that love is a mix of three components: (1) passion, or physical attraction; (2) intimacy, or feelings of closeness; and (3) commitment, involving the decision to initiate and sustain a relationship. The presence of all three components characterizes consummate love, the most durable type of love. In addition, the presence of intimacy and passion in marital relationships predicts marital satisfaction. Also, commitment is the best predictor of relationship

satisfaction, especially in long-term relationships. Positive consequences of being in love include increased self-esteem and self-efficacy.<sup>[5]</sup>

## **□ Theories and empirical research**

### **□ Confucianism**

Confucianism is in fact a study or a theory of relationship.

### **□ Minding relationships**

The mindfulness theory of relationships shows how closeness in relationships may be enhanced. Minding is the "reciprocal knowing process involving the nonstop, interrelated thoughts, feelings, and behaviors of persons in a relationship."<sup>[6]</sup> Five components of "minding" include:<sup>[5]</sup>

1. Knowing and being known: seeking to understand the partner
2. Making relationship-enhancing attributions for behaviors: giving the benefit of the doubt
3. Accepting and respecting: empathy and social skills
4. Maintaining reciprocity: active participation in relationship enhancement
5. Continuity in minding: persisting in mindfulness

### **□ Culture of appreciation**

After studying married couples for many years, psychologist John Gottman has proposed the theory of the "magic ratio" for successful marriages. The theory says that for a marriage to be successful, couples must average a ratio of five positive interactions to one negative interaction. As the ratio moves to 1:1, divorce becomes more likely.<sup>[5]</sup> Interpersonal interactions associated with negative relationships include criticism, contempt, defensiveness, and stonewalling. Over time, therapy aims to turn these interpersonal strategies into more positive ones, which include complaint, appreciation, acceptance of responsibility, and self-soothing. Similarly, partners in interpersonal relationships can incorporate positive components into difficult subjects in order to avoid emotional disconnection.

### **□ Capitalizing on positive events**

People can capitalize on positive events in an interpersonal context to work toward flourishing relationships. People often turn to others to share their good news (termed "capitalization"). Studies show that both the act of telling others about good events and the response of the person with whom the event was shared have personal and interpersonal consequences, including increased positive emotions, subjective well-being, and self-esteem, and relationship benefits including intimacy, commitment, trust, liking, closeness, and stability.<sup>[7]</sup> Studies show that the act of communicating positive events was associated with increased positive affect and well-being (beyond the impact of the positive event itself a). Other studies have found that relationships in which partners responded to "good news" communication enthusiastically were associated with higher relationship well-being.<sup>[8]</sup>

## **□ Other perspectives**

### **□ Neurobiology of interpersonal connections**

There is an emerging body of research across multiple disciplines investigating the neurological basis of attachment and the prosocial emotions and behaviors that are the prerequisites for healthy adult relationships.<sup>[5]</sup> The social environment, mediated by attachment, influences the maturation of structures in a child's brain. This might explain how infant attachment affects adult emotional health. Researchers

are currently investigating the link between positive caregiver–child relationships and the development of hormone systems, such as the HPA axis.

## □ Applications

Researchers are developing an approach to couples therapy that moves partners from patterns of repeated conflict to patterns of more positive, comfortable exchanges. Goals of therapy include development of social and interpersonal skills. Expressing gratitude and sharing appreciation for a partner is the primary means for creating a positive relationship. Positive marital counseling also emphasizes mindfulness. The further study of "flourishing relationships could shape the future of premarital and marital counseling as well."<sup>[5]</sup>

**Team Building** refers to a wide range of activities, presented to businesses, schools, sports teams, religious or nonprofit organizations designed for improving team performance. Team building is pursued via a variety of practices, and can range from simple bonding exercises to complex simulations and multi-day team building retreats designed to develop a team (including group assessment and group-dynamic games), usually falling somewhere in between. It generally sits within the theory and practice of organizational development, but can also be applied to sports teams, school groups, and other contexts. Team building is not to be confused with "team recreation" that consists of activities for teams that are strictly recreational. Teambuilding is an important factor in any environment, its focus is to specialize in bringing out the best in a team to ensure self development, positive communication, leadership skills and the ability to work closely together as a team to problem solve.

Work environments tend to focus on individuals and personal goals, with reward & recognition singling out the achievements of individual employees. "How to create effective teams is a challenge in every organization"<sup>[1]</sup> Team building can also refer to the process of selecting or creating a team from scratch.

### *Team Building*

Reasons for Team Building include

- Improving communication
- Making the workplace more enjoyable
- Motivating a team
- Getting to know each other
- Getting everyone "onto the same page", including goal setting
- Teaching the team self-regulation strategies
- Helping participants to learn more about themselves (strengths and weaknesses)
- Identifying and utilizing the strengths of team members
- Improving team productivity
- Practicing effective collaboration with team members

### **What are Team Building Exercises and what is their purpose?**

Team building exercises consist of a variety of tasks designed to develop group members and their ability to work together effectively. There are many types of team building activities that range from kids games to games that involve novel complex tasks and are designed for specific needs. There are also more complex team building exercises that are composed of multiple exercises such as ropes courses, corporate drumming and exercises that last over several days. The purpose of team building exercises is

to assist teams in becoming cohesive units of individuals that can effectively work together to complete tasks.

### **[] Types of Team Building Exercises**

#### *Communication Exercise*

This type of team building exercise is exactly what it sounds like. Communications exercises are problem solving activities that are geared towards improving communication skills. The issues teams encounter in these exercises are solved by communicating effectively with each other.

- Goal: Create an activity which highlights the importance of good communication in team performance and/or potential problems with communication.

#### *Problem Solving/Decision Making Exercise*

Problem Solving/Decision making exercises focus specifically on groups working together to solve difficult problems or make complex decisions. These exercises are some of the most common as they appear to have the most direct link to what employers want their teams to be able to do.

- Goal: Give team a problem in which the solution is not easily apparent or requires the team to come up with a creative solution

#### *Planning/Adaptability Exercise*

These exercises focus on aspects of planning and being adaptable to change. These are important things for teams to be able to do when they are assigned complex tasks or decisions. • Goal: Show the importance of planning before implementing a solution

#### *Trust Exercise*

A trust exercise involves engaging team members in a way that will induce trust between them. They are sometimes difficult exercises to implement as there are varying degrees of trust between individuals and varying degrees of individual comfort trusting others in general.

- Goal: Create trust between team members

### **[] Subgroups of Team Building Exercises**

- simple social activities - to encourage team members to spend time together
- group bonding sessions - company sponsored fun activities to get to know team members (sometimes intending also to inspire creativity)
- personal development activities - individual programs given to groups (sometimes physically challenging)
- team development activities - group-dynamic games designed to help individuals discover how they approach a problem, how the team works together, and discover better methods
- psychological analysis of team roles, and training in how to work better together

(and combinations of the above)

Team interaction involves "soft" interpersonal skills including communication, negotiation, leadership, and motivation - in contrast to technical skills directly involved with the job at hand. Depending on the type of

team building, the novel tasks can encourage or specifically teach interpersonal team skills to increase team performance.

### □ Models of Team Behavior

Team building generally sits within the theory and practice of organizational development. The related field of **team management** refers to techniques, processes and tools for organizing and coordinating a team towards a common goal - as well as the inhibitors to teamwork and ways to remove, mitigate or overcome them.

Several well-known approaches to team management have come out of academic work.

- The forming-storming-norming-performing model posits four stages of new team development to reach high performance. Some team activities are designed to speed up (or improve) this process in the safe team development environment.
- Belbin Team Types can be assessed to gain insight into an individual's natural behavioral tendencies in a team context, and can be used to create and develop better functioning teams.
- Team Sociomapping is a visual approach to team process and structure modelling. This model is based on social networks approach and improves the team performance by improvement of specific cooperation ties between the people.

### □ Organizational Development

In the organizational development context, a team may embark on a process of self-assessment to gauge its effectiveness and improve its performance. To assess itself, a team seeks feedback from group members to find out both its current strengths and weakness. To improve its current performance, feedback from the team assessment can be used to identify gaps between the desired state and the current state, and to design a gap-closure strategy. Team development can be the greater term containing this assessment and improvement actions, or as a component of organizational development.

Another way is to allow for personality assessment amongst the team members, so that they will have a better understanding of their working style, as well as their fellow team mates. A structured teambuilding plan is a good tool to implement team bonding and thus, team awareness. These may be introduced by companies that specialize in executing teambuilding sessions, or done internally by the human resource department.

## ***Teamwork and leadership***

In leadership training programs, I often ask participants to define teamwork. Working in different teams, their definitions are often similar. A typical definition is: *A group of people, contributing their individual knowledge and skills but working together to achieve a common goal/task.*

## ***New ways of using teams***

Modern technology and new ways of doing business are changing the ways we use teams, but the underlying principles and benefits remain. Distance is less of a barrier. Many people find themselves in teams where individual team members are based all over the country, or in some cases, all over the globe. In some companies, team members based in different time zones can progress a project 24 hours per day, six days per week. I know a growing Australian consulting firm that uses overseas based PowerPoint developers and ors for major reports and presentations. Consultants complete the drafts by late afternoon, and return to work the next morning to have the completed product waiting for them. This effectively saves one working day. Virtual teams are increasingly common. Members of a team may never meet face to face. They collaborate from different parts of the world through telephone calls, email, file sharing technology and other online meeting methods.

***Why the increased use of teams?*** Organisations have embraced teams and teamwork as an effective way of doing business. The last 20 years has seen the replacement of 'supervisors' by 'team leaders'. Companies have embraced these concepts because they work. Employee motivation and morale improves dramatically when people feel valued and when their contributions make a difference. It is good to be part of something that is worthwhile.

***Managing teamwork is challenging*** Some organisations fail to gain the benefits that teamwork can provide. Team composition is critical for success. The definition outlined above highlight three important teamwork fundamentals:

- A team is a group of people made up of individuals who each contribute their individual knowledge and skills. Synergy, where the collective whole is greater than the sum of the individual parts, often occurs where teamwork is working well. Teams benefit because individuals often do not have **all** the knowledge and skills necessary.
- Working together is essential. Harmony and a positive attitude are critical. If the team is not working together, then the expected gains will not materialise.
- An understanding of the common goal/task is also critical. People have to be clear as to why the team exists and what the purpose is.

In the absence of any of the above three features teams will fail. Not everyone has a positive experience. Teamwork has to be well managed. A balanced team composition is essential. Team members have to be carefully selected. The full range of knowledge and skills required must be present. Team members need to be committed to the task. If you have the right team composition and approach, team synergy can take over. But it has to be set up correctly. The team members have to be willing and ready to participate.

## ***Conclusion***

Teamwork as a concept has grown over the last 20 years. However, teamwork success is not automatic. Teams have to be established for the right reasons. Team member selection is very important, as is ensuring that the team purpose is clear and agreed upon

## Chapter 2

### Communication

#### 1. Introduction

Communication is the process of exchanging messages or information between two or more parties. Businesses today are heavily dependent on information to meet organizational needs. Effective communication plays a key role in fulfilling these needs and contributes significantly to organizational success. Despite its importance, business communication has not grown, as it should. Realizing this, both industry and academic sectors have begun training employees and students on business communication and its relevance. It has become all the more evident that business communication is vital for effective functioning of business units.

#### 2. The Importance of Communication

Effective business communication is crucial for the success of individuals as well as organizations. Good communication skills help individuals effectively interact with others in an organization. These skills are important for career development as they boost confidence; ensure clarity of thought and information flow. Good communication is a prerequisite for good managers.

It is essential for organizations too. An organization is benefited by the internal and external information gathered and passed on by employees. The management can use such information to gain an edge in business.

#### 3. The Basic Forms of Communication

The basic forms of communication are of two types such as verbal and non-verbal communication. It can be in the form of meetings, speeches or writing, gestures or expressions.

##### Non-verbal communication

Non-verbal communication is a primitive form of communication that does not involve the use of words. It rather uses gestures, cues, vocal qualities, spatial relationships etc. to convey a message. It is commonly used to express emotions like respect, love, dislike, unpleasantness, etc. Non-verbal communication is less structured compared to its verbal counterpart and is most often spontaneous. As it is not planned, it is sometimes considered more reliable than verbal communication, as it reflects the communicator's true feelings. Non-verbal communication enhances the effectiveness of the message as gestures and body language are registered easier and quicker with the audience than verbal communication. Non-verbal communication, when combined with verbal communication, makes a presentation more effective and has greater impact on the audience.

##### Verbal communication

However, non-verbal communication has its limitations. Many complex ideas, thoughts or messages have to be communicated sequentially to be meaningful. Verbal communication involves the arrangement of words in a structured and meaningful manner, adhering to the rules of grammar. The message is then conveyed to the audience in either spoken or written form.

##### Speaking and Writing

Effective verbal communication involves the use of both speech and writing to transmit a message. While oral communication is more effective in reaching a focused target audience, as it involves interaction and additional non-verbal cues to augment the speech, written communication is necessary for reaching a large number of scattered recipients. Depending on the situation and the requirements, businesses use both the spoken as well as written channels for communication.

## Listening

Businesses have far not paid much attention to listening as a skill. Equal importance should be given to listening and expression. Oral communication cannot be effective unless the audience is good at listening and most of its content is forgotten after a presentation. Developing good listening skills is essential for grasping the contents of an oral presentation and retaining them.

### 4. The Process of Communication

Communication goes through a process, involving the following phases:

- Sender
- Message
- Channel
- Receiver
- Feedback

### 5. Barriers to Communication

The process of communication is susceptible to many barriers. These can be categorized into problems caused by the sender, problems in message transmission, problems in reception, and problems in receiver comprehension.

### 6. Dealing with Communication Barriers

Though most communication barriers require situation specific handling, a few basic methods for dealing with them are available. These methods such as know your subject, focus on the purpose, know your audience, and be organized.

### The Basic Process of Communicating

To achieve precision and effectiveness in communicating, you should understand the basic process of communication. It has four requirements:

- A message must be conveyed.
- The message must be received.
- There must be a response.
- Each message must be understood.

Let's look at these requirements one at a time.

#### A Message Must Be Conveyed

That sounds simple enough. You know what your thoughts are, and you know how to translate them into words. But that's where we lose the simplicity.

Each of us has our own mental dialect. It is the common language of the culture in which we grow up, modified by our own unique life's experiences. Our life's experiences add color and shades of meaning to different words.

When you speak, your mental dialect must be translated into the mental dialect of the hearer. So the words you speak acquire a different color when they pass through the ears of the person who hears you.

#### It Depends Upon Where You Are

You can probably think of numerous opportunities for misunderstandings on your job and in your culture. If you tell your travel agent you want a flight to Portland, be sure to specify Maine or Oregon. Otherwise, you may end up on the wrong coast. A colleague of mine once flew to Ohio to keep a speaking engagement in Columbus. Too late, he realized that the group he was to address was in Columbus, Georgia. If someone in my hometown of High Point, North Carolina asks me, "How did Carolina do in the

big game last night?" I know the reference is to the Tar Heels of the University of North Carolina. If somebody in Columbia puts the question in those precise words, I know that "Carolina" means the Gamecocks of the University of South Carolina. In most cities, if you ask a newsstand operator for the Sunday Times, you'll be handed a New York Times. But in St. Petersburg, Florida, or Seattle, Washington, you're likely to get the local newspaper.

### **A Message Must Be Received**

The second basic requirement of the one-on-one communication process is that the message be received and understood. Effective communicators know that they have not conveyed their meaning until they have made sure that the other person has received it exactly as they sent it. They test, with questions and observations, to make sure that the real meaning they wanted to convey has passed through the filters and has been received and understood.

### **There Must Be A Response**

The goal of all communication is to obtain the desired response. You want to say something correctly, and have your hearer understand what you mean by it. But you also want the hearer to do something in response.

### **Each Message Must Be Understood**

Once a message has been delivered, received and responded to, it's time to take stock of what each person has communicated. The cycle of communication is complete only when you come away with a clearer understanding of the person with whom you sought to communicate. You may not always agree with the other person, and the other person may not always agree with you -- but it is important that you understand each other

## Chapter 3

### Rights, Obligation

Seafarers' rights is a complex area since your rights can exist at different levels and they can be overlapping and sometimes conflicting. Therefore if you have a legal problem, you will need to seek advice from your union and from a lawyer who will discuss your specific situation. This information is general advice only.

#### Sources of Seafarers' Rights:

##### Flag State law

A ship has the nationality of the flag that it flies. Also, under international law, the laws of a flag State apply to a ship regardless of the location of the ship. Therefore you - as a seafarer - are entitled to the protection of, and are governed by, the laws of the flag State wherever the ship is and regardless of your nationality. For example, if you are a Filipino seafarer on a Panama flag ship, you have rights (and obligations) under the laws of Panama. So, always be aware of what flag your ship is flying and where necessary, ask for assistance to find out what are the laws of that flag State.

##### Port State law

When your ship enters a port, that port State can exercise certain powers over the ship whilst it is in port. Generally a port State does not intervene in the internal affairs of a ship unless there is a dispute which concerns the peace and good order of the port (for example if a crime is committed on board a ship). However in many jurisdictions around the world, if you have a legal claim, for example for unpaid wages, you will be able to start a legal action in the courts of the port State. Again where necessary, ask for assistance to find out what are the laws of the port State.

#### Basic Rights Under ILO

##### ILO recommended basic minimum wage for Seamen

The main aim of the minimum basic wage for the able seafarer is to provide an international safety net for the protection of, and to contribute to, decent work for seafarers. It is based on the provisions of the ILO Seafarers' Wages, Hours of Work and the Manning of Ships Recommendation, 1996 (No. 187) which recommends that the basic pay or wages for a calendar month of service for an able seaman should be no less than the amount periodically set by the Joint Maritime Commission, which is a bipartite body of shipowners and seafarers established by ILO. The Recommendation itself defines seafarer as "any person defined as such by national laws or regulations or collective agreements who is employed or engaged in any capacity on board a seagoing ship ...."

The Joint Working Group of the Joint Maritime Commission met in July 2003 and agreed on joint interpretation of the total monthly minimum wage of able seamen.

This interpretation only relates to the earnings for an Able Seaman and should not be construed as implying an interpretation of the earnings that should be received by other grades of seafarer. The following principles are applicable as found in the relevant ILO Maritime Instruments:

- **Your home State**

You will be able to rely on rights contained in your home State law if that law governs your contract of employment. Otherwise, if you are in trouble when abroad, your home country should provide support and assistance through its consular offices. Therefore ask for assistance through consular officers.

- **Your contract of employment**

Your individual contract of employment will set out what your rights are as between you and your employer. Your contract may be (1) a private contract and/or (2) a collective bargaining agreement produced by a trade union or an employers' association and/or (3) a form of contract in which the government has taken an active role (such as the POEA Contract: Standard Terms and Conditions governing the employment of Filipino Seafarers onboard Ocean Going Ships). Your contract may be directly with the shipowner, or it may be with a manning agent, or it may be with some other agent for the shipowner. All these different arrangements can affect your rights. However above all it is important that you have a copy of your contract of employment, that you read it and that you know what rights are contained in it.

- **International laws**

International laws are laws made at the highest level between States. Since it was founded in 1919, the International Labour Organisation (ILO) has set international labour standards for all workers, and specifically has set standards for seafarers in more than 65 Conventions and Recommendations. These instruments, taken together, constitute a comprehensive set of standards and concern practically all aspects of living and working conditions of seafarers. In February 2006, a new Maritime Labour Convention 2006 was adopted which is a single, coherent international maritime labour standard for seafarers. The Maritime Labour Convention 2006 will come into force when sufficient ratifications are obtained. Human rights instruments also exist at international and regional level which may be relevant to the rights of seafarers.

**ALSO AT THE INTERNATIONAL LEVEL, CONVENTIONS OF THE INTERNATIONAL MARITIME ORGANISATION (IMO) IMPOSE OBLIGATIONS ON STATES, A NUMBER OF WHICH HAVE THE EFFECT OF CREATING BENEFITS FOR SEAFARERS.**

## Chapter 4

### Environmental Protection

Marpol 73/78 is the International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" is short for marine pollution and 73/78 short for the years 1973 and 1978.) Marpol 73/78 is one of the most important international marine environmental conventions. It was designed to minimize pollution of the seas, including dumping, oil and exhaust pollution. Its stated object is: to preserve the marine environment through the complete elimination of pollution by oil and other harmful substances and the minimization of accidental discharge of such substances. The original MARPOL Convention was signed on 17 February 1973, but did not come into force. The current Convention is a combination of 1973 Convention and the 1978 Protocol. It entered into force on 2 October 1983. As at 31 December 2005, 136 countries, representing 98% of the world's shipping tonnage, are parties to the Convention. All ships flagged under countries that are signatories to MARPOL are subject to its requirements, regardless of where they sail, and member nations are responsible for vessels registered under their respective nationalities.

#### Annexes

Marpol contains 7 annexes, concerned with preventing different forms of marine pollution from ships:

- \*Annex I - Oil
- \*Annex II - Noxious Liquid Substances carried in Bulk
- \*Annex III - Harmful Substances carried in Packaged Form
- \*Annex IV - Sewage
- \*Annex V - Garbage
- \*Annex VI - Air Pollution

#### Annex I – Oil

Operational discharges of oil from tankers are allowed only when all of the following conditions are met:

- the total quantity of oil which a tanker may discharge in any ballast voyage whilst under way must not exceed 1/15,000 of the total cargo carrying capacity of the vessel;
- the rate at which oil may be discharged must not exceed 60 litres per mile travelled by the ship; and
- no discharge of any oil whatsoever must be made from the cargo spaces of a tanker within 50 miles of the nearest land.

An oil record book is required, in which is recorded the movement of cargo oil and its residues from loading to discharging on a tank-to-tank basis. In addition, in the 1973 Convention, the maximum quantity of oil permitted to be discharged on a ballast voyage of new oil tankers was reduced from 1/15,000 of the cargo capacity to 1/30,000 of the amount of cargo carried. These criteria applied equally both to persistent (black) and non-persistent (white) oils. On a ballast voyage the tanker takes on ballast water (departure ballast) in dirty cargo tanks. Other tanks are washed to take on clean ballast. The tank washings are pumped into a special slop tank. After a few days, the departure ballast settles and oil flows to the top. Clean water beneath is then decanted while new arrival ballast water is taken on. The upper layer of the departure ballast is transferred to the slop tanks. After further settling and decanting, the next cargo is loaded on top of the remaining oil in the slop tank, hence the term load on top.

**Special Areas** A new and important feature of the 1973 Convention was the concept of "special areas"

which are considered to be so vulnerable to pollution by oil that oil discharges within them have been completely prohibited, with minor and well-defined exceptions. The 1973 Convention identified the Mediterranean Sea, the Black Sea, and the Baltic Sea, the Red Sea and the Gulfs area as special areas. All oil-carrying ships are required to be capable of operating the method of retaining oily wastes on board through the "load on top" system or for discharge to shore reception facilities. This involves the fitting of appropriate equipment, including an oil-discharge monitoring and control system, oily-water separating equipment and a filtering system, slop tanks, sludge tanks, piping and pumping arrangements.

**Segregated Ballast Tanks** Segregated ballast tanks (SBT) are required on all new tankers of 20,000 dwt and above (in the parent convention SBTs were only required on new tankers of 70,000 dwt and above). The Protocol also required SBTs to be protectively located - that is, they must be positioned in such a way that they will help protect the cargo tanks in the event of a collision or grounding.

**Crude Oil Washing** Another important innovation concerned crude oil washing (COW), which had been developed by the oil industry in the 1970s and offered major benefits. Under COW, tanks are washed not with water but with crude oil - the cargo itself. COW was accepted as an alternative to SBTs on existing tankers and is an additional requirement on new tankers.

**Clean Ballast Tanks** For existing crude oil tankers (built before entry into force of the Protocol) a third alternative was permissible for a period of two to four years after entry into force of MARPOL 73/78. The dedicated clean ballast tanks (CBT) system meant that certain tanks are dedicated solely to the carriage of ballast water. This was cheaper than a full SBT system since it utilized existing pumping and piping, but when the period of grace has expired other systems must be used. The 1992 amendments to Annex I made it mandatory for new oil tankers to have double hulls - and it brought in a phase-in schedule for existing tankers to fit double hulls, which was subsequently revised in 2001 and 2003.

## **Annex II: Control of pollution by noxious liquid substances**

Annex II details the discharge criteria and measures for the control of pollution by noxious liquid substances carried in bulk. Some 250 substances were evaluated and included in the list appended to the Convention. The discharge of their residues is allowed only to reception facilities until certain concentrations and conditions (which vary with the category of substances) are complied with. In any case, no discharge of residues containing noxious substances is permitted within 12 miles of the nearest land. More stringent restrictions applied to the Baltic and Black Sea areas.

## **Annex III: Prevention of pollution by harmful substances in packaged form**

The first of the convention's optional annexes. States ratifying the Convention must accept Annexes I and II but can choose not to accept the other three - hence they have taken much longer to enter into force. Annex III contains general requirements for the issuing of detailed standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications for preventing pollution by harmful substances. The International Maritime Dangerous Goods (IMDG) Code has, since 1991, included marine pollutants.

**Annex IV: Prevention of pollution by sewage from ships** The second of the optional Annexes, Annex IV contains requirements to control pollution of the sea by sewage.

**Annex V: Prevention of pollution by garbage from ships** This deals with different types of garbage and specifies the distances from land and the manner in which they may be disposed of. The requirements are much stricter in a number of "special areas" but perhaps the most important feature of the Annex is the complete ban imposed on the dumping into the sea of all forms of plastic.

GARBAGE TYPE	OUTSIDE SPECIAL AREAS	IN SPECIAL AREAS
PLASTICS & GARBAGE WITH PLASTIC CONTENT	DISPOSAL PROHIBITED	DISPOSAL PROHIBITED
FLOATING DUNNAGE, PACKING & LINING MATERIAL	> 25 MILES OFFSHORE	DISPOSAL PROHIBITED
CARGO RESIDUES, PAPER, RAGS, GLASS, METAL & SIMILAR REFUSE	>12 MILES OFFSHORE	DISPOSAL PROHIBITED
FOOD WASTE	> 12 MILES OFFSHORE	DISPOSAL PROHIBITED
FOOD WASTE USING COMMUNITER *	> 3 MILES OFFSHORE	> 12 MILES OFFSHORE
OILY RAGS & WASTE	DISPOSAL PROHIBITED	DISPOSAL PROHIBITED
INCINERATOR ASH	> 12 MILES OFFSHORE	DISPOSAL PROHIBITED
HAZARDOUS REFUSE LIKE PYROTECHNICS, BATTERIES, LAMPS, MEDICAL WASTE ETC	DISPOSAL PROHIBITED	DISPOSAL PROHIBITED

**Annex VI: Prevention of Air Pollution from Ships** The regulations in this annex set limits on sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibit deliberate emissions of ozone depleting substances.

### Oil Record Book

Machinery space operations are to be recorded in the Oil Record Book Part I in accordance with regulation 17 of Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78). Oil Record Book Part I is provided to every oil tanker of 150 gross tonnage and above and every ship of 400 gross tonnage and above, other than oil tankers, to record relevant machinery space operations. For oil tankers, Oil Record Book Part II is provided to record relevant cargo/ballast operations.

**The Protocol of 1997 (Annex VI - Regulations for the Prevention of Air Pollution from Ships)** The Protocol was adopted at a Conference held from 15 to 26 September 1997 and adds a new Annex VI on **Regulations for the Prevention of Air Pollution from Ships** to the Convention. The rules set limits on sulphur oxide (SOx) and nitrogen oxide (NOx) emissions from ship exhausts and prohibit deliberate emissions of ozone depleting substances. The new Annex VI includes a global cap of 4.5% m/m on the sulphur content of fuel oil and calls on IMO to monitor the worldwide average sulphur content of fuel once the Protocol comes into force. Annex VI contains provisions allowing for special "SOx Emission Control Areas" to be established with more stringent control on sulphur emissions. In these areas, the sulphur content of fuel oil used on board ships must not exceed 1.5% m/m. Alternatively, ships must fit an exhaust gas cleaning system or use any other technological method to limit SOx emissions. The Baltic Sea is designated as a SOx Emission Control area in the Protocol. Annex VI prohibits deliberate

emissions of ozone depleting substances, which include halons and chlorofluorocarbons (CFCs). New installations containing ozone-depleting substances are prohibited on all ships. But new installations containing hydro-chlorofluorocarbons (HCFCs) are permitted until 1 January 2020. The requirements of the IMO Protocol are in accordance with the Montreal Protocol of 1987, as amended in London in 1990. The Montreal Protocol is an international environmental treaty, drawn up under the auspices of the United Nations, under which nations agreed to cut CFC consumption and production in order to protect the ozone layer. Annex VI sets limits on emissions of nitrogen oxides (NOx) from diesel engines. A mandatory NOx Technical Code, developed by IMO, defines how this is to be done. The Annex also prohibits the incineration on board ship of certain products, such as contaminated packaging materials and polychlorinated biphenyls (PCBs).

### **Revised MARPOL Annex II (noxious liquid substances carried in bulk)**

The revised Annex II *Regulations for the control of pollution by noxious liquid substances in bulk* includes a new four-category categorization system for noxious and liquid substances. The revised annex is expected to enter into force on 1 January 2007.

The new categories are:

- **Category X:** Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a major hazard to either marine resources or human health and, therefore, justify the prohibition of the discharge into the marine environment;
- **Category Y:** Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a hazard to either marine resources or human health or cause harm to amenities or other legitimate uses of the sea and therefore justify a limitation on the quality and quantity of the discharge into the marine environment;
- **Category Z:** Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a minor hazard to either marine resources or human health and therefore justify less stringent restrictions on the quality and quantity of the discharge into the marine environment; and
- **Other Substances:** substances which have been evaluated and found to fall outside Category X, Y or Z because they are considered to present no harm to marine resources, human health, amenities or other legitimate uses of the sea when discharged into the sea from tank cleaning or deballasting operations. The discharge of bilge or ballast water or other residues or mixtures containing these substances are not subject to any requirements of MARPOL Annex II.

The revised annex includes a number of other significant changes. Improvements in ship technology, such as efficient stripping techniques, has made possible significantly lower permitted discharge levels of certain products which have been incorporated into Annex II. For ships constructed on or after 1 January 2007 the maximum permitted residue in the tank and its associated piping left after discharge will be set at a maximum of 75 litres for products in categories X, Y and Z - compared with previous limits which set a maximum of 100 or 300 litres, depending on the product category. Alongside the revision of Annex II, the marine pollution hazards of thousands of chemicals have been evaluated by the Evaluation of Hazardous Substances Working Group, giving a resultant GESAMP2 Hazard Profile which indexes the substance according to its bio-accumulation; bio-degradation; acute toxicity; chronic toxicity; long-term health effects; and effects on marine wildlife and on benthic habitats. As a result of the hazard evaluation process and the new categorization system, vegetable oils which were previously categorized as being unrestricted will now be required to be carried in chemical tankers. The revised Annex includes, under regulation 4 Exemptions, provision for the Administration to exempt ships certified to carry individually identified vegetable oils, subject to certain provisions relating to the location of the cargo tanks carrying the identified vegetable oil.

## Chapter 5

### SOPEP, Anti Pollution Procedures, Equipment & Drill

Ships are provided with anti pollution equipment and an onboard organization to prevent and mitigate oil pollution. The equipment is placed at specified locations and should be readily available at these location. The Chief Officer is responsible for the maintenance and storage of this equipment. Crewmembers will assist in containment and clean up as directed by the Chief Officer. Ships are provided with 'Shipboard Oil Pollution Emergency Plan ("SOPEP")' to fight accidental pollution .

#### The Shipboard Oil Pollution Emergency Plan ("SOPEP")

The Shipboard Oil Pollution Emergency Plan ("SOPEP") is to be seen as an information from the owners to the Master of a particular ship. It advise the Master how to react in case of an oilspill to prevent or at least mitigate negative effects on the environment. The Plan contains operational aspects for various oilspill scenarios and lists communication information to be used in case of such incidents.

**Legal Background** It is compulsory for all ships of more than 400 Gross Tons (Oil tankers of more than 150 GT) to carry a SOPEP onboard. The required contents is described in MARPOL Convention Annex I Reg. 26. "Guidelines for the Development of a Shipboard Oil Pollution Emergency Plan" are published by IMO under MEPC.54(32) 1992 as amended by MEPC.86(44) 2000. The SOPEP forms an integral part of the IOPP certificate. It's existence is verified in the Supplement to the IOPP Certificate. In any case the SOPEP has to be approved by the flag state administration of the flag the ship is presently flying or by a classification society on behalf of this flag.

**Scope** The Plan consists generally of 4 Sections with the mandatory contents and it's Appendices with additional information as contact addresses and data plus a set of certain drawings for easy reference for the Master. The provided SOPEP sample plan has been prepared as a **general guidance** how to write such a plan in accordance with the new IMO Guidelines as amended in March 2000. It has to be seen as an example how the contents basically could be written in order to fulfil the requirements

**All pretexted steps and preventive measures have to be seen as an example only.**

The individual SOPEP should be prepared in line with the "Table of Content/ Index of Sections" as per sample. It has to be **tailored carefully** to the particular ship and company procedures and policies. Specific instructions should be incorporated according to ship type, purpose, and company requirements.

Especially for tankers actions in regard to the cargo tanks and cargo handling have to be included in the instructions. The contents of the plan have to be fully in line with the instructions given by the company within the ISM Safety Management Manual.

## Table of Contents

The SOPEP shall consist of the following Chapters:

1. Ship identification data
2. Table of Contents
3. Record of Changes
4. Section 1: Preamble
5. Section 2: Reporting Requirements
6. Section 3: Steps to control Discharges
7. Section 4: National and Local Coordination
8. Minimum Appendices:
  - List of Coastal State Contacts
  - List of Port Contacts
  - List of Ship Interest Contacts
9. Ship's drawings:
  - General Arrangement Plan
  - Tank Plan
  - Fuel Oil Piping Diagramm
10. Further appendices on owners' decision

### Special parts to observe

The ship's identification data page may contain the owner's/manager's address. However it is advisable to list all communication data in the Appendix "Ship Interest Contacts", as changes in telephone numbers. etc. can be altered by the owners and the amendments need not to be approved. The statement about the person being responsible for reporting (page 11 of the sample) has to be filled in respectively.

Special remarks about availability of additional information sources (pages 21/22 of the sample) have to be entered in the plan only if they are available. It has to be pointed out that assistance in any stability calculations especially in case of any hull damage can be rendered by this society only if a agreement is existing for the particular vessel within GL's Emergency Response Service. The responsibility schemes for the (pages 23/24 of the sample) have to be tailored exactly to the present crew rankings onboard.

## Anti Pollution Equipment

Ships and vessels are supplied with Oil Spill Equipment. A typical example is given below:

**Position 1:** Main deck, close to cargo and bunkering areas.

**EQUIPMENT:**

- 6 Bags of Absorbent Material
- 2 Rubber Buckets
- 2 Shovels, and/or Scoops
- 2 Empty Drums

**Position 2:**

**LOCATION:** Main deck, forward of the Accommodation Block.

**EQUIPMENT:**

- 6 Bags of Absorbent Material
- 2 Rubber Buckets
- 2 Shovels, and/or Scoops

2 - 200 liter Empty drums

Oil Pollution Absorbent Pads

600 liters of Oil Spill Degreaser / Detergent

2 Air Portable Pump

1 Set Protective Clothing

- The oil spill equipment has to be mobilized to the proper location before starting of cargo / bunker operations.
- The portable pumps must be tested before the operations and connected to the driving source.

### Example of a Typical Anti Spill Organization

#### Radio Officer: Secretary to master.

- Transmits and receive reports as requested by the Master.
- Keeps log of events and progress. The Master can also assign these duties to Third Officer.

**Chief Officer:** Oil Pollution Control Officer, also keeping the Master advised and updated on the situation.

- Mobilizes Oil Pollution Team as necessary, to limit the oil spill and to start the clean-up operations.

**Chief Engineer:** In charge of Engine Department.

- In charge of bunker operations
- Takes action as directed by Master, or Oil Pollution Control Officer.
- Starts fire/foam pump as required.

**Deck Officer on duty:** (Loading: Topping Off cargo tanks)

- In the event of oil spilled on deck, stops the loading by advising the loading Master.
- Reduces the level of the overflowed tank to empty/slack tank.
- Mobilizes Oil Pollution Team
- Alerts and inform the Master/Chief Officer of the incident.

**Pump man (on Tankers):** Assist the Chief Officer.

- Ensures that the air driven pump are properly rigged/tested before starting the cargo operations and that all other Oil Spill Equipment is readily available at the established locations.
- Responsible for recovering the oil spilled on deck by operating the air driven pumps, collecting the oil in slop tanks or other slack tank.

#### Fitter

- The fitter and the pump man must ensure that the air portable pumps are rigged and tested before the start of bunkering operation and that all other **Oil Spill Equipment** is readily available at established locations.
- In the event of an oil spill on deck, assists the pump man in operating the air portable pumps to recover the oil into empty drums, slop tanks, or into Engine Room empty tank (if available), under directions of the Chief Engineer/Oil Pollution Control Officer.

**Engineer on duty:**

- Assists the Chief Engineer during the bunkering operations.
- Ensures that air/electric power is maintained on deck during the bunkering or cargo operations.
- Other duties as directed By Chief Engineer.
- Prepares for Fire-fighting. Ensures that sufficient air pressure on deck is maintained.

**Deck hands on deck:**

- If an oil leakage is detected, immediately alert the officer on duty.
- Prepare for pollution Control action.
- Position sorbet material to prevent any oil from reaching the railing. Commence clean -up by using the on-board clean –up equipment.
- Proceed to their emergency station and await orders from Oil Pollution Control Officer and Chief Engineer.



## Chapter 6

### Emergency Procedures

Shipboard emergency preparedness is required under chapter 8 of the ISM Code referred to in chapter IX of the SOLAS Convention, as amended, under chapter III, regulation 24-4 of the SOLAS Convention, as adopted at the SOLAS Conference November 1995, and under MARPOL 73/78, Annex 1, regulation 26. To implement the SOLAS and MARPOL regulations, there must be shipboard procedures and instructions. These Guidelines provide a framework for formulating procedures for the effective response to emergency situations identified by the company and shipboard personnel. In this context the main objectives of these Guidelines are:

- to assist companies in translating the requirements of the regulations into action by making use of the structure of the integrated system;
- to integrate relevant shipboard emergency situations into such a system;
- to assist in the development of harmonized contingency plans which will enhance their acceptance by shipboard personnel and their proper use in an emergency situation;
- to encourage Governments, in the interests of uniformity, to accept the structure of the integrated system as being in conformity with the provisions for development of shipboard contingency plans as required by various IMO instruments, and to refer to these Guidelines when preparing appropriate national legislation.

#### **. General remarks**

1.1 The ISM Code establishes an international standard for the safe management and operation of ships by defining elements which must be taken into account for the organization of company management in relation to ship safety and pollution prevention. Since emergencies, as well as cargo spillage, cannot be entirely controlled either through design or through normal operational procedures, emergency preparedness and pollution prevention should form part of the company's ship safety management. For this purpose, every company is required by the ISM Code to develop, implement and maintain a Safety Management System (SMS).

1.2 Within this SMS, procedures for describing and responding to potential shipboard emergency situations are required. If the preparation of response actions for the many possible varying types of emergency situations which may occur are formulated on the basis of a complete and detailed case-by-case consideration, a great deal of duplication will result.

1.4 To avoid duplication, shipboard contingency plans must differentiate between "initial actions" and the major response effort involving "subsequent response", depending on the emergency situation and the type of ship.

1.5 A two-tier course of action provides the basis for a modular approach, which can avoid unnecessary duplication.

1.6 It is recommended that a uniform and integrated system of shipboard emergency plans should be treated as part of the International Safety Management (ISM) Code, forming a fundamental part of the company's individual Safety Management System (SMS).<sup>7</sup> An illustration of how such a structure of a uniform and integrated system of shipboard emergency plans with its different modules can be incorporated into an individual SMS is shown in appendix 1.

## Evaluating and Responding to an Emergency

Any shipboard emergency can be broken down into three primary elements:

*Recognition, Response, and Report.*

Recognition that there is an emergency situation is the key to adequately dealing with a shipboard emergency. *Recognition* includes:

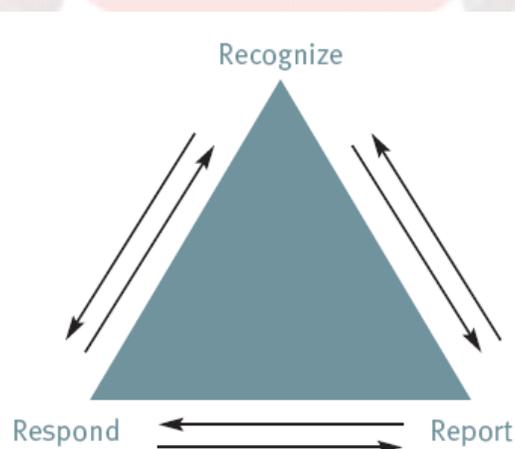
- The nature of the emergency (fire, flood, etc);
- The extent of the emergency (fire in a waste bin or something larger);
- The timing of the emergency (how much time before the emergency will cause human or property damage).

Failure to recognize that an emergency exists is one of the prime causes of maritime disasters. The *Herald of Free Enterprise* and *Estonia* capsizing both occurred because the extent of a developing emergency was not recognized in a timely manner.

*Response to an Emergency:*

- In a timely manner;
- With adequate and appropriate resources;
- Taking action to mitigate or reduce the threat that the emergency will spread to other areas;
- Taking action to protect passengers and others not involved in the response.
- *Reporting* or communicating is another key factor in combating an emergency:
- Timely and accurate communication of the situation from the scene to the command to permit an accurate response;
- Timely and accurate communication from the command to the emergency teams;
- Timely communication as appropriate to external resources and contacts (e.g. SAR Authorities, Other Vessels, Company).

The core components of recognition, response and reporting can be viewed as the corners of a triangle:



While recognition of an emergency is a key first element, the sequence of triangle elements is dynamic. The next step may be an immediate scene response, or response with a simultaneous report or

communication to an external resource. Subsequently, recognition of a developing or changing situation may require a change in response or reporting. This triangle concept can be used to evaluate past emergencies as well as be used as an aid in an ongoing emergency. Almost all passenger vessel disasters can be traced to a failure in one of the elements of this triangle. At the very least, disasters have been exacerbated by a failure in one of these elements. This can be from failing to link the elements properly or it can be from a lack of adequate resources available in one of the elements. A classic example of this is the *Titanic*. After the ship had struck the iceberg, the recognition of the situation was fairly well accomplished and internal communication was also sufficient. Problems came in the response (lack of lifeboats), and the report (limited ways to communicate the distress to others). The elements and process of *Recognize, Respond* and *Report* apply equally to the distressed vessel, any vessels attempting to aid the stricken vessel and responding SAR authorities.

### Potential emergency situations

Potential emergency situations should be identified in the Plans, including but not limited to, the following main groups of emergencies:

1. Fire
2. Damage to the ship
3. Pollution
4. Unlawful acts threatening the safety of the ship and the security of its passengers and crew
5. Personnel accidents
6. Cargo related accidents
7. Emergency assistance to other ships.

The majority of shipboard emergencies can be classified within the above-mentioned main groups.

For example, the main group "Damage to ship" can be subdivided to identify further shipboard emergencies, which may require very different responses, such as:

- \* **collision**
- \* **grounding/stranding**
- \* **heavy weather damage**
- \* **hull/structural failure, etc.**

The detailed response actions should be written in a way to set in motion the necessary steps to limit the consequence of the emergency and the escalation of damage following, for example, collision or grounding. In all cases priority should be given to actions which, in turn, protect life, the marine environment and property. This means, that "**initial actions**" which are common for all ships, regardless of their type and cargoes carried, should be fully taken into account when formulating "**subsequent response**" procedures.

Steps to initiate external response:

- \* search and rescue co-ordination;
- \* buoyancy, strength and stability calculations;
- \* engagement of salvors/rescue towage;
- \* lightering capacity;
- \* external clean-up resources;
- \* Ship drift characteristics
- \* General information:
- \* co-operation with national and port authorities;

\* public relations.

Although shipboard personnel should be familiar with the Plan, ease of reference is an important element in compiling and using an effective plan. Allowance must be made for quick and easy access to essential information under stressful conditions.

Every effort should be made to assure that information regarding:

- ship interest contacts;
- coastal State contacts;
- port contacts,

Are readily available.

Collision / imminent collision: There are sets of rule to guide you for taking actions if a risk of collision exists between ships or other marine crafts. These rules called COLREGS are mandatory and must be followed while navigating except in the most exceptional cases if there are valid reasons for you for not following these rules. These rules must be fully understood by the navigating officers to enable them to take correct action because the lives on board depend entirely on your action.

- **Fire:** One of the most common accidents on board is fire. The sequence of actions to be taken to deal with fire is denoted by the letters itself as given below:

F	-	FIND
I	-	INFORM
R	-	RESTRICT
E	-	EXTINGUISH

Heat / oxygen /fuel forms the three sides of a fire triangle and if any of these three components can be eliminated, the fire will die. This is achieved by:

- Cooling with water
- Smothering with steam or  $\text{CO}_2$  to cut off oxygen
- Starving the fire by removing or restricting fuel supply.

The hazards of fire on board and the action to be taken to avoid fire must be well understood. Some of the precautions to avoid fire on board are given below:

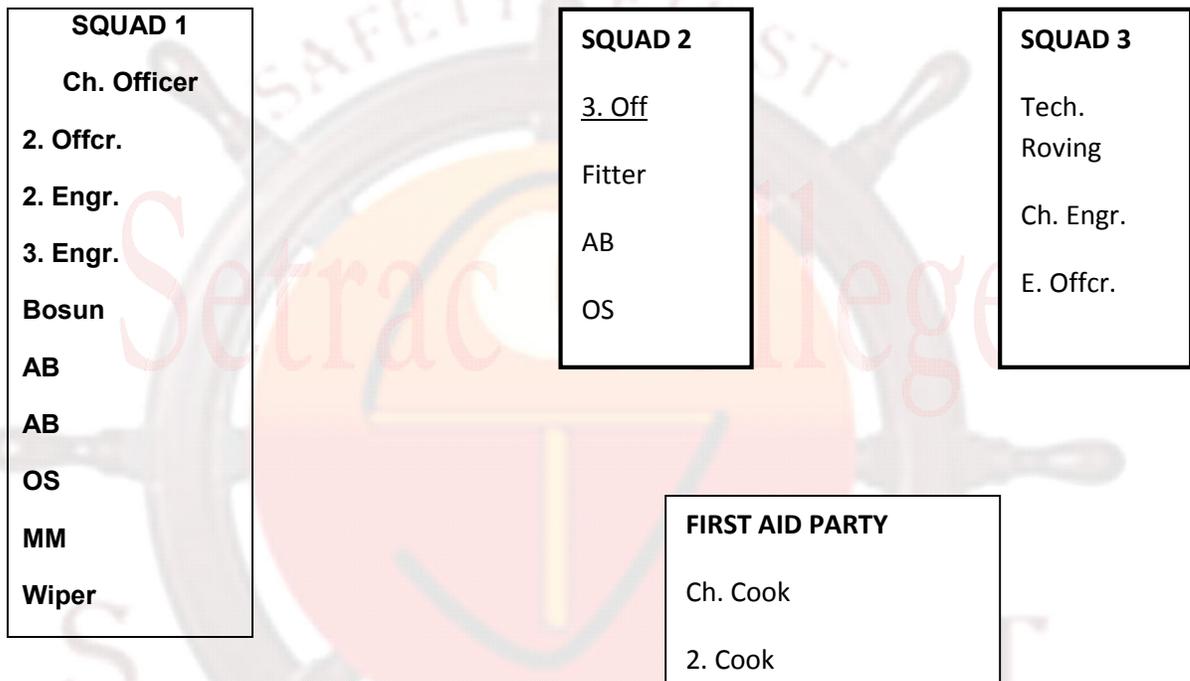
- Follow the smoking regulations.
- Do not smoke in open area, alleyways, toilets, and other prohibited spaces and certainly not in bed.
- When ashore do not smoke in the port area if prohibited.
- On tanker, the smoking areas are marked and they will have at least two doors separation from outside to avoid inflammable gases entering in these spaces.

- Never use lighters on board because these may create spark if dropped by chance from your pocket on the deck.
- Always use approved safety torches.
- Do not use unauthorized electrical appliances in your cabin. Make shift connection and loose wiring must be avoided at all times. Use of radio or other electronic gadgets on tanker deck is strictly prohibited. Use only the inbuilt aerial connections for radio T.V. etc.
- The very important aspects of avoiding a fire hazard are to keep your ship neat and clean at all times. Some of the material, if left to lie, will catch fire, which is termed as spontaneous combustion.
- Never use dustbin as ashtrays.
- Never drag any metallic item on the deck. The friction between the deck and item may cause spark and will lead to fire.
- While carrying out maintenance, use non-sparking tools for chipping and hammering jobs.
- On board tankers one of the major fire hazards is static electricity. There are many causes and circumstances of static electricity. You are advised to be familiar with safe tanker practices and work under the guidance from your senior officers.
- Never hesitate to ask if in doubt and never cut corners and compromise on safety.
- Always use intrinsically safe equipment duly approved.
- Take all necessary precaution against fire before doing hot work. Uses a check lists so that nothing is missed out mostly all ships have a permit system for hot work, sample of which is shown for reference. Welding and gas cutting equipment must always be maintained in good shape.
- When carrying dry cargo, consult material safety data sheets for the cargo being carried and take appropriate precautions against fire and toxicity. Coal is likely to emit methane, which is inflammable. Using surface ventilation under the supervision of your senior must disperse these gases.
- **FOUNDERING (SINKING):** The causes of this may be grounding, heavy weather, lack of stability, collision, shift of cargo etc. All necessary precaution must be taken to avoid a calamity of this magnitude well in time. If the ship has to be abandoned, the master gives the order verbally.

## SHIPBOARD CONTINGENCY PLANS FOR RESPONSE TO EMERGENCIES

### A typical shipboard Response to an Emergency

#### COMMAND CENTER BRIDGE MASTER



**SQUAD 1** This squad generally musters at the Emergency Headquarters, which is marked as EHQ on hearing the Emergency alarm. Squad 1 on receipt of the nature and location of the emergency gears up for combating the emergency. For e.g. if the nature is fire in accommodation then the members of squad 1 wear Compressed Air Breathing Apparatus (CABA), carry charged fire hoses.

**SQUAD 2** This squad is the support squad, which assists Squad 1. The members of squad 2 generally muster on the poop deck and gets additional hoses ready for boundary cooling (a process of cooling the bulkheads from the exterior – outside). The 3<sup>rd</sup> Officer who is generally In-charge of this squad takes 1 seaman and lowers one of the lifeboat to embarkation deck ready for boarding. Then this squad waits for any further assistance, if required by Squad 1.

**SQUAD 3** This squad consists of Chief Engineer Officer and the Electrical Officer. These members mainly carry out duties of isolation of power supply, taking over the emergency generator in case does not start automatically on blackout condition and general overview of technical aspect of fire fighting.

**FIRST AID PARTY** This group consists of Ch. Cook, 2<sup>nd</sup> Cook and Steward. Chief Cook is the incharge of the stretcher team and first aid. Assistant will keep provisions and blankets etc. ready.

## SHIP BOARD CONTINGENCY PLANS

These plans aim to assist personnel effectively dealing with emergency. Their primary purpose is to set in motion the necessary actions to stop or minimise damage and to ensure that the action taken are in a structured, logical and timely manner. These plans must be:

- Realistic, practical and easy to use.
- Understood by both personnel ashore and on board.
- Evaluated, revised and updated regularly.

### In the absence of the plan

- In the heat of moment lack of planning will result in confusion, mistakes and failure . To advise key people.
  - Delays will be incurred and time will be wasted, leading to worsening of the situation.
  - As a result, the ship and crew may be exposed to increasing hazard and damage.
- The contingency plan should identify different types of emergency, which may arise on a particular ship and may include:

- Allocation of duties and responsibilities.
- Actions to be taken to regain control of a situation.
- Communication methods with in and outside ship.
- Procedures for requesting assistance.
- Procedures for notification.
- Procedures for dealing with media/ ashore authority.

Procedures for dealing with emergency should, as far as possible, be consistent in a fleet. The most effective organization for dealing with emergency situations should be adopted. A casualty procedure is formulated by management in office to provide proper backup systems for ship in distress. Such procedures should be tested from time to time during emergency drills. Proper procedures should be published and followed for outside assistance such as salvaging. Potential emergency situations likely to be found in a ship should be analysed and procedures for controlling then drawn up and practiced during

drills. The company's safety manual contains detail of contingency planning, emergency organisation and other safety advice specific to the company's fleet, complimentary to that, available in other publications. Important helpful technical guidance in the form of check list have been issued by various industrial organisation such as the International chamber of Shipping, the oil companies International marine forum and the International association of independent tanker owners.

### **DISTRESS SIGNALS**

The following signals used or exhibited together or separately indicate distress and need of assistance:

- (a) A signal sent by radiotelephony consisting of the spoken word "May day".
- (b) A rocket parachute flare or a hand – flare showing a red light.
- (c) A smoke signal giving off orange coloured smoke.
- (d) A gun explosive signal fired at an intervals of about a minute.
- (e) A continuous sounding with any fog - signaling apparatus.
- (f) Rockets or shells throwing red stars fired one at a time at short intervals.
- (g) Slowly and repeatedly raising and lowering arm outstretched to each other.
- (h) The Radiotelegraph signal.
- (i) A Radiotelephone alarm signal.
- (j) Signals transmitted by emergency positioning indicating Radio Beacons.

Attention is drawn to the relevant sections of the International code of signals.

### **EMERGENCY SIGNALS**

These may differ from ship to ship. Your foremost duty is to know them as soon as you join the ship. Generally the signals will be:

- **General emergency / Fire**

**Alarm:** continuous ringing of alarm bells followed by seven short and one long blast on the ships whistle.

**Meaning:** Emergency situation has arisen or fire has been detected on the vessel.

**Action:** Proceed immediately to emergency muster station. Take your life jacket with you.

- **Lifeboat stations**

**Alarm:** Continuous sounding of short / long blasts on vessel whistle followed by alarm bells.

**Meaning:** Proceed to lifeboat station.

**Action:** Collect life jacket and emergency equipment and prepare for launching.

**Note :** order to abandon ship will be by master verbally

**Other Alarm:** these apply to specific crewmembers and must be well understood.

### **Muster lists / muster station**

Specific muster list are prepared on every ship defining specific duties of each crewmember in clear and concise manner in case of any emergency station. Muster lists must be kept upto date incorporating any changes of crew or equipment on board the vessel. These are posted at conspicuous places on board such as bridge, ECR and one on each deck for easy accessibility. In addition, an individual duty roster should be posted in all cabins describing emergency task for each crew. Muster list will specify fire and emergency signals followed on board that vessel and will include following duties:

- Preparation and launching of survival craft.
- Closing of w/t doors, scuppers and other openings.
- Use of communication equipment.
- Stopping vents and closing manual vent flaps.
- Isolating electrical supply to the affected areas.
- Use of fire extinguisher. Fire hoses, fireman's outfit etc. & backup.
- Any special instructions.
- Muster of passengers (if applicable)

For launching the conventional open lifeboat, the duties are typically allocated as follows:

**Bowman:** Clear lifeline, check falls, ship plug, if applicable, passes painter forward, check tricing pendant and prepares browsing –in tackle and ship tiller.

**Stern sheet:** Clears lifeline, checks falls, ship plug, check Tricing Pennant, prepares browsing and tackle and ship tiller

**Ford gripes/pins:** Release gripes and unships pin to allow davit to be Lowered.

**Aft gripes/pins:** Same as above.

**Painter:** Passes the boat painter from outside the vessel

clear of all Obstructions and makes fast on main deck bits.

**Ladder:** Lowers boat ladder for embarkation by the Lowerer once the boat has taken to water.

**Lowerer:** Lowers the boat first to the embarkation deck and after Boarding by the crew, to the water level.

**Standby:** To collect extra water, medicines and blankets etc.

*For lifeboats of different designs, that is, enclosed and free fall type different launching Instructions will apply.*

### **Action on Hearing Emergency Alarm Signals**

On hearing emergency alarm signals, all hands on board must rush to the Emergency Station as set out in muster list. Take your life jacket with you and wear proper clothing. Specially warm cloths in winter. In abandon ship situations; hypothermia is a major cause to life, which highlights the importance of wearing as much warm clothing as is practical. After reaching the muster station, which may be emergency head quarters or any other place designated by the master, test communication and take a head count to ensure nobody is missing. If so, the priority is to carry out search for the missing person lest he may be trapped in a hazardous situation inside the vessel. The muster must be orderly and all movements henceforth should be controlled by the in-charge.

### **Correct Use of Personal Safety Equipment**

Personal protective equipment does not reduce the hazard of injury but only afford some protection against the hazards that still remain. So your step towards injury protection is to eliminate the potential hazardous condition on board. Defective or ineffective equipment provide no defense. It is therefore essential that the correct item of equipment is used and should be properly stored in designated places. The wearer should check the equipment each time before use. Personal safety equipment includes: safety helmets, ear protectors, safety goggles, facial shields, dust masks, life jacket and lifeboat. Safety helmets must be worn with a chinstrap so that it does not fall while working at a height and create an additional safety hazards. Also if one of your hands is occupied keeping the helmet in place, then the task itself becomes unsafe. The helmet must be strong enough to absorb a reasonable, which can be expected on board ship and should have a harness for supporting the wearer's head. Ear protectors must be worn in the engine room, pump room and other machinery spaces and while chipping with power tools to guard against high noise levels.

Dark goggles are to be used while welding to ward off infra red/ ultraviolet rays, which can be disabling for the eyes. Transparent goggles should be worn when there is danger of exposure of foreign bodies such as chipping, hammering, painting, anchoring, grinding and handling chemicals etc. Dust mask are used to keep away poisonous or dangerous gases. They do not provide protection against toxic gases or oxygen deficient atmosphere which may be encountered in cargo or blast tanks. For this purpose, breathing apparatus is to be used having a fresh supply of air and keeping a positive pressure inside the facemasks to avoid toxic fumes being sucked in. Resuscitators containing oxygen for medical use and should not be carried to or near the place of fire to avoid danger of explosion. Before using BA sets, complete checks are to be carried out for detection of any leaks, proper fitting of face mask, functioning of warning whistle and pressure gauge.

Leather gloves provide protection against rough or sharp objects such as handling wires. Heat resisting gloves when handling hot objects and rubber gloves in case of acids and chemicals should be used. Non-skid type safety boots must be worn at all times while working on deck or in machinery spaces to guard against slips and crush injuries. Untied laces create a tripping hazard. While working aloft, safety belt or harness properly secured by a lifeline should be used and in addition. Life jacket or work vest when working over side i.e. while rigging gangway or painting draught marks. A lifebuoy with sufficient line must be kept handy near the place of work.

Aprons and body suits are useful while handling chemicals or acids, which are corrosive by nature. Overalls should preferably have full sleeves and not be loose fitting to avoid being caught in running machinery and sharp edges.

#### **Action on discovering potential emergencies**

##### **\* Collision / imminent collision:**

- Sound general alarm.
- Inform master as soon as possible (in all emergencies).
- Anchor, if feasible.
- If collision unavoidable reduce impact.
- Shut all weather tight doors and switch on lights.
- Muster crew and count heads.
- Send out urgency/ distress message (if required).
- Sound all spaces.
- Check for fire and damages.
- Prepare lifeboats for launching.
- Exchange identities with other vessel i.e. name, last port, next port of call, Port of registry.
  
- Standby to render any assistance to the other vessel. It is a duty to render

##### **Assistance to anyone in danger of being lost at sea.**

- Inform coast station / owners / chartered.
- Maintain accurate records (important in all emergencies).

##### **• Main engine failure:**

- Display N.U.C. Lights / shapes.
- Changes to hand steering and switch on both steering motors.
- Broadcast nature of emergencies to all ship in vicinity and coast station.
- Prepare for anchoring if in anchoring depth.
- Prepare all means of communication and have them ready for immediate use.
- Check effect of likely roll in heavy weather on cargo.

##### **• Steering Failure:**

- Switch to hand steering or NFU mode.
- If no response rush to emergency steering in the steering compartment.
- Slow down engines and stop.
- If in danger of collision / grounding – give emergency stop on main engines.
- Exhibit NUC lights or shape.
- Broadcast warning to ships in vicinity and coast station.

- Prepare for anchoring if feasible.
- Check effects of likely roll on cargo.
  
- **Fire**
  - Sound alarm and announce location of fire.
  - Stop ventilation to the affected spaces.
  - Muster crew and count heads.
  - Send out urgency / distress message as directed by master.
  - Keep survival craft in readiness for launching.
  - Contact coast station / owners etc.
  - Arrange and prepare for receiving assistance from other ships / coast stations.
  
- **Foundering**
  - Confirm flooding (after collision / grounding etc.)
  - Start pumps to pump out water.
  - Check extent of damage and contain if possible
  - Send out urgency / distress message.
  - Prepare survival craft.
  
- **Oil Spill**
  - Raise alarm
  - Stop all cargo operation and depressurize lines by opening appropriate valves.
  - Arrest leaks as soon as possible.
  - Make all efforts to contain oil in side vessel.
  - Inform local authorities at once if any oil escapes over board.
  - Prepare main engine for evacuation of the berth if in port.
  - Put oil spill contingency plan in action.
  - Clean docks using SOPEP GEAR.
  - Local authorities have granted use Oil Spill Dispersants (OSD) only after permission.
  - Minimise pollution and protect environment.
  - Treat the emergency at par with fire.
  
- **Piracy**
  - Sound general alarm.
  - Increase speed and alter course to seaward.
  - Switch on all lights and dazzle attackers with search lights.
  - Fire warning rockets and operate water hoses to repel pirates.
  - Alert shore authorities and ships in the vicinity.
  - If boarding succeeds crew to retreat safe locations.
  - Offer no resistance, stay calm and do not be heroic.
  - Broadcast urgency / distress message.
  - Inform international marine bureau (IMB).
  
- **Man overboard**
  - If the man is in sight take a round turn.
  - If out of sight take Williamson turn.
  - Sound general alarm
  - Put engines on standby for man oeuvre.

- Post lookouts preferable at high locations with all around visibility.
- Broadcast urgency message.
- Prepare rescue boat and have first aid squad ready.
- Pick up survivor on windward side to avoid vessel drifting over the casualty.
- Prepare for medical evacuation of the casualty if serious.

## **SHIPBOARD SPILL MITIGATION PROCEDURES**

### **Shipboard Equipment to mitigate an Oil Discharge**

Shipboard clean up equipment shall be readily available on the Main Deck. The Chief Officer is responsible for the maintenance and storage of this equipment. Crewmembers will assist in containment and clean up as directed by the Chief Officer.

The Appendix A checklists contain crew responsibilities and procedures for mitigating oil discharges. Appendix B identifies the location on-board of equipment to mitigate an oil discharge.

Ships and vessels are supplied with Oil Spill Equipment as follows:

**Position 1:** Main deck, close to cargo and bunkering areas.

**EQUIPMENT:**

- 6 Bags of Absorbent Material
- 2 Rubber Buckets
- 2 Shovels, and/or Scoops
- 2 Empty Drums

**Position 2:**

**LOCATION:** *Main deck, forward of the Accommodation Block.*

**EQUIPMENT:**

- 6 Bags of Absorbent Material*
- 2 Rubber Buckets*
- 2 Shovels, and/or Scoops*
- 2 - 200 liter Empty drums*
- Oil Pollution Absorbent Pads*
- 600 liters of Oil Spill Degreaser / Detergent*
- 2 Air Portable Pump*
- 1 Set Protective Clothing*

- The oil spill equipment has to be mobilized to the proper location before starting of cargo / bunker operations.
- The portable pumps must be tested before the operations and connected to the driving source.

**Radio Officer: Secretary to master.**

- Transmits and receive reports as requested by the Master.
- Keeps log of events and progress. The Master can also assign these duties to Third Officer.

**Chief Officer:** Oil Pollution Control Officer, also keeping the Master advised and updated on the situation.

- Mobilizes Oil Pollution Team as necessary, to limit the oil spill and to start the clean-up operations.

**Chief Engineer:** In charge of Engine Department.

- In charge of bunker operations
- Takes action as directed by Master, or Oil Pollution Control Officer.
- Starts fire/foam pump as required.

**Deck Officer on duty:** (Loading: Topping Off cargo tanks)

- In the event of oil spilled on deck, stops the loading by advising the loading Master.
- Reduces the level of the overflowed tank to empty/slack tank.
- Mobilizes Oil Pollution Team
- Alerts and inform the Master/Chief Officer of the incident.

**Pump man (on Tankers):** Assist the Chief Officer.

- Ensures that the air driven pump are properly rigged/tested before starting the cargo operations and that all other Oil Spill Equipment is readily available at the established locations.
- Responsible for recovering the oil spilled on deck by operating the air driven pumps, collecting the oil in slop tanks or other slack tank.

**Fitter**

- The fitter and the pump man must ensure that the air portable pumps are rigged and tested before the start of bunkering operation and that all other **Oil Spill Equipment** is readily available at established locations.
- In the event of an oil spill on deck, assists the pump man in operating the air portable pumps to recover the oil into empty drums, slop tanks, or into Engine Room empty tank (if available), under directions of the Chief Engineer/Oil Pollution Control Officer.

**Engineer on duty:**

- Assists the Chief Engineer during the bunkering operations.
- Ensures that air/electric power is maintained on deck during the bunkering or cargo operations.
- Other duties as directed By Chief Engineer.
- Prepares for Fire-fighting. Ensures that sufficient air pressure on deck is maintained.

**Deck hands on deck:**

- If an oil leakage is detected, immediately alert the officer on duty.
- Prepare for pollution Control action.
- Position sorbet material to prevent any oil from reaching the railing. Commence clean -up by using the on-board clean –up equipment.
- Proceed to their emergency station and await orders from Oil Pollution Control Officer and Chief Engineer.

## Chapter 7

### Safety On Board

Most accidents on board ship are caused through **carelessness** and 80% of all accidents involving ships are reported to be due to human error.

Following is a diagram depicting the quantum of unsafe practices for each fatal injury:

It is your duty as member of the ship's crew to ensure that as far as possible you maintain clean, orderly and safe places of work and in your living accommodation. While the master will from time to time inspect your cabin and the public spaces, it is upto you to ensure that you keep these area clean and tidy at all times.

**Protective Clothing** including safety helmets, safety boots, overalls, wet and cold weather gear must be looked after by yourself to make sure that such gear is always ready for use. It must be cleaned and dried regularly and stored in a safe place where you can find it a short notice. Proper clothing especially safety and protective clothing must be especially at all times when at work.

**Safety Awareness** is the duty of every man on board. Make a habit of checking any piece of life saving or fire fighting equipment you may pass during your way. If it is not or does not appear to be immediately ready for use, report this to the senior officer.

**Work Hazards** include tools and equipment left around, cleaning material not properly disposed off, opening and machinery not properly guarded. Always work on basis you may suddenly be called away and do not leave anything which could be dangerous to yourself on return or to another person taking up your job, entering or passing your place of work.

All ships will have in place a system of issuing permits prior entering enclosed spaces, commencing hot work or performing a job on an electrical piece of equipment. This is primarily intended as a checklist to ensure no safety precautions are missed out or bypassed.

**Some other areas of work will need special attention from you:**

- **Safe gangway:** Ensure that the gangway is maintained safe for use of shipboard and shore personnel, is properly lit, free from any obstruction and at correct inclination. The landing platform gangway and approach areas should be maintained non-skid. Correctly rigged safety net a lifebuoy with light and line must be placed. Gangway watches should be continuous for security purposes with efficient means of communication.

- In port, ship/shore safety checklist should be filled in after verifying that all safety requirements are met and continued to be so during the entire stay.
- Mooring stations are a critical operation. A significant number of accidents take place during these times due to lack of observance of good seamanship practices. Work must be carried out in orderly manner.
- All lifting gears must be checked for any defects prior use and safe working load (SWL) of any piece of equipment must never be exceeded.
- Fatigue is a culprit in the creation of dangerous occurrences or accidents. Ensure that you and your colleagues are properly rested. Under heavy workloads off – periods should be properly utilized to catch up on your sleep. An exhausted person is not only physically sluggish but his mental faculties also get affected to a great extent, which eventually may put not only that person but his colleagues also in a grave danger.
- Some ports of the world are affected by some diseases, which must be guarded against.
- Cold and hot weather precautions should be taken by the use of proper and protective clothing.
- Handling chemicals and fumigation of the vessel should be carried out with caution.
- Slips and falls contribute to majority of near misses and accidents on board. Non-skid safety shoes must be worn and all working areas kept free of oil.
- All applicable signs and notices must be placed in a right place to caution anyone before a dangerous occurrence takes place.
- While lifting a load proper lifting position must be adopted and excess weight avoided. Ensure proper hold especially if the vessel is moving in a seaway. Do not hesitate to requisition assistance if required.
- Before entering the refrigerator room's emergency alarms and escape procedures should be checked. If you smell a gas do not enter.
- Power tools must have guards in place and the work must be done with full concentration and properly dressed.
- All dangerous occurrences, hazardous conditions and accidents must be reported faithfully to avoid any recurrences in the future. Feedback from the ship's crew must be encouraged and all concerning aspects should be discussed in Safety Committee Meetings. These meetings form a vital link in the personal safety for everyone on board and are held at regular intervals.
- Read and follow all safety related M – notices, which will surely help in creating safety awareness.

Safety on board is teamwork and every member of this team is required to be discharging his duties in an efficient and professional manner because the chain is as strong as the weakest link in it. Accidents have causes – they do not just happen. Most can be foreseen and prevented. This booklet is written to encourage you to avoid accidents simply by taking due care. No matter how routine your job, make a habit of adopting the safe working procedures, which are recommended. In particular, make sure that you always have regard for the safety of yourself and of others.

### **Entering Enclosed Spaces**

The atmosphere of any enclosed or confined space may be deficient in oxygen or contain flammable or toxic fumes. These conditions may put at risk the life or health of the persons entering it. The enclosed spaces where entry precautions are required include: cargo holds, DB tanks, pump room, fuel and ballast tanks, cofferdams and duct keel, stool spaces, pipe trunks, battery and chain lockers and CO<sub>2</sub> rooms. For man entry, the space must be checked for oxygen, hydrocarbons and toxic gases. The requirement for man entry is 21% oxygen and 1% of LEL for hydrocarbon gases and if the entry is for the purpose of hot work then in addition to 21% oxygen, the hydrocarbon content should remain zero. The enclosed space must not be entered unless the following precautions have been taken:

- The atmosphere of the space is tested for oxygen content with oxygen analyzer HC content with explosimeter / tank scope and toxic gases with multi gas detectors.
- A responsible person is designated to take charge of the operation.
- All potential hazards, relevant to that space are identified.
- Enclosed space entry permit is duly filled.
- Procedures before and during the entry are followed.
- Ventilation must be continued while the manpower is inside.

Oxygen deficiency in a hold occurs due to rusting, which consumes oxygen, carriage of some oxygen absorbing cargoes like concentrates or after inerting. Oil cargoes may contain toxic gases such as hydrogen sulphide, benzene, and carbon monoxide which remains in tank along with hydrocarbon vapour after discharge. Some chemicals are absorbed through skin. The space to be entered should be guarded against ingress of harmful vapours by positively blanking off pipelines leading to the space. The space should be thoroughly cleaned to avoid deposits / sludge which give off dangerous fumes. The sampling of these gases should be done at various vertically and horizontally scattered locations to detect and remove any localised concentration of gases. The officer on watch should be informed of any space, which is to be entered so that he does not stop the fans, open remote operated valves or close the escape doors. Warning notices should be placed on the relevant controls or equipment. Access to and within the space should be well illuminated.

Rescue and resuscitator equipment should be placed ready for use at the entrance to the space. The number of person entering space should be limited to those who actually need to enter. Communication link upto the bridge or CCR should be maintained and checked at frequent intervals. If unforeseen difficulties or hazards develop, the work should be stopped and the space evacuated so that the situation can be reassessed. In the case of any emergency the general alarm is to be sounded so that the backup is immediately available. The importance of regular rescue drills cannot be over emphasised to prove the ship's rescue plans under difficult and different circumstances. Anyone likely to use breathing apparatus should be thoroughly familiar and confident with its use. Under no circumstances rescue should be carried out without the rescuer properly donning the breathing apparatus himself.

**ENCLOSED SPACE ENTRY PERMIT**

TO BE COMPLETED AS APPLICABLE BY OFFICER IN CHARGE OF ENTRY AND APPROVED BY MASTER BEFORE SPACE IS ENTERED

SPACE TO BE ENTERED \_\_\_\_\_

REASON \_\_\_\_\_

ENTRY AND EXIT POINTS \_\_\_\_\_

ATMOSPHERE CHECKED BY \_\_\_\_\_

READING OXYGEN \_\_\_\_\_ TOXIC \_\_\_\_\_ IIC \_\_\_\_\_

NAMES OF PERSONS ENTERING \_\_\_\_\_

TIME AND DATE OF ENTRY \_\_\_\_\_

EXPECTED TIME OF EXIT \_\_\_\_\_

COMMUNICATION METHOD \_\_\_\_\_

FREQUENCY \_\_\_\_\_

LINK MAN OUTSIDE SPACE NAME \_\_\_\_\_

OFFICER ON BRIDGE DECK INFORMED	
TYPE OF VENTILATION IN USE	
PERSONAL OXYGEN METER CHECKED	
S.C.B.A.READY OUTSIDE SPACE	
S.C.B.A.PRESSURE GAUGE READING	
RESUSCITATION EQUIPMENT READY AND CHECKED	
RESCUE LINE, HARNESS AND SAFETY LAMP READY	

**SIGNED**

\_\_\_\_\_

**OFFICER IN CHARGE**

\_\_\_\_\_

**MASTER**

**DATE TIME**

**HOT WORK PERMIT**

**DATE** \_\_\_\_\_

DESCRIPTION OF WORK

LOCATION \_\_\_\_\_

DURATION OF PERMIT (MAX. 6 Hrs) FROM \_\_\_\_\_ TO \_\_\_\_\_

**SAFETY CHECKS**

1. Area Cleared Of Combustible Material	
2. Area And Adjacent Compartment Gas Free/ Inerted	
3. No Bunker Transfer Operation Or Blast Movement In Progress	
4. All Liquid And Vapour Lines Isolated To Area	
5. Fire Equipment Made Ready	
6. Fire Watchmen Posted And Instructed	
7. Communications Established Between Fire Watchmen & Bridge	
8. Emergency Procedures Discussed	
9. Port Approval Obtained (If Required)	

**SPECIAL PRECAUTIONS**

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- OFFICER IN CHARGE OF SAFETY \_\_\_\_\_ APPROVAL / GRANTED \_\_\_\_\_
  
- NAME \_\_\_\_\_ RANK \_\_\_\_\_ MASTER \_\_\_\_\_
- SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_
- TIME \_\_\_\_\_

**ELECTRICAL ISOLATION CERTIFICATE**

TO BE FILLED WHENEVER ANY PERSON OTHER THAN ELECTRICIAN IS GOING TO WORK ON ANY EQUIPMENT WHERE THERE COULD BE A HAZARD OF ELECTRIC SHOCK, IF THE ELECTRICAL PART IS NOT ISOLATED.

THIS PERMIT IS VALID FROM: \_\_\_\_\_ (DATE & TIME)  
THIS PERMIT IS VALID UPTO: \_\_\_\_\_ (DATE & TIME)

EQUIPMENT ON WHICH WORK IS TO BE DONE: -----  
WORK IS TO BE DONE BY:: -----  
WORK IS TO BE DONE BY: -----  
SUPPLY ISOLATED BY ELECTRICIAN AT: \_\_\_\_\_  
WORK COMPLETED AND CLEARED BY: \_\_\_\_\_  
(NAME OF PERSON REPORTING WORK COMPLETION)  
SUPPLY RECONNECTED BY ELECTRICIAN AT: \_\_\_\_\_

\_\_\_\_\_  
RESPONSIBLE OFFICER OR  
ELECTRICIAN

NOTE: PERMIT SHOULD BE FILLED AND GIVEN TO PERSON DOING THE JOB WHO MUST RETURN TO THE RESPONSIBLE OFFICER AFTER COMPLETION OF THE WORK.

## Chapter 8

### **]INTERNATIONAL SAFETY MANAGEMENT CODE (I.S.M.CODE)**

The International Safety Management Code (I.S.M.Code) for the safe operation of ships and pollution prevention was established by IMO in 1993, which can be termed as the marine Equivalent to ISO 9000.

Purpose:

- To provide an International Standard for the safe management and operation of ships and for pollution prevention.
- Ensure safety at sea, prevention of human injury or loss of life and avoidance of damaging the environment, particularly the marine environment and to property.
- To take account and to follow the mandatory rules and regulations recommended by the organisation, administration, classification societies and marine industry.

#### **ACCIDENT PREVENTION ON BOARD**

General Duties & Responsibilities of Seafarers:

1. Seafarers should participate in ensuring safe working conditions and should be encouraged to express view on working procedures.
2. Seafarers should have the right to remove themselves from dangerous situations or operations when there is an eminent and serious danger to their safety and health.
3. Should co-operate with the ship owners.
4. Use and take care of protective clothing / equipment at their disposal
5. Participate in safety and health meeting
6. Seafarer should not operate or interfere with equipment, which they are not authorised.
7. Orders should be given and taken clearly and understood.

#### **CAUSES OF ACCIDENT**

Avoidable causes:

- |                   |   |  |
|-------------------|---|--|
| Carelessness      | - | Lack of proper attitude  |
| Unawareness       | - | Lack of instructions   |
| Ignorance         | - | Lack of onboard training   |
| Fatigue           | - | Lack of sleep, rest  |
| Machinery failure | - | Mostly is avoidable through routine<br>inspection and preventive maintenance |

a) Unsafe actions:

- 1) Procedures not followed
- 2) Shortcuts taken

- 3) Poor attitude
  
- b) Productivity only concerned
  - 1) Too busy for safety
  - 2) Safety receive lip service only
  - 3) Safety during stock period only.
  
- c) Inadequate onboard training
  - 1) Poor or incomplete instructions
  - 2) Insufficient written procedures
  - 3) No job safety analysis
  
- d) Poor work environment
  - 1) Unsafe conditions
  - 2) Inadequate and improper tools/equipments
  - 3) Poor house keepings
  - 4) Inadequate rust, vapour, noise control

#### **COMMON CAUSES OF INJURY**

- (a) Striking against or being struck by an object.
- (b) Caught in, on or between objects.
- (c) Falling at the same level or to a different level.
- (d) Contact with hot and cold object.
- (e) Inhaling / absorbing through the skin / swallowing.
- (f) Over exertion while lifting/ pulling/pushing.

#### **TECHNIQUES FOR PREVENTING ACCIDENTS**

- (a) Determine the cause of all accidents.
- (b) Investigate (loss or injury) all accidents.
- (c) Investigate crewmember complaints / grievances.
- (d) Follow safety suggestions.
- (e) Review work procedures.
- (f) Perform Job safety analysis on hazardous job.

#### **SAFETY THINKING AND ACCIDENT PREVENTION ON BOARD**

International measures covering accident protection & occupational hazards:

Of all the international hazards dealing with maritime safety, the most important is the international. Convention for safety of life at sea. (SOLAS). It is also one of the oldest, the version having been adopted in 1914. The incident which led to this convention was sinking of titanic on her voyage when more than 1500 passengers and crew died. It lays down rules regarding construction, life saving appliances,

communication, safety of navigation, carriage of grains and dangerous goods. MARPOL 73/78 deals with protection of marine environment due to oil discharges, noxious substances, sewage and garbage from ships.

IMDG Code sets out standard for carriage of dangerous goods by sea and hence ensuring the safety of ships. Collision regulations of 1972 (COLREGS) contain mandatory rules to be observed by ships when navigating in the seaway and have contributed immensely in the prevention of accidents due to collisions. STCW'95 Convention is also aimed at furthering the cause of safety on board by laying down minimum standards of competence for the seafarers in the prevention of fatigue related accidents by setting out minimum rest periods. Load line rules of 1966 establish the minimum free board requirements so that the sea worthiness of the ship maintained in all condition of loading. Monitoring of the requirements of the conventions is carried out by port State Control inspectors who have the authority to detain unseaworthy or unsafe ships due to construction or manning deficiencies. Dock regulation of the individual countries, code of safe working practice for merchant seaman (UK), M-Notices, international health regulation and other ILO regulations covering crew safety have also contributed to minimising the occupational hazards on board ships. In addition to the international measures, the companies have their own safety/health requirements, which are covered in their safety, drug and alcohol and operational manuals.

IMO has instituted safety management code (ISM code) for safe operation of ships and pollution prevention. It's objective is to prevent human injury or loss of life, to avoid damage to the environment and to the property. This is ensured by requiring the shipping companies to provide safe working practices and environment, establish safe guards against all identified risks and continually improve safety management skills of personnel preparing for emergencies.

### **VALUE OF TRAINING AND DRILLS**

The purpose of training and drill is to ensure that crewmembers gain confidence in controlling situations that are likely to arise in emergency. They should aim to cover all likely emergency situations. Refresher courses and "on the job" familiarization training form a part of such exercise. The drill should mobilize the shore based management emergency contingency plans under simulated condition. They should be carried out regularly to test the effectiveness and clarity of emergency plans. On joining the vessel familiarize yourself immediately with the location and operation of life saving and fire fighting appliances nearest to your cabin and read company's safety and training manual at your earliest. Check escape route from your cabin and workplace to the lifeboat station and emergency muster station. Know your muster station and emergency duties. Have your officer in charge explain if you do not understand, check your lifejacket and find nearest location of fire alarm to your cabin. Though knowledge of the correct operation of all equipment is your priority, nevertheless in emergency, if you are in doubt about the correct operation of LSA/FFA equipment, do not panic, as the instructions will be printed on them in a clear and concise manner.

It is a requirement to hold at least one fire and abandon ship drill every month on cargo and every week on passenger vessels. Drills must be held within 24 hrs. of sailing if more than 20% of crew is changed at the last port. On most ships, the frequency of these drills is kept weekly even in case of cargo ships for better training. Every lifeboat is required to be launched and maneuvered in water at least once in three months. If one of the motor lifeboats is designated as the rescue boat, this drill should be utilized to check the speed of boat, which should not be less than 6 knots with full compliment. Correct use of other life saving appliances should be demonstrated to crew as soon as possible, but not later than two weeks after joining and should include:-

- Donning of life jacket

- Use of lifebuoys and attachments
- Donning of thermal protective aids (TPAs) and immersion suits
- Launching procedure for liferafts
- Instruction on the use of rockets, hand flares, smoke signals, and line throwing apparatus (LTAs)

These demonstrations are held concurrently with the weekly drills. They also include survival procedures, cause and treatment of hypothermia and first aid.

#### KNOWLEDGE OF ESCAPE ROUTES, INTERNAL COMMUNICATION AND ALARM SYSTEM

Knowledge of escape routes from your cabin and workplace is paramount importance for the survival of personnel on board. Finding your way out in complete darkness and smoke should be practiced at frequent intervals. Relevant exit and arrow sign are additional posted to guide you to safety. Communication with in the ship is carried out by public address system which is operable from the bridge and also from the individual telephones, voice operated telephones are at the bridge, engine room, EHQ, steering compartment, pumps room and other important spaces. Walkie-talkies provide a vital link in the communication system and are virtually reachable in all spaces with in the ship. Battery operated loud hailers are used for main deck. For abandon ship situation 3 Walkies talkies for emergency use are required for communication between ship and survival crafts and amongst survival craft after abandonment. Emergency alarms are capable of being operated from bridge, EHQ and manually from various strategic locations within the accommodation block and engine room. The system is audible throughout the living quarters, engine room and pump room. The fire alarm is also actuated automatically by fire, smoke or heat sensors placed in the engine room and living spaces. On certain ships, they automatically close the fire doors on each deck by releasing the magnetic stoppers. Manual fire alarms are activated by breaking the glass and operating push button, which is also clearly marked in red. The emergency alarm may be supplemented by a public address system to announce the nature of emergency or location fire.

## Chapter 9

### Social Responsibility

#### Employment conditions

##### “Articles of Agreement or Service Contract”

It is an agreement of service-condition between the owner and the crew. (Master represents the owner/management). It contains all terms and condition of service viz:

- Duties
- Wages (Collective Bargaining Agreement) and allowances
- Length of Service
- Penalties for disobedience, wrongful act, misbehavior, negligence, etc.
- Provision of food and accommodation
- Repatriation to home port

All crewmembers are expected to behave in orderly and obedient manner to Master. All officers including other crew members are to note that it is their duty to ensure that no wrongful action on their part would cause hurt or injury to any other person, the ship, its cargo or ship owner.

#### Responsibilities of ship owners:

1. Safety and health of all seafarers on board should have a suitable policy on the safety and health which agreeable with national and international laws.
2. Provide and maintain ships, equipment, and tools, operating manuals as far as possible so that there is no risk of accident or injury to seafarers.
3. As per national and international laws decide manning levels, taking into account necessary standards of fitness, state of health, experience, competence and language skills to ensure the safety and health of seafarers. (Working and living conditions, working hours, rest periods, adequate accommodation, nutrition, valid competency, proficiency and medical certificates, ensure common language skills for accident-free operation of the ship).
4. Monitor the performance of equipment and personnel.
5. To establish safety and health committee on board ships who implement ship owner's safety and health policy.
6. To arrange for regular safety inspections of their ships, its equipments and machinery at suitable intervals by competent classification societies and their representatives.

#### Crew Agreements:

1. The employer (through Master) will employ each seaman (officer/crew) and the seaman will serve in the capacity and at the rate of wages expressed against his name.
2. Wages will not accrue for any hours during which a seaman refuses or neglects to work when required or is absent without leave or for any period during which a seaman is incapable of performing his duties by reason of illness or injury which has been caused by his own willful act or default.
3. If any pension fund/provident fund scheme exists, then the contributions to such funds as per company's laws will be deducted from your wages.
4. Any seaman who incompetently performs his work in the capacity in which he was first employed under the agreement may be re-rated by the Master.
5. Agreement may be terminated: -
  - a) By mutual consent
  - b) Medical evidence indicates that a seaman is incapable of continuing to perform his duties due to illness/injury.
  - c) Appropriate notice in terms of the agreement

- d) If in the opinion of the master, the continued employment of the seaman would be likely to endanger the ship or any person on board.
- e) If a seaman having been notified of the time of the vessel is due to sail, is absent.
- f) If the Master is satisfied that a breach of conduct has occurred.

Individual rights and obligations:

Each seaman agrees

- To join the ship in the time specified by the company /master
- To submit to inoculation, vaccination on and any other health precautions as may be directed by the master
- To return in good condition (fair wear and tear expected) before the termination of his engagement/contract all articles provided for his personal use during the period of his engagement/contract.
- That all stores and provisions issued to the crew are only for use and consumption on board the ship and any unused or unconsumed stores or provisions remain the property of the employer.

Acts of Misconduct:

1. Assault
2. Willful damage to ship or any property on board.
3. Theft or possession of stolen property
4. Possession of offensive weapons
5. Persistent or willful failure to perform duty
6. Unlawful possession or distribution of drugs.
7. Conduct endangering the ship or persons on board
8. Combining with others at sea to impede the progress of the voyage or navigation of the ship.
9. Disobedience of orders relating to safety of the ship or any person on board
10. To be asleep on duty or fail to remain on duty if such conduct would prejudice the safety of the ship or any person on board.
11. In capacity through the influence of drink or drugs to carry out duty to the prejudice of the safety of the ship or any person on board.
12. To smoke, use a naked light or an unapproved electric torch in any part of the ship carrying dangerous cargo or stores where smoking or the use of naked lights or unapproved torches is prohibited.
13. Intimidation (frighten), coercion (persuade by force) and interference with the work of other employees.
14. Behavior which seriously detracts from the safe and efficient working of the ship; and the social well-being of any other person on board (e.g. ragging).
15. Causing or permitting unauthorized persons to be on board the ship whilst it is at sea (e.g. giving shelter/food to stowaways).

Actions which may be taken when breach of Code/Conduct is done:

1. Informal warning by crew in-charge (C/O or 2/E).
  2. Formal warning by head of department, which will be suitable, recorded (C/O or C/E).
  3. Formal warning by the master recorded in the ship's official logbook.
  4. Written reprimands (warning) administered by the Master and recorded in the ship's official logbook.
- Some examples where Master has authority to make a deduction from wages:

1. Seaman absence without leave.
2. Committed breach of code of conduct.
3. Willful damage to ship's equipment, and also in respect of a seaman's failure to return in good condition (fair, wear and tear expected) articles provided by the employer for the seaman's personal use.

Confidential Report of officers and crew:

Sent once every three months to head office and owners. The Confidential report contains the officers and crews conduct, ability, obedience, initiative, integrity, loyalty, honesty, leadership, qualities, sobriety, personal relationship with crew etc. etc. The reports are sent when Master or Chief Engineer or Chief Officer signs off. No copies are kept on board.

#### DISCIPLINE:

Discipline is an attempt to help managers to determine what needs to be done, when their people begin to regress and behave less maturely than in the past. Disciplinary intervention is necessary to redefine roles and expectations. Remember when disciplining an individual:

- a) Don't blow your cool
- b) Don't attack personalities
- c) Be specific
- d) Be timely
- e) Be consistent (No favourites)
- f) Don't threaten
- g) Be fair

#### **GUIDANCE ON PREVENTION OF DRUG AND ALCOHOL ABUSE**

Drug and Alcohol abuse directly affect fitness and ability of a seafarer to perform watch-keeping duties. Seafarers found to be under the influence of drugs or alcohol should be permitted to perform watch-keeping duties until they are no longer impaired in their ability to perform those duties. Administration should consider developing the national legislation:

- i. Prescribing a maximum of 0.08% blood alcohol level (BAC) during watch keeping duty as a minimum safety standard on their ships and
- ii. Prohibiting the consumption of alcohol within 4 hours prior to serving as a member of a watch.

The OCIMF guidance on the subject, which is considered the most widely accepted international guidelines, is attached.

Oil Company's International Marine Forms (OCIMF) Guidelines For The Control Of Drugs & Alcohol On Board ship Drug & Alcohol abuse and its adverse effects on safety is one of the most significant social problems of our time. It is, appropriately, receiving attention both in the public eye and in Government legislation. An example specify to the Marine industry, of Government attention in this issue is the U.S. Coast Guard (USCG) Regulations on the testing of personnel on National and Foreign Flagships.

Recognizing the potential, serious impact on the Marine incidence, the Oil Company's International Marine Forum (OCIMF), and the Marine industry in general, have over years develop guidance aimed at encouraging safe ship operation and protection of the environment. Whilst tanker companies have generally operated with strict policies related to drugs and alcohol use on board their ships. OCIMF considers that the industry as a whole reassess the control of drugs and alcohol on the board ships. OCIMF recommends that shipping company should have a clearly written policy on drug and alcohol which is easily understood by the seafarers as well as shore based staff. In order to enforce their policy, companies should have rules of conduct and controls in place, with the objective that the no sea farers will navigate ship or operate its on board equipment whilst impaired by drugs and alcohol. It

is recommended that the seafarers be subject to testing and screening for drugs and alcohol abuse by means of combined programme of unannounced testing should be sufficient so as to serve and effectively determine to such abuse.

The misuse of legitimate drugs, or the use, possession, distribution or sale of illicit or unprescribed controlled drugs which causes or contributes to unacceptable job behaviour should require the seafarers to be excused from duty, until such times they are repatriated, or treated for the cause of after effects. The suggested list of substances to be prohibited should include, but not be limited to marijuana, cocaine, opiates, phencyclidine (PCP) and amphetamines and their derivatives. In this regard, the International Chamber of Shipping (ICS) has published guidelines on recognition and detection of drug trafficking and abuse entitled "Drug Trafficking and Drug Guidelines for owners and Masters on Recognition of Consumption. This Company policy should provide for control of onboard alcohol distribution and monitoring of consumption. This policy should support the principle that officers and ratings should not be impaired by alcohol while performing scheduled duties.

OCIMF recommends that officers and ratings observe a period of abstinence from alcohol prior to closing up on scheduled watch. This may be either a fixed period, such as the 4 hours required by the USCG, or a minimum period of 1 hour of abstinence for each unit of alcohol consumed (refer to section 3.4 for example of approximate alcohol unit conversions). Whichever method is used to determine the abstinence period, the objective should always be ensure that prior to going on scheduled duty, the blood alcohol content of the seafarers is theoretically zero. Officers and ratings should be aware that local regulations might be in place and where this is the case, it is recommended that these be strictly adhered to where they exceed their guidelines. Recognizing that all seafarers must be able to respond At any time to an emergency situation, the International Maritime Organisation (IMO) is considering including guidance to administrations on maximum permissible blood alcohol content (BAC) permitted whilst on board .

### **BASIC GUIDELINES ON CONSUMPTION OF ALCOHOL**

Any consumption of alcohol by persons onboard shall not result in blood alcohol concentration (BAC) of more than 0.04% by weight at anytime. Watch keeping Officers and Ratings will not consume any alcoholic beverages four hours prior to their watch-keeping duties.

No alcoholic beverages are to be served on the dining table during meal hours. It is brought to attention of all persons onboard that 2 units of alcohol consumed within the hour will result in BAC of 0.04% by weight and for their guidance 1 unit of alcohol may be defined as follows:-

### APPROXIMATE ALCOHOL UNIT CONVERSIONS

	Volume	Units		Volume	Units
Beers, Cider and Ledgers.			Table wines others >6.0% <12% Alc. By Vol.	<b>10 cl.</b> <b>1 liter bottle</b>	<b>1.0</b> <b>10.0</b>
Extra strength (>4.0% <6.0% Alc. By Vol.)	10 oz 30 cl	2.5 2.5	Sherry Forfeited Wines Others (>12% <16% Alc. By Vol.)	6 cl 1 liter bottles	1.0 16.0
Ordinary Strength (>1% <4.0% Alc. By Vol.)	10 oz 30 cl	1.0 1.0	Spirits, Liquor, Liqueurs, Others (>16% <40% Alc. By Vol.)	1 oz 3 cl.	1.0 1.0
Low Alcohol (>0.05% < 1.0% Alc. By Vol.)	10 oz 30 cl	0.5 0.5	Any other low alcohol Beverage (>0.05% <1.0% Alc. By Vol.)	10 oz 30 oz	0.5 0.5

Alcohol metabolizes out of body at an average rate of (1) one unit of alcohol per hour.

### SHORT TERM EFFECTS OF ALCOHOL CONSUMPTION

*	UP TO 0.04% FEELING OF WELL BEING	SOME JUDGEMENT IMPAIRMENT TALKATIVE RELATED SOCIABLE.
*	0.04% - 0.08% RISK STATE	JUDGEMENT IMPAIRMENT MOVEMENT AFFECTED FALSE CONFIDENCE
*	0.08% - 0.15% DANGEROUS STATE	SLOW SPEECH BALANCE AFFECTED EYE SIGHT BLURRED FALLING A SLEEP VOMITING
*	0.15% - 0.4% DRUNKEN STUPOR	HEAVY BREATHING DEAD DRUNK INCONTINENCE COMA
*	0.4% - 0.6% DEATH	SHOCK AND DEATH

### DRUGS

Recognising the potentially serious impact of marine incidents, the Oil Companies International Marine Forum (OCIMF) and the marine industry have over the years developed guidance aimed at encouraging safe ship

operation and protection of the environment. Whilst tanker companies have generally operated with strict policies related to drug and alcohol use, OCIMF considers that it is timely that the industry as a whole reassess the control of drugs and alcohol onboard ships.

Shipping companies should have a clearly written policy on drug and alcohol abuse that is easily understood by seafarers as well as shorebased staff. In order to enforce their policy, companies should have their rules of conduct and controls in place with the objective that no seafarer will navigate a ship or operate its onboard equipment while impaired by drugs and alcohol. It is recommended that appropriate seafarer be subject to testing and screening for drugs and/or alcohol abuse during routine medical examinations.

The misuse of legitimate drugs, or the use, possession, distribution or sale of illicit or unprescribed controlled drugs onboard ship has to be strictly prohibited. The suggested list of substances to be banned should include, but not limited to, marijuana, cocaine, opiates, phencyclidine (PCP) and amphetamines.

In this regard, the International Chamber of Shipping (ICS) has published guidelines on recognition and detection of drug trafficking and abuse entitled "Drug trafficking and Drug Abuse: Guidelines for Owners and masters on Recognition and Detection".

#### **ANTI DRUG AND ALCOHOL POLICY"**

##### **A. General and Drugs**

01. Before signing on the vessel every crewmember has to carry out not only a general medical examination', but also blood and urine tests proving that no alcohol and drug abuse is existing, if possible.
02. It is strongly forbidden to have, to use, or to smuggle drugs and legitimated drugs on board of the vessel. Disregarding will cause immediate dismissal, where the crewmember has to bear all repatriation expenses.

03. The use of other substances which alone or in combination can cause or contribute to unacceptable job performance or unusual behaviour is prohibited.
04. Any crewmember using prescribed medicines which can cause or can contribute to unacceptable job performance or peculiar behaviour shall report this to the master.
05. drugs observed or found on the vessel have or be reported to the master immediately. After investigation the master has to inform the company immediately.

##### **B. Alcohol**

06. It is not allowed to consume alcohol during duties. Disregarding will cause immediate dismissal, where the crewmember has to bear all repatriation expenses.

07. All crewmembers have to observe a periods of 4 hours abstinence from alcohol prior to scheduled wachtkeping or other work duties.
08. During leisure the consumption of alcohol has to be controlled and should never exceed that persons' manner, disposition, speech, general, appearance of behaviour is affected.
09. It is only allowed to bring alcohol on board of the vessel from the master. The sale is always under the discretion of the master.
10. The master has to report every crewmember, who exceeds the consumption of alcohol to the company after corresponding entries have been done in the log book. If such an overconsumption occurs again, the immediate dismissal follows and the crewmembers has to bear all repatriation expenses.
11. The alcohol content in the blood has not to be higher than 0,4 ‰ during the complete stay on board. The master is obliged to carry out unannounced alcohol test at any time.
12. With the signature I confirm the receipt and observance of company's "Anti Drug and alcohol Policy"

\_\_\_\_\_

date, time

\_\_\_\_\_

vessel's name

\_\_\_\_\_

Rang/name i. Capital letters

\_\_\_\_\_

Signature/Crewmember

## DRUGS THAT YOU SHOULD KNOW

.It is estimated that there are in excess of 10,000 regular abusers of "hard drugs" such as heroin and cocaine in the UK. There are also many thousands of other abusers of the so-called : soft drugs like cannabis and amphetamines. Drug user comes from every social group and every type of background. Abuse of any drug can lead to addiction and overdoses of " hard drug" can lead to death. Intravenous drug abuse is also well recognized as a source of transmission of the Hepatitis B and AIDS viruses. Contrary to widely held belief there are no safe drugs. They can all lead to physical and mental deterioration, affect behavior adversely and impair the ability to work. This can jeopardize personal safety, the safety of the others, the ship and the environment. The most commonly abused drugs are:

### **DEPRESSANTS** They Depress the central nervous system

Opioids: heroin (H, smack, junk), morphine, codeine, opium, methadone, pethidine. Cannabis (grass, pot, weed, hash, dope, joint, reefer)

### **STIMULANTS** They stimulate the central nervous system.

Cocaine (coke, snow, crack).Amphetamines (speed, uppers, whizz, blues, sulphamethoxazole)**HALLUCINOGENS**  
Alter moods and perception. Lysergic acid diethylamide (LSD, acid).

## Chapter 10

## **Ships and Public Health**

Over one hundred outbreaks of infectious diseases were reported to be associated with ships between 1970 and 2000 (WHO 2001). Reported outbreaks included legionellosis, typhoid fever, salmonellosis, viral gastroenteritis, enterotoxigenic *E coli* infection, shigellosis, cryptosporidiosis and trichinosis. Naval, cargo and cruise vessels have all been affected often with serious operational and financial consequences. These reported outbreaks represent just a small proportion of the total disease burden attributable to ship-acquired disease. For every notified and reported case listed in outbreak reports, there are likely to be orders of magnitude more cases that go unreported.

Ships can have significance to public health beyond just their role in ship-acquired infection. For example, ships can transport infected humans and other vectors, such as mosquitoes and rats, between ports and, therefore, act as a means of international disease transfer. If proper control measures are not in place, ships are particularly prone to disease outbreaks. Ships are isolated communities with crowded living accommodation, shared sanitary facilities and common food and water supplies. Such conditions are favourable to the spread of infectious diseases. The inevitable publicity that breaks out along with a disease outbreak aboard ship can seriously impact financially on the ship owners and those relying on use of the ship for transport or leisure.

Becoming ill aboard ship can be particularly dangerous because the ship may be isolated from modern medical centres. Furthermore, once an outbreak has been reported aboard ship it may not be permitted to dock. It is estimated that 1.2 million seafarers are employed on general cargo vessels. Many spend months at sea, sometimes in remote regions of the world. Cargo ships on long voyages are isolated communities. Good sanitation conditions on vessels are crucial both to the health of seafarers and to the shipping industry's ability to attract and retain competent employees.

Historically ships have played an important role in transmitting infectious diseases around the world. The spread of cholera pandemics in the nineteenth century was thought to be linked to trade routes and facilitated by merchant shipping. Efforts to control human disease on ships, can be traced back to the Middle Ages when in 1377, Venice and Rhodes denied access to ships carrying passengers infected with the plague and the term "quarantine" was coined. On arrival travellers were detained in isolation for 40 days before they were allowed to proceed to their final destination. Overcrowding on ships, filth and lack of personal hygiene were often associated with epidemics of typhus fever. Preventive measures, such as quarantine, delousing, and maintaining personal cleanliness by use of soap, were gradually adopted, and the incidence of typhus decreased.

### ***International Health Regulations***

The International Sanitary Regulations were developed in 1951 to prevent the spread of six infectious diseases – cholera, plague, yellow fever, smallpox, typhus and relapsing fever. These regulations were revised and renamed the International Health Regulations (IHR) in 1969. The purpose of the International Health Regulations is, and remains, as being: "to provide security against the international spread of disease while avoiding unnecessary interference with international traffic". The IHR were amended in 1973 and 1981. The diseases now subject to these regulations were reduced to three: plague, yellow fever and cholera. In 1995 the World Health Assembly called for the regulations to be revised. The target date for submission of the revised IHR to the World

Health Assembly is May 2005 and a draft revision has been completed dated 12 January 2004 (WHO 2004). Since the IHR applies to world traffic, ships, aircraft, other conveyances, travellers and cargos are its primary considerations for arrivals. Ships and aircraft are discussed specifically in their own "Guides". The Guides provide a summary of the health basis behind the IHR and help to bridge the gap between the regulation, as a legal document, and the practical aspects of implementation of appropriate practices.