Appendix E

Cable Laying Vessel Giulio Verne Safety Manual

CABLE LAYING VESSEL

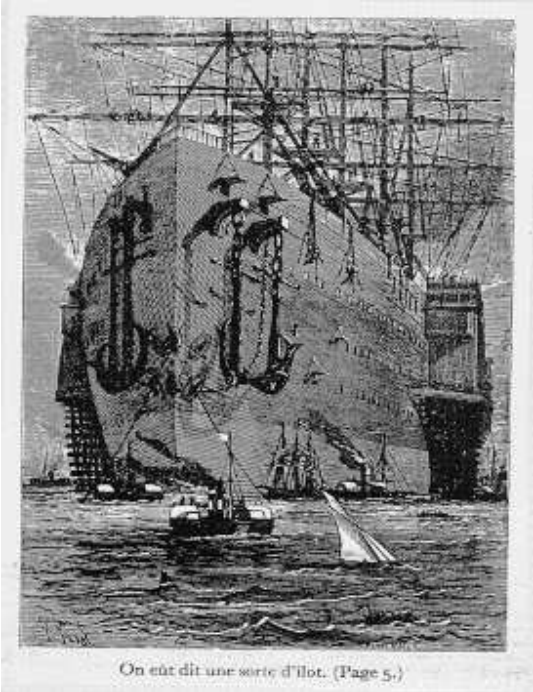
GIULIO VERNE

SAFETY MANUAL

Rev	Date:	Prepared by	Approved by
5	May 2008		

SAFETY MANUAL INDEX

1.0 PREFACE


On eût dit une sorte d'îlot. (Page 5.)

The first dynamically positioned ship was ideally conceived by the French novelist **JULES VERNE** in the romance "L'Ile à Helice *(*Propeller Island*)"* .
The Island is an immense man-made island designed to travel the waters of the Pacific Ocean, the island seems an idyllic paradise. The wealth of residents of the island can only be measured in millions.
In order to preserve the swinging of the island, it was necessary to keep it at sufficient distance from land, it was not "moored" .In other words, anchors were not used, as this would have been impossible at depths of hundred meters or more. Thus by means of mammoth size machines, which manoeuvre ahead and astern throughout its stay, it is kept in place. Since 1870 ,the fantasy has turned into reality, the intuition of the novelist **Jules Verne** to achieve station keeping by manoeuvring machinery ahead and astern, has been achieved by taking advantage of modern computerised systems , which enable the automatic position and heading control of a vessel, attaining considerable station keeping accuracy, allowing significant shorten downtime .
Those apparatus are called "Dynamic Positioning Systems ".The most recent and versatile DP system, designed for cable vessels, has been successfully installed onboard this ship.

2.0 INTRODUCTION

The guide–lines, in this manual represent the experience of many skilled people; they have been developed to provide a safe working environment. However it must be emphasised that these guidelines should never replace good common sense and judgement. This means constant awareness by everybody, no matter how elementarily a task is being done. This manual deals with all aspects of shipboard safety for which the Master holds overriding authority in the event of an emergency. It has been written to assist shipboard staff in the establishment and maintenance of safe working practices, to increase awareness of safety and to instruct staff as to how to deal with safety problems as and when they occur.
The master is legally responsible for the safety of everyone on board. During emergencies, the master will initiate and direct emergency procedures. In an emergency his instruction must be obeyed at all time. Emergency procedures are processed to cover possible emergency incidents, and responsibilities have been allocated in case of each.
The manual has been written in accordance with various internationally recognized codes of practices and national flag state regulations.
Life saving and fire fighting equipment are placed on board according to international maritime regulations (I.M.O. and SOLAS) and safety requirements as per Italian department of trade.

All persons embarked give an implicit consent to conform with all safety and security policies and regulations which are administered by the Master.

3.0 Safety Philosophy

At sea, just as ashore, most accidents are preventable. However, the environment and working conditions aboard seagoing vessels pose additional hazards not found ashore. The responsibilities to avoid accidents flow from the top down; from the shore establishment to the Master, to each and every individual aboard.

"Safety awareness" the biggest single factor in reducing accidents

"Safety awareness" by all hands is the biggest single factor in reducing accidents.
As a party member, you pride yourself in being knowledgeable and proficient in the demands of your discipline. You have undoubtedly acquired patience and a demand for attention to detail when working to ensure the validity of your assignment. The demand for such attributes is no less great when learning to live safely aboard a cable vessel.

The old saying "It's not my job" does not apply onboard this vessel.

Ashore, you can go home and forget about work and the safety-related aspects of your work surroundings. You can easily travel a different route if there is construction work on your normal route. A power failure at home is an inconvenience. You are aware of any medical emergency only by the ambulance sirens. Aboard your ship, not only will you need to be aware of any ongoing operations, you must be able to determine when and where it is safe to pass. A power failure aboard ship can be catastrophic. A medical emergency aboard ship affects everyone—you may be the only person available to assist the victim.

4.0 Accident causing factors

Shipboard Environment. As a party member, you must learn to live and work safely in a potentially dangerous shipboard environment.
Such factors as motion, noise, vibration, temperature extremes, close living conditions, rotating machinery, and lines under tension are not normally encountered on shore. Ship's motion can cause fatigue in two ways. First, it's sometimes very difficult to sleep when the vessel is pitching and rolling. Even in fairly calm seas, it takes a newcomer one or two nights to adjust. Secondly, just moving about on a vessel in angry seas takes physical effort which in time, will wear down the most fit. Fatigue promotes carelessness.
When temperature extremes are too great, overall performance is impaired. Besides the debilitating effects of sunstroke, heat exhaustion, frostbite, hypothermia, etc., lesser physical impairments are possible. These include increased reaction time, decreased mental awareness, loss of dexterity and coordination, and fatigue.
Noise can have both a physiological and a psychological effect. Permanent hearing loss can be the result of sustained high noise level as well as extreme loud noises of short duration. Working around noisy equipment for an extended period of time can cause physical and psychological damage. It is important that you recognise and avoid these potential dangers.
In a shipboard environment—especially confined spaces—you may be exposed to chemical agents in the air like exhausting fumes. Recognise these potential hazards! What is acceptable ashore may not be suitable in a much more confined shipboard environment.
There are a number of factors, which contribute to accidents; few accidents have a single cause. The immediate cause is usually the most apparent, but is not necessarily the underlying cause which may be harder to pinpoint and usually answers the question "why" for any accident.

5.0 Equipment and Materials -Training and Experience - Communications

5.1 Equipment and Material.

Defective, improperly installed, or improperly used equipment is a major contributing cause of accidents. In doing cable laying related activity from a ship at sea, a lot of faith is placed in machinery and equipment. Whether deploying equipment, working on the cable deck, or going about your daily routine, you must rely on properly functioning equipment. The sudden failure of equipment due to overloading or defective materials almost always leads to an injury. Many pieces of machinery are inherently dangerous and are therefore provided with safety guards, warning signs, and are assigned safe working loads. Ignoring these safety features defeats their purpose. Learning to find your way around the ship, to understand the terminology, and to recognize factors that have traditionally proven to be causes of accidents takes a little time;

Take time now!

5.2 Training and Experience.

A lack of skill, experience, and knowledge concerning shipboard procedures can easily lead to accidents. During your initial exposure to a procedure or a piece of equipment, extra care and supervision may be necessary until everyone is far enough along on the "learning curve" to make for a safe operation.

Pay attention and learn proper procedures!

5.3 Communications.

People react to what they think they hear, not necessarily what the person speaking actually says. Poor communications due to such factors as language barriers, unfamiliar terminology, background noise, or failure to speak distinctly lead to misunderstanding, mistakes, and ultimately, accidents..

***Listen* so that you clearly understand!**

6.0 Drugs and Alcohol Policy (D&A)

All spaces and equipment on this vessel are subject to inspection or search at any time. As a continuation of the attention to safety, a Drugs and Alcohol Policy for ship staff, technicians as well as third party users of the vessel, is in force. The Master goal is to promote a safe working environment for all personnel and to ensure the safe operation of this vessel.

Possession and use of alcohol, drugs, or prescription medications without a prescription, on board this vessel, by any member of the embarked personnel is strictly forbidden and will not be tolerated.

When violations of this policy are discovered, the following procedures will be adhered to:

1. **The alcohol will be confiscated and immediately disposed of in the presence of a witness.**
2. **Drugs will be confiscated and placed in a secured location until the vessel reaches home port or another port of call, at which time the offence will be reported, and the drugs turned over to the appropriate authorities for action.**
3. **Disciplinary or corrective action will be taken in accordance with the applicable**

maritime law and or company policy.

7.0 Firearms and Other Weapons

Personally owned firearms are not permitted aboard the ship.
Firecrackers, fireworks and similar pyrotechnics will not be permitted aboard the ship.
Sheath knives are not permitted aboard the ship with the exception of fishing fillet knives which are permitted.
Folding knives (seaman's knives) are permitted to be carried aboard ship.

8.0 Smoking Restrictions

Smoking in designated "**no smoking areas**" is prohibited by regulations. Aboard these ships, personnel who smoke may do so freely, only on weather decks or internal areas were no smoking signs are not shown. Smokers are expected to observe particular care in disposing of cigarettes or smoking materials. Use ashtrays kits provided around the ship for this purpose.
Smoking is prohibited:

- On any part of the weather decks when the vessel is fueling or taking on flammable cargo.
- in the vicinity of any gasoline engine undergoing repair
- In the vicinity of any compressed gas cylinder carrying a flammable gas sticker, which may be stored on deck for the use of the embarked cable laying engineers.
- in and around any locations were no smoking signs are displayed
- In the cabins, galley, pantry or other places where food is prepared.

9.0 Electrical

When connecting electrical equipment to the ship's electrical supply, please ensure that approved plugs, sockets and connectors are used. Wires must never be inserted directly into a power outlet. Always use a plug. When joining cables, approved wire connectors must be used. Never simply twist wires together. Always ensure that cables are adequately screened and that your equipment is properly earthen. Never lead cables/wires through vents. This will prevent it from being closed in the event of fire in the space it serves and could prejudice insurance claims in the event of damage. If in doubt, call the ship's Electrician who will advise you.
A number of electrical plugs, etc., are carried in the ship's stores. These are primarily for the ship's equipment. You should ensure that the correct type of plug is supplied with your equipment.
In your working area, if you experience a malfunction of ship's equipment, or simply a defective light bulb, call the ship's Electrician.

Never try to "fault-find-fix" on shipboard circuits by yourself.

10.0 Prohibited Areas

The following areas are prohibited for entry without express permission from the Master or bridge watch:

- 1) Top of the mast, pick up arms and derricks, cranes.
- 2) Engine and thrusters rooms, any other machinery confined spaces.
- 3) Radio Room (master office).

11.0 Attitude and personal hygiene

When on board a ship, adjust your attitudes to adapt to tight working and living quarters and many different types of personalities. Cigarette smoke is irritating to many people. It is important to be considerate when others are asleep; noise level should be kept down to a minimum at all times.
Ship sanitation is critical to the health and attitude of personnel as well as the smooth operation of a ship. The careless disposal of materials not only posses a safety hazard but also detract from the appearance of the ship.
Liquid spills and/or broken objects should be cleaned up at once. It is imperative to inform the Master immediately if a container of hazardous material breaks or spills. The spillage could cause damage to the ship or injury to the crew.
Personnel living spaces serve as home for the duration of the embarkation period. Shared living quarters must be kept neat as a courtesy to fellow members. Dirty laundry may cause offensive odorous and should be put away; bed linen should be changed at least once a week. Toilet/shower facilities must be kept clean and drains unclogged.

12.0 General Pre-sailing Medical Requirements.

All personnel should have a complete physical as compulsory required by maritime and company regulations. A dental exam is also highly recommended. The above may seem like a waste of time and money, but it should be remembered that as the vessel undergoes an overhaul periodically, so should you. All appropriate inoculations (including tetanus) that are necessary for ports of call should be up-to-date.

General medical information should be provided by each person on board. This should include any past or current medical problems (such as diabetes, high blood pressure, etc.), inoculation record, allergy information, prescription drug usage and dosage, and generic names for prescription drugs. Eye prescriptions should be listed for personnel who wear eyeglasses, and an extra pair of eyeglasses should be carried on board.

13.0 Pollution

Pollution to the marine environment is not only caused by discharges of oil at sea or during bunkering operations, but also by the indiscriminate disposal of garbage, sewage and smoke emissions.
Oil pollution of the seas as a result of human activity, has decreased in recent years, largely because of the success of measures designed to prevent marine pollution from ship.
It is the responsibility of the Master and his senior officers to ensure that the pollution prevention measures outlined in this manual are followed by the rest of the crew members, therefore:
You cannot throw anything at all overboard; all waste materials must be placed in the rubbish

skips. Garbage as a result of day by day working life, such as paper, plastic bottle, plastic cups, bottle glass and cans must be disposed into appropriate garbage bins in use all over inside vessel quarters. Be with positive attitude in relation to cleanness in your living area.

- No oil or other hydrocarbons will be allowed to go in to the sea.
- Any oil spills or leaks must be reported to vessel's personnel immediately.
- Oil spill shall be cleaned up immediately, no hydrocarbons or flammable fluids will be used for cleaning, only approved solvent shall be used. Oil rags and other substances that present a fire hazard will be disposed to not violate any pollution regulations.

STOW IT - DON'T THROW IT

14.0 Deck Lights

The deck lights at night are dimmed while underway to provide better visibility for bridge. If deck lights are required to carry out work on deck, ask the bridge watch to turn them on. Likewise, as soon as the deck lights are no longer needed please let the bridge watch know so they can be turned -off.

15.0 Transportation

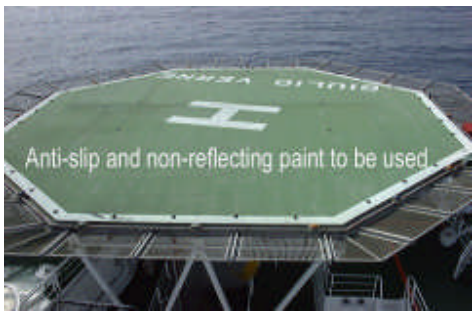
The transportation from and to the vessel can be divided into:

- **1) transfer from and to a boat**
- **2) transfer by helicopter.**

15.1 Rules for transfer by boat

- Be on time for scheduled boat departure and sufficiently early to receive any special directions, passport deck, etc. Obey instruction of skipper.
- Personnel should not stand beside the embarkation/disembarkation areas without transportation being immediate available.
- If Sea State is deteriorated, personnel transferring between boats and vessel must wear an appropriate life preserver.
- In rough sea conditions transfer from boat to vessel and vice-versa should is authorised from the ship's captain.

15.2 Rules for transfer by helicopter



- The ship's master has the general responsibility for the heli-deck and heli-deck operations.
- Be on time to board the helicopter as scheduled and sufficiently early for weighting if required and to receive special directions, passport checks, etc. Obey instructions of the pilot.
- Each passenger must furnish the pilot with a correct estimate of his own weight and the weight of his luggage and/or equipment to be transported.
- The helicopter pilot has the sole responsibility for deciding that the helicopter will not be overloaded.
- Exercise care in caring heavy and/or bulky materials around the helicopter.
- Some materials are not allowed in the helicopter, such as compressed gas bottle, chemicals,

flammable liquid, etc. No caps or hats of any type are permitted to wear. Rules are posted before embarking the helicopter.

- Do not approach the aircraft until you receive the signal from the pilot or ground crew. Always approach or leave the helicopter via the front or across, never under the tail boom or around the rear. In any case follow the walkway route.
- Inflate your life jacket only when instructed to do so by the aircrew or in an emergency.
- Smoking is absolutely prohibited in or around the aircraft, because of the probably of flammable vapour being present.
- In the event of an emergency landing remain in your seat with safety belt fastened tightly, if the passenger belt is unfastened, the motion of manoeuvring for landing may throw all passengers to one part of the cabin and cause the pilot to loose control.

The Helideck is mounted forward on top of the bridge and has been approved suitable for a helicopters having a maximum take-off weight equal to 5080 kg.

16.0 Safety Signs – International Colour Coding

Marine standard safety signs are in use throughout the vessel and are used to indicate hazards or control measures to be taken where the hazard cannot otherwise be removed. The following color-coding will therefore apply.

Stop danger (Red) - A regulatory sign prohibiting an action that may endanger life or cause injury.
Caution (Black/yellow) - Risk of danger. A sign that warns of hazards present in the environment and that particular care must be taken.
Protection (Blue) - A regulatory sign ordering the use of specified protective equipment.
Information (Green) - A sign showing a safe condition or location of escape routes and safety equipment.
Fire (Red) - A sign showing the location of fire fighting equipment and the storage of flammable substances.

Occasional signs
Illuminated signs and acoustic signals, hand signals and spoken signals may also be used for

temporary hazards or circumstances

17.0 Operational Safety

Deck machinery and deck systems are used to move equipment and, power or optical fiber cables, handling mooring lines and anchors, launch and recovery survey equipment and rubber boats, to support cable laying operations. The inherent hazards of working near tensioned cables, rotating machinery, and heavy moving weights are increased when these operations are conducted at sea. Individuals can be injured by cables or machinery, knocked overboard (possibly unconscious), or injured by flying debris if safety precautions are not followed.

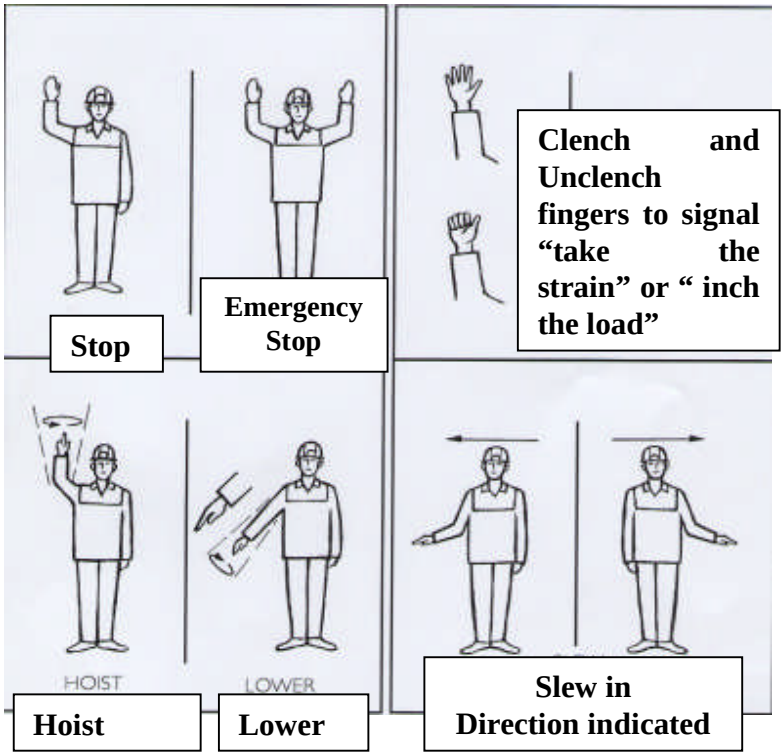
17.1 Lifting plant - safety measures

Extreme care must be exercised when working in the vicinity of a lifting plant to ensure that personnel are not knocked overboard when hoisting the gear outboard. Code of hand signal should be used. The person in charge of signaling should have no other duties which might interfere with the lifting operation. Both signaller and lifting plant operator must have unobstructed view of the path of travel of the load.

All load should be properly slung and properly attached to lifting gear.

Lifting operations should be stopped if wind and sea state conditions make it unsafe to continue them.

A load greater than the safe working load of the lifting gear should not be lifted



17.2 General Safety Precautions during cable loading/laying operations.

In addition to the safety considerations for each individual system, the following general safety precautions should be observed at all times while in the vicinity of operating deck machinery:

• Keep clear of cable laying rollers. Cable weight and machine operations may result in high tension which creates a potential personal hazard should the cable part.
• The abrupt movement of the cable in and out of roller-way can cause serious injury to unaware personnel.
Leather gloves should be worn when cable handling is necessary, except when it is moving along rollers. Gloves, if snagged, can drag the wearer into danger.
• Observe all posted safety precautions.
• Keep clear of loading/ laying lines, wires, and cables.
• Avoid getting hands, feet, or loose clothing caught in bights of line, wire, or cables, or in rotating

machinery such as linear cable laying apparatus.
• Keep noise to a minimum—confusion and misunderstanding between operators and workers can lead to serious injury and damage to equipment.
• Do not permit horseplay.

17.3 Safety working gears and procedures

The following is a list of basic requirements that should be followed at all times when working on deck:

1) Work Vests - work vests shall be worn by all personnel when handling equipment or working near machinery.
2) Helmets - Wearing of helmets on deck will be required if work conditions justify. The safety officer will inform personnel when they shall be worn.
3) Footwear – Safety shoes shall be worn by all personnel. Open toed shoes shall not be worn when working on deck. Personnel wearing open toes shoes shall remain in areas clear of hazards

Notify the Bridge Watch – Personnel should notify the bridge watch:

- a) Before deploying any piece of equipment over the side. Failure to do so could result in personnel injury, damage to the equipment or the vessel.
- b) Before going to work on the decks at night. Also, If sea conditions are unfavourable, the bridge watch may require that two people go together and work vests and lifejackets are worn.

Protection from falls and drowning - Before using cranes, pick up arms, or working aloft, outboard or below decks or any other area where there is a risk of falling more then two meters, the following safety regulations will be observed:

- Safety harness attached to a lifeline shall be worn and properly fastened.
- where work is being carried out over-side or in an exposed position where is reasonably foreseeable risk of falling or being washed overboard, appropriate lifejackets or buoyancy aid should be worn as well as safety harness attached to a lifeline.
- Were work is being carried out employing ship's rubber boats, appropriate lifejackets or buoyancy aid should be provided.
- When the vessel rubber boats are used in high latitude areas, with unfavourable sea state condition, at night, in low visibility condition or when is important to be seen, personnel should be also provided with thermal protective and high visibility clothing.
- Radio contact (walkie-talkie) between the rubber boats and the ship should be maintained at all times. The rubber boat should return without delay to the mother ship if the radio link becomes unstable or interrupted.

Please read conscientiously the section of this manual named "Cold Emergencies ".

Permit to work - The permit to work system consists of organised and pre-defined safety procedures. A permit to work does not in itself make the job safe, but contributes to measures for safe working. To ensure the safety of those engaged in specific operations, is necessary to identify

the hazard and then to ensure that they are eliminated or effectively controlled. Therefore before starting any job ask the Master or his safety delegates if the permit to work is necessary.

Remember: you can save a life, probably, your own

18.0 Knowledge – Awareness - Training

Whenever you embark on board you should familiarise yourself as quickly as possible with your surroundings. On each deck, your route of escape in the event of a fire or other emergency is clearly marked. You should become familiar with these routes. You should also familiarise yourself with the location of portable fire extinguishers and lifejackets.

18.1 Safety Awareness

Ships' crews, technicians and guests must be trained in both emergency procedures and in safe practices.
Knowledge of this manual is the bedrock for such training.
Immediately prior to or immediately after departure, technicians new crew members and guests, upon hearing the general alarm, gather at the muster point with their life jackets. At this time, you will receive a briefing for new people regarding shipboard safety.
The following are normally included in a briefing for new people regarding shipboard safety:

- **An explanation of the general alarm signals and where and how personnel should proceed to assigned stations.**
- **An explanation of station bill.**
- **How to don life jackets and survival suits (if available).**
- **What to do in case of man overboard, fire, and other emergencies.**
- **Requirements for helmets, shoes, harnesses, and safety lines.**
- **Discussion of other matters of general safety interest.**
- **Shipboard drills.**

Learning to move around your vessel will provide you many new challenges.
Corridors and passageways should be kept free. While entrance and exit passageways serve as travel routes from one end of the ship to another, they also serve as emergency exit routes. Never block entrance and exit passages with objects. When objects are stored in a passageway, they should not block or be on top of any emergency escape hatch.
Watertight doors normally remain closed, even during calm seas. Watertight doors that are required to be open are done so by latching them in an open position (even in calm seas, be very wary of watertight doors that "swing" with the ship). During heavy weather, dog all watertight doors. Dog the side opposite the hinge side first.
When climbing up or down vertical ladders, always face the ladder—do not attempt to go backwards. **Always hold on to the rail**.
Watertight doors are either dogged down or latched open—be very wary of watertight doors that "swing" with the ship. Remember to dog the side opposite the hinge first.

18.2 Emergency Muster Stations

You will be assigned to the muster point or lifeboat station in the event of an emergency. As soon as you embark, you should establish where your station is to be. Muster lists are to be found on each deck. If in doubt, consult the Master or Chief Officer.

18.3 Emergency Training

An emergency drill will normally be held as soon as the ship sails or within 24 hours, whichever is more practicable. Thereafter, drills will be held on recommended basis.
Attendance at these drills is **COMPULSORY**. Co-operation on this matter is a vital part of your own and of ship safety.
Emergency stations will be activated by 7 short blasts followed by 1 long blast on the siren followed by continuous ringing of the ship's fire or general alarm bells. On hearing this, you must proceed immediately with your lifejacket and helmet to the muster point which is located on the main deck area, here your name will be checked off. You must remain there until released by the ship's officers.
You will be requested from time to time to attend safety training sessions so that you become conversant with particular safety routines and handling of safety equipment.

19.0 EMERGENCYES

Introduction
The sea can be a fierce, unforgiving force of nature, capable of sending a ship to the bottom, and its crew "into the drink." With little o no training, the odds are heavily against your ability to survive. The only defence you have is the proper amount and type of lifesaving equipment, ready for immediate use. This equipment is **vital to survival**. Survival at sea depends on properly maintained lifesaving equipment combined with training in survival procedures and the proper use of the equipment.

Remember “Safety awareness"

20.0 SIGNALS

A vessel's Station Bill assigns each person aboard various duties associated with emergencies. It also assigns individuals to muster stations and survival craft. On many cable ships, the Station Bill is specifically for vessel crew members, while a subset of the Station Bill as well as emergency procedure information is posted on the back of cabins doors.

20.1 Fire Stations or Fire Drills (explosion)

The fire alarm signal is two long blasts and a continuous blast of the whistle for a period of not less than 10 seconds, supplemented by the continuous ringing of the general alarm bells for not less than 10 seconds.

20.2 Boat Stations or Boat Drills

The signal for boat stations or drill is a succession of more than seven short blasts followed by one long blast of the whistle supplemented by a comparable signal on the general alarm bells
Signals

20.3 Man Overboard

One long Blast, hail the bridge and pass the words 'MAN OVERBOARD' plus 'TO PORT' or 'TO STARBOARD' as is applicable. Throw life ring towards person in the water.

20.4 Abandon ship

Master orders by ship's laudspeakers and prolonged sound signals with all available devices until abandon ship is completed

21.0 PRIMARY LIFESAVING EQUIPMENT

Primary Lifesaving Equipment means "a lifeboat or an acceptable substitute." The acceptable substitutes include inflatable life rafts, rescue boats, and, under certain conditions, buoyant apparatus and life floats. However the vessel is equipped, these lifesaving appliances are the first line of defense
Lifeboats. This vessel carries sufficient numbers of lifeboats or life rafts to accommodate 100% of the persons on board. The lifeboats 50 men, (four in totals) are totally enclosed and mechanically propelled .Boat drills are conducted monthly.

Rescue Boat. The rescue boat provides a rapid means of rescuing the victim. It is also ideal for marshalling all the ship's inflatable life rafts or buoyant apparatus in the event the ship has sunk and motor lifeboats are not available. The designated Rescue Boat for this vessel is the Lifeboat N 2, which is supplementary equipped for this special duty.

Inflatable Life Rafts. They are mounted as far outboard as possible, free of overhead obstructions, and high enough to be protected from heavy seas. A hydrostatic release and *weak link* are provided on each container to allow for automatic deployment and inflation of the raft should the vessel sink before the rafts can be deployed. Rafts may be removed from cradles and moved to opposite sides and launched by hand if necessary. Instruction cards for the proper stowage and launching of inflatable life rafts are posted in various locations throughout the ship.

22.0 SECONDARY LIFESAVING EQUIPMENT

While primary lifesaving equipment is provided for the entire crew and is designed for extended survival, Secondary Lifesaving Equipment is provided for individual survival in distress situations. These items will allow a person to remain afloat until rescued.
Lifejackets . All vessels are required to carry Adult type Lifejacket for every person on board

(some children's lifejackets are also available). A lifejacket is designed to turn a person face up in the water. Additional lifejackets are accessible to the engine room, bridge, and boat decks in sufficient numbers to accommodate all persons normally on watch or working in these areas.
Lifejackets are distributed throughout the crew's and technician's cabins, providing one lifejacket per bunk, and stowed so that they are readily accessible.
All lifejackets are provided with a light, whistle, and retroreflective tape.

Ring Lifebuoys. Ring Lifebuoys are the first means of rescue for the person who falls overboard. Lightweight and round, the ring buoy is easy to toss to the victim and will keep him or her afloat until help can arrive.
Immersion (Exposure) Suits. For every person on board. Prolonged exposure to the elements of the sea, especially in cold waters, presents many challenges to an individual's survival, not the least of which is hypothermia—the rapid and continued loss of body heat. Immersion Suits are designed to provide full-body thermal protection similar to a diver's wet suit, as well as built-in flotation, alternatively Thermal Protective Aids (TPA) may be used, bearing in mind that TPA does not provide any floatation because made of thin waterproof low thermal conductivity materials.

23.0 GENERAL LIFESAVING EQUIPMENT AND INFORMATION

Not all casualties at sea result in "taking to lifeboats." Distress situations are more often limited to vessel breakdowns, personnel evacuations, or other instances which require that the vessel be located and assisted by a search and rescue resource. To facilitate the rescue efforts, research vessels carry various devices for location and signalling.

Distress Signals

When a mariner sees a flare displayed in the night sky or unusual smoke rising from the horizon, the first thought is that of a vessel in distress. Not only do these displays indicate a distress, but they mark the location of the vessel. For this reason, *distress signals* are a necessary part of a ship's lifesaving equipment. All vessels carry a regulatory set of distress Signals. Cable vessels also carry additional visual signals, such as searchlights, international code flags, and signalling lights.

Line -Throwing Appliance.

In situations where a line must be passed over some distance, the *line-throwing appliance* may save considerable time and effort while providing a greater margin of safety than the conventional heaving line. A line-throwing appliance may be considered when attempting to pass a line to a person overboard. In such cases, only the lightweight, plastic-tipped form of projectile should be employed.

23.1 GMDSS - Survival Craft Radio Equipment

So, you have abandoned your sinking GMDSS vessel, you find yourself in a lifeboat or life-raft. What now?
Well, the introduction of modern technology, including satellite and digital selective calling techniques will enable your distress alert to be transmitted and received automatically over along range with significantly higher reliability.
The GMDSS (Global Maritime Distress and Safety System) systems are designed to alert rescuers to your plight and guide them to your location. The basic concept is that search and rescue authorities as well as shipping in the immediate vicinity of the ship in distress, will be rapidly alerted to distress incident co-ordinating the SAR (Search and Rescue) operations with minimum delay.
The system is also used to broadcast automated digital processed distress alerts sent over via VHF, MF and HF terrestrial (ie: non-satellite) marine radio systems (DSC).
Marine safety information, meteorological forecast and other urgent information's are also transmitted.

23.1 GMDSS - Survival Craft Radio Equipment Cont.

EPIRB. The EPIRB is a battery-operated, self-activating emergency transmitter. The unit is stowed in a rack, inverted, with the power switch in automatic.
EPIRB stands for Emergency Position Indicating Radio Beacon. An EPIRB is meant to help rescuers locate you in an emergency situation.
The EPIRB, when activated, transmits a distress call which is picked up or relayed by satellites and transmitted via land earth stations to rescue services.
The radios start transmitting. 24,000 or so miles up in space, to a GOES weather satellite in a geosynchronous orbit. Satellites calculate and store the EPIRB's position estimation and transmit that information when they pass over a land earth station. This gives the 406-MHz-EPIRB a global coverage.
The onboard 406 MHz EPIRB is programmed with the vessel's name, MMSI (maritime Mobile Service Identity Code), etc.

Search and Rescue (Radar) Transponders (SARTs)

SART is a self contained, portable and buoyant Radar Transponder (receiver and transmitter).SARTs operate in the 9 GHz marine radar band, and when interrogated by a searching ship's radar, respond with a signal which is displayed as a series of dots on a radar screen. Although SARTs are primarily designed to be used in lifeboats or liferafts, they can be deployed on board a ship, or even in the water.
When activated, a SART responds to a searching radar interrogation by generating a swept frequency signal which is displayed on a radar screen as a line of 12 dots extending outward from the SARTs position along its line of bearing. The spacing between each dot is 0.6 nautical miles. As the searching vessel approaches the SART, the radar display will change to

wide arcs. These may eventually change to complete circles as the SART becomes continually triggered by the searching ship's radar.

Portable VHF transceivers

These units are designed to allow communications between searching vessels and survivors in lifeboat or liferafts. They operate on the VHF marine band in voice mode. DSC capability is not fitted. They should operate on VHF channel 16 (the radiotelephone distress and calling channel) and one other channel

24.0 SURVIVAL PROCEDURES

Having to abandon ship is a traumatic experience—gone are the comforts and security of the vessel. Exposed to the elements, either in lifeboats or rafts, or immersed in the water with only a lifejacket, survival at sea in a distress situation depends on an individual's knowledge and training in survival procedures. This is NOT a hopeless situation. Modern technology now makes distress communications and location by rescue resources a *routine* operation.

The Station Bill is where preparations for distress situations begin. It is here that the crew is assigned various duties associated with emergencies (including what equipment to bring, such as an EPIRB) and individuals are assigned to muster stations and survival craft.

When the time arrives for the ultimate in survival procedure, having to Abandon Ship, conduct the evolution in a calm, orderly manner—without panic! With adequate preparations and training, there should be no difficulty in carrying out a safe evacuation.

Training

Being properly prepared is the best way to ensure survival at sea. Since it is somewhat impractical to actually sink a ship for practice, the alternative is *training*. Crew members, technicians and guests should be thoroughly trained in all aspects of survival techniques from the Station Bill to launching lifeboats. You should participate in the weekly emergency drills as if they were the real thing. Report to stations fully clothed, wear shoes, put on your lifejacket, and bring your immersion suit (if available). In an actual emergency, you may not have time to go back to your cabin.

When the command "Prepare to Abandon Ship" is passed, along with the appropriate emergency signal, the crew instantly begins a planned series of actions similar to the following scenario:

- Muster at your assigned station; provide all equipment to the scene as assigned on the Station Bill; come to your station fully clothed with your lifejacket on and carrying your immersion suit (if available).
- If there is sufficient time before the actual evolution begins, don your immersion suit first and keep your lifejacket handy.
- The suit provides flotation and protects you from the elements.
- Stand by calmly at your station and await further orders.

DO NOT LAUNCH any equipment until instructed to do so by the Master.

- When the Master orders "**Abandon Ship**," launch all survival craft. Enter boats and rafts using ladders rather than jumping over the side. Keep calm and organised.
- Once boarded, all rafts or boats are tethered and towed away from the ship by a motor lifeboat or the rescue boat. Keep all craft together in the vicinity of the ship's last position.
- While waiting for rescue units to arrive, maintain a continuous visual and radio communication

watch. Your lifeboat or life raft is well-stocked with equipment and provisions to sustain life comfortably. Use the supplies in the survival craft with care—they may have to last a while. Just sit back, relax, and await rescue.

25.0 FIRE PREVENTION AND CONTROL

Introduction

Fire prevention should be part of everyday shipboard routine. Because accidents do happen, the ability to control and extinguish a fire quickly is essential to the safety of the vessel and everyone aboard. Persons aboard a cable ship are particularly at risk because their vessel often operates independently in remote areas and is at sea for long, extended periods. Should a fire occur, they must be self-sufficient, since the nearest assistance from shore or another vessel may well be hundreds of miles and several days away.

FIRE PREVENTION AND CONTROL Cont.

Prevention

There are some basic principles of ship design that can reduce the risk of fire. To prevent fire from spreading, vessels are divided into zones that usually coincide with subdivision watertight bulkheads. Main vertical zone boundaries consist of insulated steel bulkheads designed to contain fire, smoke, and heat within limits. Spaces in which fire is most likely to occur, such as, galleys, and machinery spaces, are required to be separated by similar boundaries. Many materials used in the construction of a ship are non combustible. **This vessel has permanently installed fire detection systems that sound an alarm in a normally manned space such as the bridge**. These devices are similar to smoke alarms found in modern homes. Doors are fitted on all spaces, and ventilation systems are segregated by fire zones to assist in containing any fire. Spaces having greatest fire risk have a fixed extinguishing system. Ships are designed so that two firehoses will reach any part of the vessel. Two means of escape are provided from every space that is normally occupied. If one access is blocked by fire, another is always available.

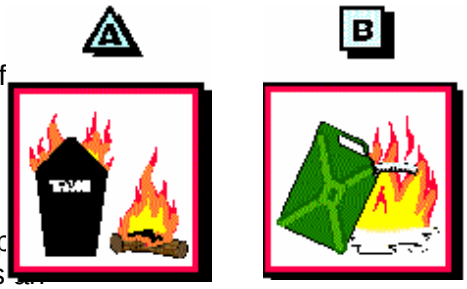
Smoking can be particularly hazardous aboard ship. An improperly disposed cigarette or cigar butt can ignite other materials. Smoking is prohibited in certain areas and under certain conditions, such as while in your bunk, while the ship is re-fuelling, or while in ship spaces such as paint lockers, battery rooms. Cigarette butts must be disposed of safely—preferably by drowning in water, or snubbing out in ashtrays or other proper containers.

Many fires have been started by bunk lights. Light bulbs generate a great deal of heat and under certain conditions can cause surrounding materials to catch fire. Fires have been started from bedding placed over the top of bunk lights.

25.1 Classification of fires

Fires are classified by the International regulations.

Fire classification is used to select the proper type of f extinguisher. There are four basic fire classifications, lettered A, B, C, and D.



Class A fires

Are those fueled by combustible solids such as wood, pap clothing, bedding, and some plastics; any material which leaves ash. These fires can be extinguished by the use of water.

***Class B* fires**
Involve flammable or combustible liquids, flammable gases, greases, and similar products. These fires can best be extinguished by smothering agents, such as foam, CO2, and dry chemicals. Water spray can also be used.

Class C fires
Are those fuelled by energised electrical equipment, conductors, or appliances. To protect personnel from shock, non-conducting extinguishing agents, such as CO2, Halon, or dry chemical must be used. Secure electrical power to the circuit causing the problem.

Class D fires
Involve combustible metals, e.g., sodium, potassium, magnesium, titanium, and aluminium. These fires are extinguished through the use of a heat-absorbing extinguishing agent, such as certain dry powders (different from dry chemicals), that do not react with the burning metals.

25.2 Fire fighting Equipment

Portable extinguishers are used for a fast attack that will knock down flames. They can be carried to the fire. However, since they are small, continuous application can be sustained for only a minute or less. Portable extinguishers are classed with one or more letters and with a numeral. The letters correspond to the class/classes of fire on which the extinguisher is effective. A Class A extinguisher should be used on a wood or bedding fire, while a Class C extinguisher should be used on an electrical fire. A Class AB extinguisher should be used on fires involving common combustibles, such as wood, and also on fuel oil, or both.

Safety Rules for Portable Extinguishers
Knowing the classifications of fire and what type of extinguisher to use on each type of fire is not enough information to fight a fire effectively. You should know where extinguishers are, how to activate them, where to aim the agent, how much to use, how and when to notify others.
If you discover a fire, call out the discovery, sound the fire alarm, and call for help. Close door to isolate the fire if it can be done quickly and safely.

- Never pass a fire to get to an extinguisher. A dead-end passageway can trap you.
- If you must enter a room or compartment, don't let the fire get between you and the door.
- If you enter a room or compartment and your attack with a portable extinguisher fails, get out immediately. Close the door to confine the fire and wait for the help you called. Your knowledge will help them.

25.3 Fire extinguishers

Water Extinguishers.
Water extinguishers use water or a water solution as the extinguishing agent. In general, water extinguishers have application for only Class A fires, except for the foam-type extinguishers which may be used on Class and and B fires. These extinguishers hold 21/2 gallons of liquid and discharge their contents in less than a minute. The stored-pressure extinguisher is activated by first pulling the ring pin. The hose is then directed with one hand while the discharge lever is squeezed

with the other hand. The stream is aimed at the base of the fire and moved back and forth for complete coverage. Short bursts can be used to conserve water.

Carbon Dioxide Extinguishers.

Portable carbon dioxide extinguishers are used primarily for Class B and C fires, with the most common sizes having 5 to 20 pounds of CO2. These extinguishers have a range of about 3 to 8 feet and will discharge their contents in 30 seconds or less. A CO2 extinguisher is activated by removing the locking pin and squeezing two handles together while holding the hose handle (not the horn) in the other hand. For combating a Class B fire, the horn should be aimed at the base of the fire nearest the operator and then "swept" slowly back and forth across the fire. To combat a Class C fire, the electrical equipment should be de-energised and the horn discharge aimed at the base of the fire. It is important that the hose handle be held and not the horn so that ice or frost that forms on the horn cannot become a current path to the operator if the horn should come in contact with live electrical parts.

Fire extinguishers Cont.

Dry Chemical Extinguishers.

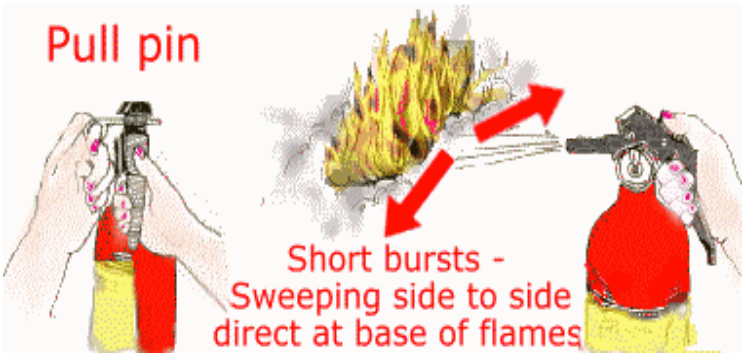
Dry chemical portable extinguishers, available in several different sizes, use any one of five different dry chemical agents as an extinguishing medium. These extinguishers have at least a BC rating, while some have an ABC rating. The cartridge-operated extinguisher uses a small cartridge filled with inert gas mounted on the side of the cylinder to propel the extinguishing agent. The extinguisher is activated by removing the ring pin, and depressing the puncturing pin. These actions release the propellant gas which forces the extinguishing agent up to the nozzle. The discharge should be directed at the seat of the fire, starting at the near edge. The stream should be moved from side to side with rapid motions, to sweep the fire off the fuel. The initial discharge should not be directed onto the burning material at close range (3 to 8 feet), as the stream of extinguishing agent may scatter the fire or spray burning liquid about.

Semiportable Fire Extinguishers.

A semiportable fire extinguisher (or extinguishing system) is one from which a hose can be run out to the fire. The two types of semiportable systems are: CO2 hose-reel and dry chemical hose systems. These systems have greater capacity and have slightly more range (nozzle to fire distance) than hand-portable extinguishers. As the name implies, they are only semiportable and fires may be fought only within the range allowed by the discharge hose. They cannot be carried about the ship like hand-portable extinguishers.

Fixed Fire Extinguishing Systems.

Fixed fire extinguishing systems are usually built into the ship at the time of its construction. These systems are carefully designed: they consider the fire risks aboard the vessel, must meet exacting regulatory standards, and are available for use in an emergency. If a large fire develops, such as one in a machinery space, these systems may be the best means to extinguish it. On this vessel the



fixed fire extinguishing system is carbon dioxide based.

PULL
SQUEEZE
SWEEP

PULL
Pull the pin, pressing a puncture lever, or other motion.
AIM low.....pointing the extinguisher nozzle (or its horn or hose) at the base of the fire.
SQUEEZE
Squeeze the handle.....This releases the extinguishing agent.
SWEEP
Sweep from side to side.....at the base of the fire until it appears to be out. Watch the fire area. If fire breaks out again, repeat use of the extinguisher.
Most portable extinguishers work according to these directions, but some do not. Read and follow the directions on your extinguisher—on each one if you have more than one make or model.
Protect yourself at all times! Stay low. Avoid breathing the heated smoke and fumes or the extinguishing agent.
If the fire starts to spread or threatens your escape route, get out immediately.

25.4 Combating fires

When a fire is noticed, the first thing to do is sound an alarm. The bridge must be notified of the location, and if known, the type of fire. This is important no matter how small the fire. It can be done by internal phone, intercom, sound-powered phone, going to or sending someone else to the bridge, or by yelling.
Don't be a hero and try to fight a fire without sounding an alarm first. A fire can quickly get out of control and you could be trapped or overcome.
If the fire is small, the previous information is designed to help you choose the right extinguisher and put it out. If the fire is larger or gets out of control, then the training, co-ordination, efficient use of manpower, and a more thorough assessment of the situation that comes with the crew's damage control team will be necessary.
If your first indication of a possible fire is the sight or smell of smoke coming from a closed compartment, you must be careful before opening that space. Feel the door or hatch for heat (cautiously, with the back of your hand). If it is hot or warm, do not open it. Notify the bridge or firefighting party immediately.

26.0 STABILITY AND WATERTIGHT INTEGRITY

Stability
Stability of a ship depends on the hull form chosen by the designer and how the weights, such as fuel, stores, provisions, cable laying equipment, etc., are distributed about the ship. Vessel operators have little control over the vessel's form. They do, however, have great control over how much weight is taken aboard, how and where that weight is stowed, and the consequent effects on vessel stability.
Everyone must keep watertight fittings closed at all times. Report any damaged or inoperative fittings to the Master.
Water on deck increases the probability of downloading through any opening. Freeing ports are fitted in bulwarks to allow water from boarding seas to drain overboard quickly. Ensure that freeing ports are unobstructed. Do not block freeing ports!
The act of lifting or hanging any weight from the vessel's crane, etc., raises the vessel's centre of gravity. As soon as the weight is lifted clear of the deck, the downward force of the weight acts at a

point at the top of the weight handling equipment. If a crane is hoisting a weight over the side, the centre of gravity is also shifted off centre, introducing a list. When planning heavy lifts, consult with the Master to ensure that effects of the ship's stability from such operations are within acceptable limits.

Watertight integrity

A ship's form and subdivision are calculated to provide adequate stability and resistance to damage at her design draft. These design features are defeated if the subdivision bulkheads are not watertight. The original watertight integrity of a vessel is determined by its design and the quality of its construction. The proper maintenance of that integrity is a vital part of any ship's preparations to resist damage. Each undamaged tank or compartment aboard ship must be kept watertight if flooding is to be controlled and not become progressive after damage.
Know the importance of watertight fittings; endeavour to keep them closed when not in use. Report inoperative, damaged, or leaking fittings to the Master.

27.0 FIRST AID

General

The Giulio Verne does not carry a medical doctor, but several officers have had basic first aid instruction, and some have had advanced training. The ship maintains a medical locker for prescription drugs under the control of the Captain. In addition, first aid boxes are located in the galley, main engine room, and the bridge. While in port, good medical facilities are usually available, in foreign areas medical services range from excellent to mediocre, depending on the location. Such foreign assistance can be arranged as required by our port agents. If a member of the crew or technician has a known medical problem that might require special precautions, treatments, etc., the Captain should be informed in advance.
The maritime emergency Health Services of Rome (CIRM) can be readily contacted via the inmarsat or mobile phone system through which diagnosis and advice can be obtained from doctors at any time. CIRM has been proved to be an exceptional and reliable service for the seafarers.

CIRM TEL. 00 39 06 54223045. Email: telesoccorso@cirm.it

In case of medical emergency or accident at sea, the Captain has final responsibility and authority for courses of action such as treatment, evacuation, termination of the voyage etc.
Proper administration of first aid can mean the difference between life and death, short-long-term recovery, and permanent or temporary disability. First aid is an interim step until professional medical treatment can be sought. There are two steps that should occur as quickly as possible in a medical emergency: first, ensuring the victim's immediate survival, secondly, summoning assistance. Before going to sea, all personnel should have a basic knowledge of the more serious medical emergencies that can develop and the first steps in treatment. .
When approaching an accident victim, survey the area before entering. There may still be danger (i.e., live electrical lines, rotating machinery, hazardous materials, lack of oxygen, etc.)

27.1 Legal and Ethical Considerations

- **Duty to act**

No one is required to render first aid under normal circumstances. Even a physician could ignore a stranger suffering a heart attack if he chose to do so.
Exceptions include situations where a person's employment designates the rendering of first aid as a part of described job duties.
While in most cases there is no legal responsibility to provide first aid care to another person, there

is a very clear responsibility to continue care once you start. You cannot start first aid and then stop unless the victim no longer needs your attention, other first aiders take over the responsibility from you or you are physically unable to continue care.

- **Need for consent**

In every instance where first aid is to be provided, the victim's consent is required. It should be obtained from every conscious, mentally-competent adult. The consent may be either oral or written.
Permission to render first aid to an unconscious victim is implied and a first aider should not hesitate to treat an unconscious victim.

IT IS IMPORTANT TO REMEMBER THAT A VICTIM HAS THE RIGHT TO REFUSE FIRST AID CARE AND IN THESE INSTANCES YOU MUST RESPECT THE VICTIM'S DECISION. YOU CANNOT FORCE CARE ON A PERSON WHO DOES NOT WANT IT REGARDLESS OF THEIR CONDITION!

27.2 Medical Treatment

There is a hospital with dispensary and an officer trained in first aid techniques. In the event of injury, no matter how small, it should be reported immediately. For injury or illness requiring special treatment, radio advice and diagnosis can be sought until shore treatment is arranged. Any individual arriving onboard with prescribed drugs must inform the Master as to his requirements so that the appropriate precautions can be taken in the event of an accident.

27.3 Cardiac - Pulmonary - Resuscitation (C P R) IMPORTANT

THIS MANUAL IDENTIFIES LIFE THREATENING CONDITIONS REQUIRING RESCUE BREATHING OR CPR, THESE SKILLS REQUIRE INTENSIVE TRAINING AND KNOWLEDGE

CPR
In EVERY emergency situation, there is a logical order to be followed. First, it is important to carefully assess the scene of an emergency BEFORE any further steps are taken. The purpose of this assessment is to assure it is safe to provide first aid care. For example, an unconscious victim might be lying on a live power line. If a rescuer were to touch the victim before the power could be shut off, the rescuer would become a victim as well! Always be sure it is safe before you attempt to help a victim! Once you determine it is safe for you to help a victim, you should immediately determine if the victim has any life threatening conditions.
Begin by checking to see if the victim is responsive. Kneel and ask, “ARE YOU OK?" If there is no response, you must immediately summon assistance!
If you are not alone on the scene, summon someone to your side to provide assistance.
If the victim is on his stomach, first place the victim's arm closest to you above his head. Then turn him over by placing one hand on the victim's hip and the other hand at the victim's shoulder. Turn the body in a smooth, even straight line so as to not cause further injury in the event of existing spinal cord injury.
With the victim now on his back, **OPEN THE VICTIM'S AIRWAY** by placing the heel of your hand on the victim's forehead and the tips of your fingers under the bony part of the jaw.
Push down on the forehead while lifting up the chin until the jaw is pointing straight up. Now place your ear over the victim's mouth and **LOOK, LISTEN & FEEL** for breathing for 3 to 5 seconds. **LOOK** at the chest to see if it is rising, **LISTEN** for sounds of breathing and **FEEL** for air coming from the victim.

IF THE VICTIM IS NOT BREATHING, RESCUE BREATHING IS REQUIRED IMMEDIATELY!

Rescue breathing will provide vital oxygen to a victim who cannot breathe on their own. After giving victim two breaths, the pulse is checked at the Carotid Artery to ascertain if the victim has a heartbeat. This artery is located on the side of the neck and is found by first positioning the fingers on the victim's Adam's apple, then sliding the fingers down into the soft groove on the side of the neck. The pulse is checked for 5 to 10 seconds.

If the victim has a heartbeat, but is not breathing, RESCUE BREATHING is required. If the victim is NOT breathing AND does NOT have a HEARTBEAT, CPR is required without delay!

These initial steps of checking the AIRWAY, BREATHING and CIRCULATION (pulse), together with a check for major BLEEDING, constitute THE PRIMARY SURVEY, which looks for life-threatening conditions!
In every instance where first aid is to be provided, it is important to always ask a conscious victim for permission to help them. If a victim is unconscious, it is presumed they have provided consent for you to assist them.

27.4 Bleeding

Major bleeding may be a life-threatening condition requiring immediate attention. Bleeding may be external or internal. Bleeding may be from an ARTERY, a major blood vessel which carries oxygen-rich blood from the heart throughout the body. It may be from a VEIN, which carries blood back to the heart to be oxygenated or bleeding may be from a CAPILLARY, the smallest of our body's blood vessels.
ARTERIAL bleeding is characterised by spurts with each beat of the heart, is bright red in colour (although blood darkens when it meets the air) and is usually severe and hard to control. ARTERIAL bleeding requires immediate attention!
VENUS bleeding is characterised by a steady flow and the blood is dark, almost maroon in shade. Venus bleeding is easier to control than arterial bleeding.
CAPILLARY bleeding is usually slow, oozing in nature and this type of bleeding usually has a higher risk of infection than other types of bleeding.

FIRST AID FOR BLEEDING IS INTENDED TO:

- STOP THE BLEEDING
- PREVENT INFECTION
- PREVENT SHOCK

How to control bleeding

- Apply DIRECT PRESSURE on the wound. Use a dressing, if available. if a dressing is not available, use a rag, towel, and piece of clothing or your hand alone.

IMPORTANT:
ONCE PRESSURE IS APPLIED, KEEP IT IN PLACE. IF DRESSINGS BECOME SOAKED WITH BLOOD, APPLY NEW DRESSINGS OVER THE OLD DRESSINGS. THE LESS A BLEEDING WOUND IS DISTURBED; THE EASIER IT WILL BE TO STOP THE BLEEDING!

- If bleeding continues, and you do not suspect a fracture, ELEVATE the wound above the level of the heart and continue to apply direct

pressure.

- If the bleeding still cannot be controlled, the next step is to apply PRESSURE AT A PRESSURE POINT. For wounds of the arms or hands, pressure points are located on the inside of the wrist (radial artery-where a pulse is checked) or on the inside of the upper arm (brachial artery). For wounds of the legs, the pressure point is at the crease in the groin (femoral artery). Steps 1 and 2 should be continued with use of the pressure points.
- The final step to control bleeding is to apply a PRESSURE BANDAGE over the wound. Note the distinction between a dressing and a bandage. A dressing may be gauze square applied directly to a wound, while a bandage, such as roll gauze, is used to hold a dressing in place. Pressure should be used in applying the bandage. After the bandage is in place, it is important to check the pulse to make sure circulation is not interrupted. When faced with the need to control major bleeding, it is not important that the dressings you will use are sterile! Use whatever you have at hand and work fast!

A SLOW PULSE RATE, OR BLUISH FINGERTIPS OR TOES, SIGNAL A BANDAGE MAY BE IMPEDING CIRCULATION.

27.5 Internal bleeding

Signs and symptoms of INTERNAL BLEEDING are:

- bruised, swollen, tender or rigid abdomen
- bruises on chest or signs of fractured ribs
- blood in vomit
- wounds that have penetrated the chest or abdomen
- bleeding from the rectum or vagina
- abnormal pulse and difficulty breathing
- cool, moist skin

First aid in the field for internal bleeding is limited. If the injury appears to be a simple bruise, apply cold packs to slow bleeding, relieve pain and reduce swelling. If you suspect more severe internal bleeding, carefully monitor the patient and be prepared to administer CPR if required (and you are trained to do so). You should also reassure the victim, control external bleeding, care for shock (covered in next section), loosen tight-fitting clothing and place victim on side so fluids can drain from the mouth.

27.6 Shock

SHOCK is common with many injuries, regardless of their severity. The first hour after an injury is most important because it is during this period that symptoms of shock appear.

IF SHOCK IS NOT TREATED, IT CAN PROGRESS TO CAUSE DEATH! ANY TYPE OF INJURY CAN CAUSE SHOCK.

Shock is failure of the cardiovascular system to keep adequate blood circulating to the vital organs of the body, namely the heart, lungs and brain.

- SIGNS AND SYMPTOMS OF SHOCK INCLUDE: confused behaviour, very fast or very slow pulse rate, very fast or very slow breathing, trembling and weakness in the arms or legs, cool and moist skin, pale or bluish skin, lips and fingernails and enlarged pupils.

Treatment for Shock
A good rule to follow is to anticipate that shock will follow an injury and to take measures to prevent it before it happens.

- Putting a victim in a lying-down position improves circulation.
- If the victim is not suspected of having head or neck injuries, or leg fractures, elevate the legs.
- If you suspect head or neck injuries, keeps the victim lying flat. If the victim vomits, turn on their side.
- If victim is experiencing trouble breathing, place them in a semi-reclining position. Maintain the victim's body temperature, but do not overheat.

27.7 Burns

The severity of a burn depends upon its size, depth and location. Burns are most severe when located on the face, neck, hands, feet and genitals. Also, when they are spread over large parts of the body or when they are combined with other injuries.
Burns result in pain, infection and shock. They are most serious when the victims are very young or very old.

- **First Degree burns** are the least severe. They are characterised by redness or discoloration, mild swelling and pain. Overexposure to the sun is a common cause of first degree burns.
- **Second Degree burns** are more serious. They are deeper than first degree burns, look red or mottled and have blisters. They may also involve loss of fluids through the
- Damaged skin. Second degree burns are usually the most painful because nerve ending are usually intact, despite severe tissue damage.
- **Third Degree burns** are the deepest. They may look white or charred, extend through all skin layers. Victims of third degree burns may have severe pain -- or no pain at all -- if the nerve endings are destroyed.

ALL VICTIMS OF SERIOUS BURNS
SHOULD SEEK PROFESSIONAL HELP QUICKLY!

Burns may also be caused by CHEMICALS. In these cases, it is important to remove clothing on which chemicals have spilled and flush the affected area with copious amounts of water for 15 to 30 minutes.

27.8 Eye Injuries

Be extremely careful and gentle when treating eye injuries. Floating objects in the eye which can be visualised may be flushed from the eye with water. If the object cannot be removed in this manner, the victim should seek medical attention.

NEVER ATTEMPT TO REMOVE OBJECTS EMBEDDED IN THE EYE!

First Aid care for these injuries consists of bandaging BOTH eyes and seeking professional care promptly! An inverted paper cup covered with a bandage is appropriate for serious eye injuries while the victim is transported to the hospital.
For chemical burns of the eye, wash the eye with copious amounts of water for 15 to 30 minutes. Then wrap a bandage around both eyes and seek professional help.

Eyes are delicate and sight is precious! Prompt professional attention to eye injuries is required to preserve sight!

27.9 Nose Injuries

Severe nosebleed can be most frightening. It can also lead to shock if enough blood is lost! Many cases of nosebleed can be controlled simply by having the victim sit down, pinch the nostrils shut and lean forward (to prevent blood from running into the throat).
Once the bleeding has been stopped, talking, walking and blowing the nose may disturb blood clots and allow the bleeding to resume. The victim should rest quietly until it appears the bleeding remains stopped.
If it is suspected that the victim has suffered head, neck or back injuries DO NOT attempt to control the blood flow as they may cause increased pressure on injured tissue. All uncontrolled nosebleeds require prompt medical attention!

27.10 Animal Bites

**ANIMAL BITES CARRY A HIGH RISK OF INFECTION
AND REQUIRE PROFESSIONAL ATTENTION PROMPTLY! (CALL CIRM)**

Infection may develop hours, or days, after an animal bite. Signs and symptoms of infection are pain & tenderness at the wound site, redness, heat, swelling, pus at the wound site, red streaks in the skin around the wound and possible swollen glands closest to the wound.
First aid care for animal bites includes washing the wound well with soap and water, if there is no heavy bleeding. Then cover the wound and seek professional attention. A serious wound should be cleaned only by trained personnel.

Insect Bites

INSECT BITES AND STINGS CAN BE LIFE-THREATENING TO PEOPLE WITH SEVERE ALLERGY TO THE INSECT'S VENOM!

Signs and symptoms of allergic reaction include pain, swelling of the throat, redness or discoloration at the site of the bite, itching, hives, decreased consciousness and difficult or noisy breathing.
First aid calls for being alert for signs of allergic reaction or shock and seeking medical attention as quickly as possible for these victims!
If a stinger remains in the victim, you may try to remove it carefully with a tweezers or by scraping with the edge of a credit card. Be careful not to squeeze the stinger as this will inject more venom.
Once a stinger has been removed, the wound should be washed well with soap and water. Cold compresses will help relieve pain and swelling. The stung area should be kept lower than the heart to slow circulation of the venom.

REMEMBER, IN ALL CASES OF INSECT BITES, WATCH FOR SIGNS OF ALLERGIC REACTION AND IF THEY APPEAR, SEEK PROFESSIONAL MEDICAL ATTENTION WITHOUT DELAY! (CALL CIRM)

27.11 Fractures, Sprains, Strains & Dislocations

Fractures, sprains, strains and dislocations may be hard for the lay person to tell apart. For this reason, first aid treatment of any of these conditions is handled as though the injury was a fracture. Signs and symptoms of the above conditions may include a "grating" sensation of bones rubbing together, pain, tenderness, swelling, bruising and an inability to move the injured part.

First Aid for any of these conditions consists of:

- Control bleeding, if present.
- Care for shock.
- Splint affected area to prevent further movement, but do so only if possible without causing further pain to victim.
- Cold packs may help reduce pain and swelling.

Victims with traumatic injuries, such as those caused by falls, should not be moved except by trained rescue workers. Head, neck and back injuries are serious and require special care for movement and transport of victims with these conditions. In exceptional circumstances, such as when a victim is at risk of further injury unless moved, the victim's head and neck should be stabilised and the body moved with minimal flexing of the head, neck or spinal cord.

ALL VICTIMS WITH FRACTURES, DISLOCATIONS, SPRAINS AND STRAINS REQUIRE PROFESSIONAL MEDICAL ATTENTION (CALL CIRM).
DO NOT WAIT FOR SYMPTOMS TO OCCUR!

28.12 Poisoning

Be sure there is no further danger to you or the victim.

- Try to identify the poison containers to show the doctor, or read the information when you call the radio medical centre (CIRM ROME 0039 06 59 23 331/2).
- Be sure you do not become a victim. Move away from the source of poison fumes. Get to fresh air and move the victim to fresh air.

If the poison comes into contact with the skin or eyes:

- Flood the area with cold running water for 15 minutes. Be sure to flush the eyes gently.
- Remove any contaminated clothing
- DO NOT use any chemical antidotes.

For swallowed household chemical or poisons:

If the person is conscious, ask questions to find out what type of poison was swallowed.

- Give milk or water. For an adult, give one to two cups; for a child give one-half to one cup.
- Induce vomiting only when advised by the Poison Control centre or doctor. Follow instructions of the CIRM doctor.
- To avoid inhaling of vomit, place victim their side.
- If the poison is a hydrocarbon or corrosive, DO NOT induces vomiting by give milk or water.

If the person is UNCONSCIOUS:

- Place the person on side
- Watch and listen for breathing. Look for movement in the chest.
- DO NOT induce vomiting
- Shout at, tap and shake the victim.

All poisoning victims need to be monitored carefully for signs of shock or impaired consciousness. ACTIVATED CHARCOAL & SYRUP OF IPECAC should be kept on hand for possible use in poisoning emergencies; however they should not be administered unless instructed by the Poison

Control Centre through the CIRM.

IDENTIFY THE NATURE OF THE POISON AND RECEIVE SPECIFIC CARE INSTRUCTIONS FROM THE MEDICAL CENTRE CIRM

Diabetic Emergencies

Sugar is required in the body for nourishment. Insulin is a hormone that helps the body use the sugar. When the body does not produce enough Insulin, body cells do not get the needed nourishment and diabetes results.
People with this condition take Insulin to keep their diabetes under control.
Diabetics are subject to two very different types of emergencies:

Insulin Reaction (or Insulin Shock)

This condition occurs when there is TOO MUCH INSULIN in the body. This condition rapidly reduces the level of sugar in the blood and brain cells suffer.
Insulin reaction can be caused by taking too much medication, by failing to eat, by heavy exercise and by emotional factors.
SIGNS & SYMPTOMS: Fast breathing, fast pulse, dizziness, weakness, change in the level of consciousness, vision difficulties, sweating, headache, numb hands or feet, and hunger.

27.13 Diabetic Coma

This condition occurs when there is TOO MUCH SUGAR and too little INSULIN in the blood and body cells do not get enough nourishment.
Diabetic coma can be caused by eating too much sugar, by not taking prescribed medications, by stress and by infection.
SIGNS AND SYMPTOMS: Diabetic coma develops more slowly than Insulin shock, sometimes over a period of days. Signs and symptoms include drowsiness, confusion, deep and fast breathing, thirst, dehydration, fever, a change in the level of consciousness and a peculiar sweet or fruity-smelling breath.

OF THE TWO CONDITIONS, INSULIN SHOCK IS A TRUE EMERGENCY WHICH REQUIRES PROMPT ACTION!

A PERSON IN INSULIN SHOCK NEEDS SUGAR, QUICKLY! IF THE PERSON IS CONSCIOUS, GIVE SUGAR IN ANY FORM: CANDY, FRUIT JUICE OR A SOFT DRINK!
SUGAR GIVEN TO A PERSON IN INSULIN SHOCK CAN BE LIFE-SAVING! IF THE PERSON IS SUFFERING FROM DIABETIC COMA, THE SUGAR IS NOT REQUIRED BUT WILL NOT CAUSE THEM FURTHER HARM.

27.14 'Welders' flash

'Welder's Flash' is the result of staring or inadvertently looking at the intense light caused during metal welding, while not wearing the correct eye protection. Care must be taken to supervise children if welding is being conducted near them, and they should be removed from the location. The damage caused to the eye's cornea by exposure to this intense light can be painful and, in some cases, permanent

27.15 Stroke

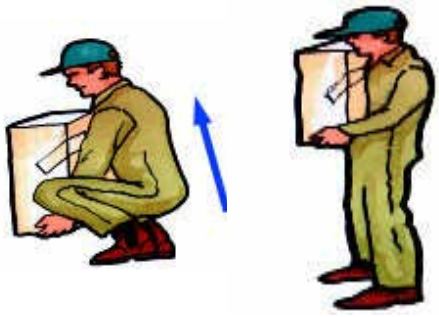
Stroke occurs when the blood flow to the brain is interrupted long enough to cause damage.
This may be caused by a clot formed in an artery in the brain or carried to the brain in the bloodstream, a ruptured artery in the brain or by compression of an artery in the brain, as found with brain tumors.
First aid consists primarily of recognising signs and symptoms and seeking professional attention.
Signs and symptoms of a stroke include:

- Weakness and numbness of the face, arm or leg, often on one side of the body only.
- Dizziness
- Confusion
- Headache
- Ringing in the ears
- A change of mood
- Difficulty speaking
- Unconsciousness
- Pupils of uneven size
- Difficulty in breathing and swallowing
- Loss of bowel and bladder control

PROMPTLY OBTAIN PROFESSIONAL HELP. Reassure the victim and keep them comfortable. Do not give anything by mouth. If the victim vomits, allow for fluids to drain from the mouth. Observe carefully while awaiting professional help and, if trained to do so, monitor the airway, breathing and circulation and **BE PREPARED TO ADMINISTER RESCUE BREATHING OR CPR, IF REQUIRED!**

27.15 Lifting or moving a load

Procedures



- consider the load; size, awkward shape, etc.
- consider need for mechanical or manual assistance
- position legs apart - one foot level with the load
- keep back straight, look up
- bend from the hips, avoid `twisting' the body • tighten the stomach muscles, but don't hold breath
- **BEND THE KNEES**
- lift with the legs, not the back
- keep the load close to the body
- keep carrying distance short
- avoid changing grip or `jerking' the load
- deposit the load by bending the knees and keeping the back straight (reverse order of lifting)

if pulling or pushing, let the legs do the work .

27.16 Choking

If a person is choking, the first question to as is "Can you speak?" If the victim can speak or cry out, the airway is probably open enough to force out the obstructing object.
If the victim can speak, or cough: reassure and encourage coughing. DO NOT hit on back.
If the victim cannot speak of cough, but is conscious:

- From behind wrap you arms around victim's waist.
- Make a fist with one had, grab with other hand. Place hands above navel to avoid lower tip of the breastbone.
- Give one quick inward and upward thrust.
- Repeat upward thrusts until airway is clear or victim becomes unconscious.

If the victim is unconscious, refer to the methods used for resuscitation.

27.17 Heat Emergencies

There are three types of heat emergencies you may be required to treat.
.
Heat Stroke
This is the most serious type of heat emergency. It is LIFE-THREATENING and requires IMMEDIATE and AGGRESSIVE treatment!
Heat stroke occurs when the body's heat regulating mechanism fails. The body temperature raises so high that brain damage --and death-- may result unless the body is cooled quickly.
SIGNS & SYMPTOMS:
The victim's skin is HOT, RED and usually DRY. Pupils are very small. The body temperature is VERY HIGH, sometimes as high as 105 degrees.
FIRST AID:
Remember, Heat Stroke is a life-threatening emergency and requires prompt action! Summon professional help. Get the victim into a cool place.

Heat Emergencies cont.

Place the victim into a bathtub of cool water, wrap in wet sheets, and place in an air conditioned room.
Do not give victim anything by mouth. Treat for shock.

Heat Exhaustion
Heat exhaustion is less dangerous than heat stroke. It is caused by fluid loss which in turn causes blood flow to decrease in vital organs, resulting in a form of shock.
SIGNS AND SYMPTOMS:

COOL, PALE AND MOIST skin, heavy sweating, dilated pupils (wide), headache, nausea, dizziness and vomiting. Body temperature will be near normal.
FIRST AID:
Get the victim out of the heat and into a cool place. Place in the shock position, lying on the back with feet raised. Remove or loosen clothing. Cool by fanning or applying cold packs or wet towels or sheets. If conscious, give water to drink every 15 minutes.
IMPORTANT: WHILE HEAT EXHAUSTION IS NOT A LIFE- THREATENING EMERGENCY LIKE HEAT STROKE, IT CAN PROGRESS TO HEAT STROKE IF LEFT UNTREATED!

Heat Cramps
Heat cramps are muscular pain and spasms due to heavy exertion. They usually involve the abdominal muscles or legs. It is generally thought this condition is caused by loss of water and salt through sweating.
FIRST AID:
Get victim to a cool place. If they can tolerate it, give one-half glass of water every 15 minutes.
Heat cramps can usually be avoided by increasing fluid intake when active in hot weather.

27.18 Cold Emergencies (Hypothermia)

What is Hypothermia?
Hypothermia is subnormal temperature within the central body. When a person is immersed in cold water, skin and nearby tissues cool very fast. However, it may take 10 to 15 minutes. Before the temperature of the heart and brain starts to drop. When the core temperature drops below 31° C serious complications begin to develop. Death may occur at about 26° C; however, a person may drown at a higher temperature due to loss of consciousness or inability to use the arms and legs.

How long can I Survive in Cold Water?
Survival in cold water depends on many factors. The temperature of the water is only one. Others include body size, fat, and activity in the water. Large people cool slower than small people. Fat people cool slower that thin people. Children cool faster than adults.
By swimming or treading water, a person will cool about 35 percent faster than if remaining still. Down-proofing - the technique of staying afloat, facedown, with lungs full of air, and raising the head every 10 to 15 seconds for a breath- conserves energy, but also results in rapid heat loss through the head and neck. This technique reduces survival time by nearly one-half in cold water.
An average person, wearing light clothing and a personal floatation device (PFD), may survive 2 1/2 to 3 hours in 10° C water by remaining still. This survival time can be increased considerably by getting as far out of the water as possible and covering the head. Getting into or onto anything that floats can save a life.

What do I do if an Accident Occurs?
If you fall into cold water, remember that water conducts heat many times faster that air. Some ships will float even when capsized, so get on the ship to get as far out of the water as possible. Wearing a PFD is a must. It will keep you afloat even if you are unconscious. Remaining still and, if possible, assuming the heat escape lessening posture (HELP) will

Cold Emergencies (Hypothermia) cont.

Increase your survival time. About 50 percent of the heat is lost from the head. It is therefore important to keep the head out of the water. Other areas of high heat loss are the neck, the sides, and the groin.
Note: It is impossible to assume the HELP position while wearing some PFDs. However, even a partial HELP position gives some protection to the high heat loss areas, thus increasing survival time.
If there are several people in the water, huddling close, side to side in a circle, also will help preserve body heat extending the survival time.

Should I Swim for Shore?
If you are lucky enough to be near the cost, unquestionably this is a most difficult decision. It depends on many things. Some good swimmers have been able to swim to .8 mile in 10° C water before being overcome by hypothermia.
Others have not been able to swim 50 meters. Furthermore, distances on the water are very

deceptive.

Staying with large floating debris, is usually the best thing to do. This will make it easier for rescuers to spot you. Even an empty oil drum is easier to see than a person in the water.

Do not swim unless there is absolutely no chance of rescue and you are absolutely certain you can make it.

First Aid for Hypothermia Victims

1. Make sure the victim has an open airway and is able to breathe. Then, check for respiration and pulse. Respiration may be slow and shallow and the pulse may be very weak. So check vital signs very carefully. If there is no pulse or respiration, CPR must be started immediately.
2. Prevent further heat loss:
   a) Gently move the victim to shelter and warmth as rapidly as possible.
   b) Gently remove all wet clothing; cut it away if necessary. The small amount of heat energy the victim has left must not be expended on warming and drying wet clothing.
   c) Wrap the victim in blankets or a sleeping bag. If available, place warm water bottles or other gentle sources of heat under the blanket on the victim's neck, groin, and on the sides of the chest.

3. Incorrect treatment of hypothermia victims may induce a condition known as After-Drop. After-Drop is a continued fall in the victim's core temperature even after he has been rescued. This is caused by improper re-warming, allowing cold, and stagnant blood from the extremities to return to the core of the body. When this cold blood returns to the core of the body it may drop the core temperature below a level that will sustain life. For the same reason, hypothermia victims must be handled gently and should not be allowed to walk. Do not:

   1. Place an unconscious victim in a bath tub.
   2. Give a victim anything to drink, including hot liquids and especially alcohol.
   3. Rub the victim's skin; especially do not rub it with snow.

How Can I Avoid Hypothermia?

- Because most boaters who die in water-related accidents had no intention of going into the water, the obvious answer is to avoid those behaviors that cause accidental immersions.

28.0 CABLE LAYING - DP OPERATIONS EMERGENCY RESPONSE PLAN

(Part of the vessel Safety and emergency contingency plan)

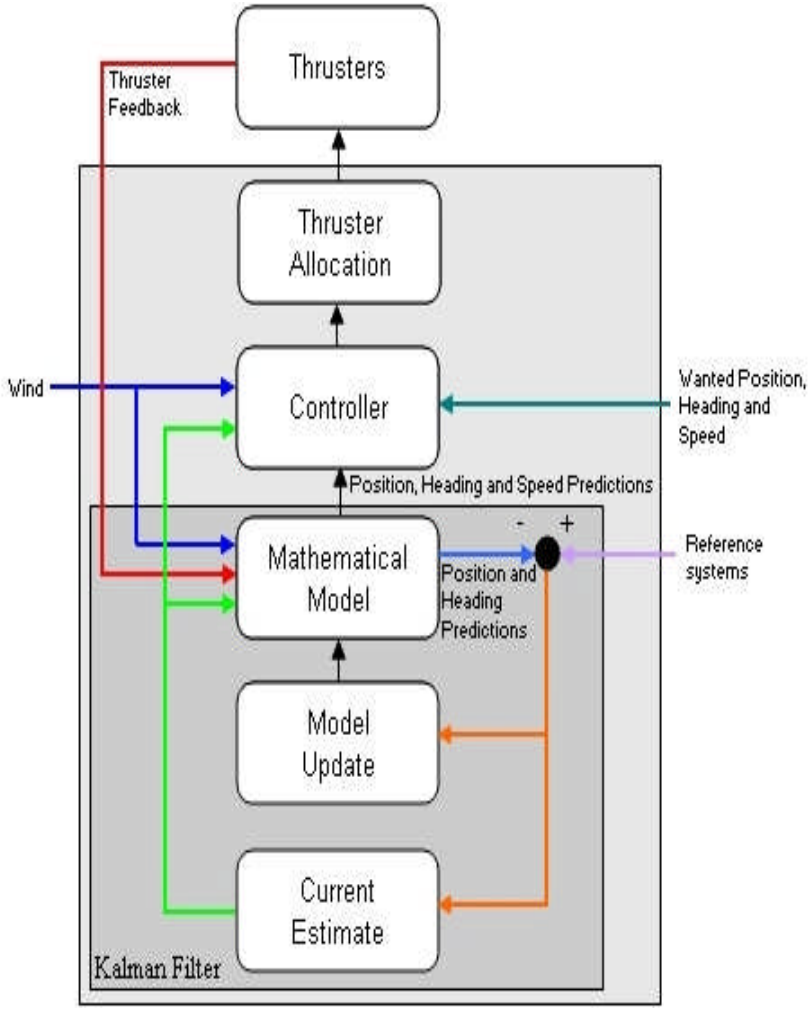
28.1 Introduction - Dynamic Positioning System In a Nutshell

Dynamic Positioning (DP). Is a system to automatically maintain a ship's position and heading by using her own propellers and thrusters. This allows operations at sea where mooring or anchoring is not feasible due to deep water, obstruction on the sea bottom or other problems.
A ship that is to be used for DP requires:

- A control computer to calculate the required control actions to maintain position and correct for position errors.
- Thrust elements to apply forces to the ship as demanded by the control system.

Power and propulsion systems.
To maintain position the Giulio Verne make use of 4 azimuth thrusters and one bow tunnel thruster, all controlled by the DP system . The vessel is fully diesel-electric, as this allows a more flexible set-up and is better able to handle the large changes in power demand, typical for DP operations. The power plant consists of 5 main power generators.

Control System. Modern controllers use a mathematical model of the ship that is based on a hydrodynamic and aerodynamic description concerning some of the ship's characteristics such as mass and drag . Of course, this model is not entirely correct. The ship's position and heading are fed into the system and compared with the prediction made by the model. This difference is used to update the model by using Kalman filtering technique. For this reason, the model also has input from the wind sensors and feedback from the thrusters. This method even allows not having input from any PRS for some time, depending on the quality of the model and the weather.



Reference systems. There are several means to determine a ship's position at sea. Most traditional methods used for ships navigation are not accurate enough. For that reason, several systems have been developed during the past decades. The availability depends on the type of work and water depth. The Position reference systems (PRS) used onboard the Giulio Verne is:

- **Differential GPS**. The position obtained by GPS is not accurate enough for use by DP. The position is

improved by use of a fixed ground based reference station (differential station) that compares the GPS position to the known position of the station.

- **Hydro acoustic Position Reference, HPR**. This system consists of one or more transponders placed on the seabed and a transducer placed in the ship's hull. The transducer sends an acoustic signal to the transponder, which is triggered to reply. As the velocity of sound through water is known also the distance is known.

- **Light Taut Wire, LTW**. The oldest position reference system used for DP is still very accurate in relative shallow water. A clump weight is lower to the seabed. By measuring the amount of wire paid out and the angle of the wire by a gimbal head, the relative position can be calculated.

- **Gyrocompasses** are used to determine heading.

- **Motion reference units** (MRU's) to determine the ship's roll, pitch and heave.

- **Wind sensors** are fed into the DP system to anticipate wind gusts before the ship is blown off

Dynamic Positioning Advantages:

- Maneuvering is excellent; it is easy to change position.
- No anchor handling tugs are required.
- Not dependant on water depth.
- Quick set-up.
- Not limited by obstructed seabed.

Dynamic Positioning Disadvantages:

- Complex systems with thrusters, extra generators and controllers.
- High initial costs of installation.
- High fuel costs.
- Change of running off position by system failures or blackouts.
- Underwater hazards from thrusters for underwater equipment and ROVs.
- Higher maintenance of the mechanical systems.

Redundancy. Is the ability to cope with a single failure without loss of position. A single failure can be, amongst others:

- Thruster failure
- Generator failure
- Power bus failure (when generators are combined on one power bus)
- Control computer failure
- Position reference system failure
- Reference system failure

For certain operations redundancy is not required. For instance, if a survey ship loses its DP capability, there is normally no risk of damage or injuries.
For other operations, such as cable lying, and heavy lifting, there is a risk of damage or injuries. Depending on the risk for redundancy necessity. If a single fault occurs that jeopardizes the

redundancy, i.e. failing of a thruster, generator or a PRS, and this cannot be resolved immediately; the operation should be abandoned as quickly as possible.
To have enough redundancy, enough generators and thrusters should be on-line so the failure of one does not result in a loss of position. This is to the judgment of the DP operator. Disadvantage is that a generator can never operate at full load, resulting in less economy and fouling of the engines.

Dynamic Positioned Ships Class
Class 1, Loss of position may occur in the event of a single fault.
Class 2, has redundancy so that no single fault in an active system will cause the system to fail
Class 3, Class 2 + the capacity to withstand fire or flood in any one compartment without the system failing.

28.2 Preamble

If you've ever toured a modern cable laying vessel , when you get to the wheelhouse, you are usually shown the latest Dynamic Positioning (DP) equipment - computers, monitors, DGPS, backup power supply, and so on. The impression is that the systems are so redundant that station-keeping failures would be exceedingly rare. Unfortunately vessel crew knows from experience that is not the case.

28.3 Purpose

The purpose of this emergency response Plan is to provide the procedures for activating and implementing a coordinated response to potential emergencies that may possibly occur during Cable laying and associated operations .

This plan is intended to be a sensible examination of what, in the nature of the cable laying operations, could cause hazards, so that decision can be made as to whether enough precautions have been taken or whether more should be done to prevent incidents.
Advance planning will provide an effective and efficient response to such emergencies, thereby minimizing the risk of causing danger to crew and technical personnel as well as preventing unnecessary damage to the vessel and equipment and/or 3rd party.

This plan takes account of one of the main characteristics of DP-cable laying vessel , that while operating in DP mode , the control can almost instantly be switched to joystick/manual mode and move away from dangers without incurring injury, loss or damage , as long as the abandoning or cut-free process of cable/s and recovery or abandon of ROV's and burial/trenching machines will be carried out timely and "in safety" .
It is of paramount importance that the Masters should satisfy themselves that DP operators are capable of taking the vessel into manual control and moving the vessel safely out of danger working in cooperation with the cable installation team, minimizing the exposure to dangers during the emergency.

Accident or incident prevention, and vessel operations continuity, will not be effective if those who are directly involved in implementing respective plans do not fully understand their duties and responsibilities, and how to carry them out effectively.

The provisions of this plan must be immediately carried out whenever an emergency situation occurs.
There are three elements to an adversity recovery:

- Reducing the likelihood of a disaster (often called redundancy);
- Contingency plans to restore partial or full service as soon as possible after a disaster has

occurred;
- Communication strategy to keep all those involved (but most importantly, Coastal marine Authority) fully informed of the current state of emergency.

Planning for recovery following a major disaster or incident that reduces the operational capability of the vessel is an important part of risk management. The primary course of action of accident recovery planning is to regain the control of the vessel minimizing the impact on operations and safeguard the life of those involved in the emergency. Secondly counteract the remaining hurdle of the emergency.

As a result major objectives are:

- Provide an immediate response to emergency situations;
- Minimize the impact upon the safety and well-being of personnel;
- Protect against loss or damage to the vessel and equipment ;
- Restore thrusters and DP system to operational condition as soon as possible after disruption;
- Notify appropriate personnel on the Notification Call List and marine authority.

28.4 CAUSES

Trigger causes. The incidents are categorized into "initiating events", defined as a fault that starts or results in a position loss, and secondary causes, defined as causes that could be attributed to the incident or complicate the position-loss recovery. The initiating events are split into the following types:

- ***DP computer*** - DP computer software or hardware fault
- ***Reference*** - Reference system or sensors (gyro, VRU) fault
- ***Power generation*** - Generators, power management, synchronization fault
- ***Thruster*** - Thruster control, mechanical fault.
- ***Electrical*** - Switchboards, UPS, control voltage fault .
- ***Environment*** - excessive wind, wave or current , storm damage, etc.
- ***Operator error*** - DPO, Electrician, ERO, etc.
- ***Operational -*** Cable laying equipment failure, *3rd party*, communication breakdown etc.
- ***Fatigue -*** Excessive workload, lack of sleep, poor quality of rest etc.
- ***Misfortune –*** fire, grounding, explosion, striking, sabotage, structural failure, etc.

Blackouts. The most dangerous occurrence, electrical blackouts and partial blackouts continue to occur even with advances in generators, switchboards and power management systems. The status of the bus ties breaker (or breakers) for the main bus has an influence on the blackout level. In some cases e.g. a powered "drive off"(Black out) , the time from exceeding the operating watch circle and the time required to activate emergency procedures can be very short . Therefore there would-be potential for serious damage if the control of the vessel will no be regained without hinder.

Thruster's failure. In percentage terms, the number of incidents caused by thruster failures is

high, especially when all of the rules since the advent of DP are written to prevent the failure of a single thruster from causing loss of position.

Operator error. Electricians and electronic technicians are responsible for some incidents. This is mainly due to testing and investigations taking place on critical systems while the vessel is still working on DP.

Whether an incident, even an accident will happen given loss of position depends on the detection of such situation and proper recovery action initiated by the DP operator. The human reaction time can be crucial to determine robustness of recovery. A series of human reactions are formulated in a Detection-Decision-Execution way .and the total required time window for a successful recovery can be derived by adding the time spans spent in these stages.

Fatigue. Human error resulting form fatigue is now widely perceived as the cause of numerous marine causalities and the damaging effects present threats to the safety of personnel, vessel, environment and property .Common causes are, excessive workload, lack of sleep, poor quality of rest etc. Working long hours as DP operator performing physically demanding or mentally stressful task can cause inability to concentrate diminishing decision making ability and slow response to normal or emergency situation.

Position references. Much of the accident data is adequate to show that the vessel was not set-up in the safest way or according to present good practice. Wherever possible, if multiple position references are in use, they should be independent of each other and should be based on different principles. A possible example of 'three position references' could be DGPS, HPR and Tout wire. Failure probability of a reference system depends on the principle it's based on.

Vessel type. Cable laying vessels are more likely to suffer from DP computer software failure, since the DP software is mainly designed for holding position than track-follow. Cable laying incidents are dominated by power generation failures, due to excess of DP instructions and thruster failures due to tight position control. Cable laying and Multi-purpose vessels incidents are also dominated by operator error and reference accidents.

ROV and dedicated cable burial machines. These activities are dominated by reference incidents, because the operations are predominantly away from fixed structures, and the consequences of position loss are less relevant, so less than three systems are often used and weather condition / forecasts not properly accounted for. On the other hand If cable burial or ROV inspection are carried out while cable laying operation are in progress, accidents are likely to occur by operator error or the consequence of too many cumulative changes streamed into the DP computer system at once.

Check lists – DP watch keeping handovers

Changes in vessel position and heading are frequently necessary. Changes during cable laying operations typically because of wind and/or current changes, or for operational reasons. Operators should be aware of the potential dangers of a number of cumulative changes that they may affect position reference systems. Checklists are an essential and accepted feature of most DP operations. It is essential that checklists are treated as an aid to memory and not as a complete substitute for 'thinking'. It is very easy for one person in a hurry to fill out a checklist without checking many of the items contained therein. Checklists need updating from time to time, as new important points are found and equipment is modified or updated. Checklists are usually controlled documents within the ship owner's quality assurance system, where alterations may be seen as a 'non-conformance'.

Communications

There should be an effective means of communication between the DP operator and cable control

room as well as all party involved in the operation. In most cases this will be by VHF and will link the DP control console with key personnel. These are likely to be the person in charge of cable laying operation, crane driver, and deck foreman and radio room. Communications should be tested before arrival. There should also be effective communications between the DP console and the vessel crew on deck. Is not uncommon that failure or delay in radio communication, during important exchange of information, seriously delayed emergency response.

28.5 Awareness

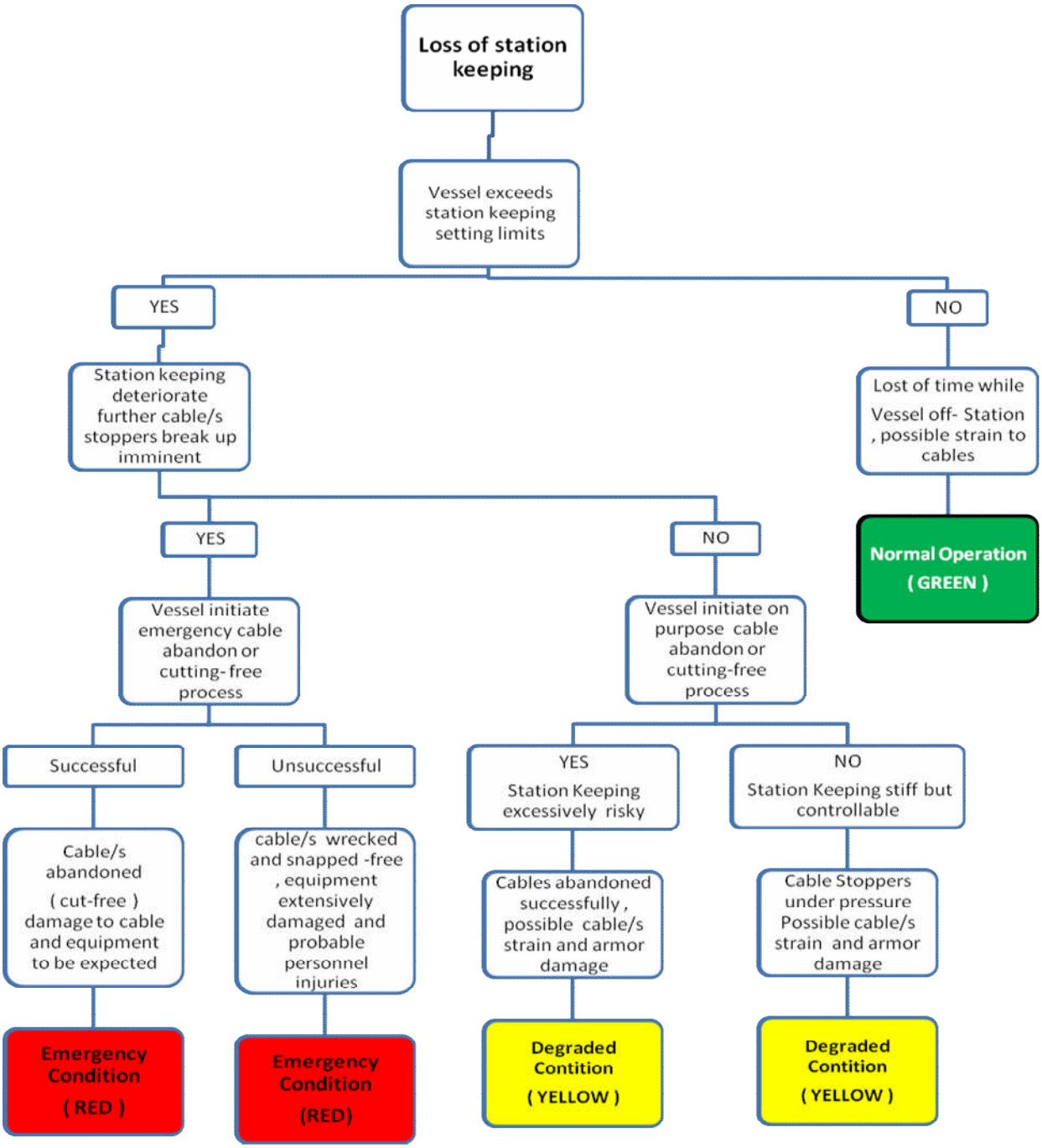
Bridge and cable laying team must be aware of the significant change in status that may occur once the go-ahead is given for the operation to commence. Once the 'green light' is given, the contingency plan may change considerably due to operational requirements or environmental changes and review the assessment when is reason to believe that it is no longer valid making any necessary changes.
Cable deck personnel must be aware that cable handling operation is one of the most demanding and inherently dangerous tasks performed onboard a cable ship.
Working Long hours, bad weather, wet and dirty decks, and proximity to heavy cables and wires under strain are some of the risk factors that must be taken into consideration whenever cable laying operations are in progress .Workload is considered heavy when a person works excessive hours or perform physically demanding or stressful tasks .Excessive work hours can result in slow response failing to anticipate danger and too willing to take unnecessary risks exhibiting a "don't care" attitude.

Certain operational conditions may well require the vessel to remain on station within very tight parameters, all the way through very harsh weather conditions, putting pressure on the Master and cable deck personnel to continue to operate the vessel outside its DP capabilities. Even though the vessel may well be capable of staying in position in far more extreme conditions, but the effect of any failure will be far more damaging.
However, the safety of the Personnel and the Vessel must always be considered the overriding and prevailing factor.

Recognizing these factors is the first step to working safely.

28.6 Loss Of Station Keeping Flow Chart (cable/s repair or cable landing operations in progress)

The below graph/ examples is for guidance only. It show how a structured emergency response can be managed and applied at practical level .The process is intended to be complementary to the normal decision making of a experienced person. It is not a substitute.


Loss of station keeping
Vessel exceeds station keeping setting limits
YES
NO
Station keeping deteriorate further cable/s stoppers break up imminent
Lost of time while Vessel off- Station , possible strain to cables
YES
NO
Normal Operation (GREEN)
Vessel initiate emergency cable abandon or cutting- free process
Vessel initiate on purpose cable abandon or cutting-free process
Successful
Unsuccessful
YES Station Keeping excessively risky
NO Station Keeping stiff but controllable
Cable/s abandoned (cut-free) damage to cable and equipment to be expected
cable/s wrecked and snapped -free , equipment extensively damaged and probable personnel injuries
Cables abandoned successfully , possible cable/s strain and armor damage
Cable Stoppers under pressure Possible cable/s strain and armor damage
Emergency Condition (RED)
Emergency Condition (RED)
Degraded Contition (YELLOW)
Degraded Contition (YELLOW)

28.7 DP Alert Level Responses

Green Normal.

Yellow Degraded.

Red Emergency.

1	NORMAL OPERATIONS Green)	Complies with appropriate DP capability conditions	Position and heading excursions are within acceptable Limits. Power and thrust outputs are within limits for capability of vessel, and environmental conditions are acceptable. DP equipment redundancy is intact and DP system is operating within 'worst case failure' limits.
2	DEGRADED CONDITION (Yellow)	Not in compliance with appropriate DP capability conditions	Position or heading excursions out of acceptable limits for more than brief or isolated periods, or Power and thrust outputs are greater than the limits for capability of vessel for more than brief or isolated periods, or Environmental conditions or other conditions are considered unsuitable for continuing DP operations, or Increased risk of loss of position or collision, or failure in DP equipment that results in loss of redundancy and the vessel operating outside "worst case failure "limits.
3	**EMERGENCY CONDITION (Red)**	**Emergency**	Unable to maintain position, or Imminent threat of collision, or grounding Any other emergency situation (fire , blackout , sabotage etc.) Be prepared for: medical emergencies, fatality, fire fighting, pollution control and full scale black-out.

Follow UP of **"Emergency Condition response (RED)"**, must be carried out in accordance with the guidance of the:

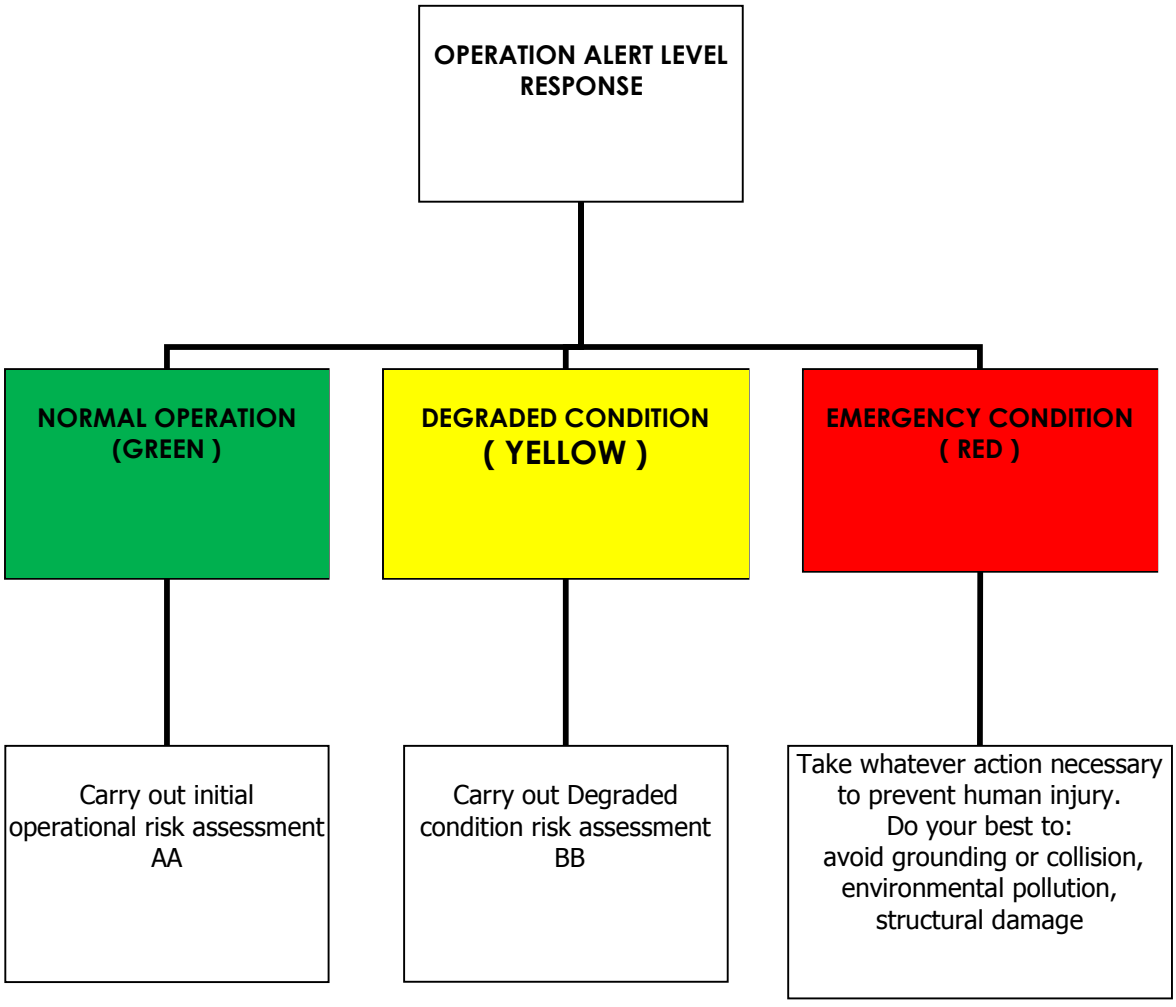
- Vessel General Emergency Contingency Plan,
- Shipboard Oil Pollution Prevention Plan,
- Ship Security Plan,
- Safety & Environmental Manual,

Plans and guidelines provides instructions and detailed information in support of the Contingency Planning ,training and duties of the emergency party .

If the vessel's loss of station keeping continues to deteriorate then the cable laying operation will have to be suspended. If the situation continues to deteriorate further i.e. the vessel continues to move further off station with danger of structural damage and/or or fatal accident that is "Red Alert", then, the only way out will be to abandon the cable/s and underwater equipment and proceed to a safe area .
The immediate aim of emergency recover response is to prevent the damage sustained by the vessel from worsening, to minimize the possibility of further damages and then to repair existing damage sufficiently to enable the vessel to be moved to a place of safety. As a result, relocating

the vessel to leeward side as soon as possible is crucial in any "red alert condition ", taking into consideration that the emergency may get worse, triggering a full scale black-out .
As luck would have it , if the vessel is favorably positioned , uncontrolled loss of station keeping (i.e. black out) may perhaps be constrained and eventually stopped , holding on to the cable being laid (mainly power cables) as a temporary single point buoy up system . Equally, if practicable, uncontrolled drift-off situation can be stopped using vessel bower anchors.

Emergency relocation may result in significant damage to assets , fatality or serious injury as well as damage to the cable/s , underwater machinery , cable laying equipment .



AA - Operational Risk Assessment

The following DP specific guidance is to augment the risk assessment procedures. Risk assessment should be at the basis of all DP cable laying operations. Every close proximity operation should be subjected to the discipline imposed by risk assessment. Risk assessment should be carried out even if a DP vessel is operating routinely at the same offshore locations. Familiarity does not provide a reason for not carrying out a risk assessment. Factors affecting the risk of a close proximity situation should be fully considered.
Depending on circumstances, these factors could either increase or decrease the risk.
Hence is important to draw attention to:

Familiarity of the DP officers and cable technicians with the vessel and understanding of:

- Wind and sea state conditions
- Meteorological conditions
- Surface current conditions
- Visibility & Lightning
- ROV or other underwater activity
- Proximity of other obstructions or vessels in the immediate area
- Possibility of electronic navigational shadow sectors when close to installations

BB - Degraded Condition Risk Assessment Description

The first action when a vessel is in a degraded condition is to make the vessel safe. The actions will be determined by the specifics of the degradation. This may mean:

- Cessation of all operations;
- Movement of the vessel away from dangerous areas to a safe position;
- Take manual control, for example in case of necessity to rotate the bow in the wind;
- Master on the bridge;

Once safe, a risk assessment should be carried out by the Master. The assessment should consider:

- The degraded condition;
- Its cause or causes;
- Associated increase in risk of loss of position with the potential to cause injury ,equipment damage and collision or grounding.

The outcome of the assessment should help the Master decide the appropriate measures to take, for example whether to:

- Stand by cable laying activity waiting for weather improvement ;
- Continue operations in manual control;
- Resume operations under different circumstances, such as re-location or partial re-location.
- Suspend all the operations and proceed to a safe area.

Close proximity areas put in plain words:

- Vessel operating close to shoreline or unsafe water depth (coast, beach, shoal, bank etc.)
- Vessel operating close to offshore installation or other vessels (tugs, DSV's ,OSV's etc.)

Worst case failure

- The identified single failure mode in the DP system resulting in maximum effect on DP capability.

Hazard Severity

The potential consequences of the loss of fundamental elements raised in the hazard identification process should be considered and applied to the existing degraded condition, using the following guide.

Low severity

Loss of time only, No collision or grounding, No damage to the vessel or equipment, No injury to

people No environmental damage.
(example: loss of one thruster , unavailability of one generator , working on weather side , etc.)

Medium severity

Minor collision possible, minor thruster damage due to grounding, with minor damage to the vessel and equipments, Minor injury to personnel, Minor environmental damage.
(example : Loss of DP redundancy, Increased risk of loss of position, degraded weather conditions etc.)

High severity

Collision ,grounding, resulting in significant damage to the vessel and equipments assets Fatality or serious injury Significant environmental damage
(example : Grounding or collision , Black-out , fire, sabotage , level 3 security incident/breach etc.).

28.8 Case scenario 1

The cable ship is on DP mode capability 2 , weather side , nearest distance from an offshore installation 25 meters in moderate environmental conditions .Operation in progress : pulling the cable head inside the bell mouth . ROV assisted . Worst case failure .

The distances in the above table refer to the set-up position of the vessel in relation to the closest point on the nearby offshore installation.

Event

Failure of two forward thrusters. There is now only the bow tunnel thruster operational. The vessel is no longer in DP Capability 2, but is degraded to Capability 1.

Danger

The vessel no longer has thruster redundancy but is still able to maintain position. Failure of the remaining bow thruster would result in loss of position. But the Loss of position is likely to result in collision with the installation. Depending on circumstances the hazard severity could be MEDIUM or HIGH , particularly since the vessel is on the weather side. Overloading remaining bow thruster would result in loss of position. The loss of the remaining bow thruster is a foreseeable event and is PROBABLE. To continue the operation is INTOLERABLE

Risk

The associated risk is EXTREMELY HARMFUL and is unacceptable. The vessel must discontinue operations until the risks are reduced, at least to medium. Relocate to leeward side of the installation if possible. The vessel no longer has thruster redundancy but is still able to maintain position. But overloading and consequent failure of the remaining bow thruster would result in loss of position and is likely to result in collision with the installation. As a result of the collision extensive damage, fires or explosions are likely to happen.

Risk reduction measures

Immediate response is to cease operations, recover the ROV and fast-Lay / retrieve or cut the cable. Proceed to safe lee side location; if possible a minimum distance of 500 meters form the

installation is essential.
Resume operations as a DP Capability 1 vessel. After relocation risk level is SLIGHTLY HARMFUL to HARMFUL. Hazard likelihood remains at LYKELY. New Hazard severity is MEDIUM. Vessel can DP at new location on leeward side. The operation is now MODERATE.

Assessment

Thruster failure, failure in control and power system, and human error are possible causes from which the possible loss of position could have been consequential.
The vessel should only remain in the working location when operations are being carried out. During periods of inactivity, the vessel should move a safe distance away from the installation.
The "safe working distance" should be agreed between the vessel and offshore installation before the start of operations. The separation distance should be as large as is attainable in the circumstances, without adversely affecting the safety of the operation.
If practicable It is safer to work on the lee side of the installation . Obstructions on the installation and interaction with installation thrusters ,if any , should also be considered.

28.9 Case scenario 2

The cable ship is on DP mode Capability 2 , vessel is set up, weather side parallel to coast ,water depth 12 meters , distance form coast 300 meters . Operation in progress : cable landing . Environmental condition moderate .

Event
Increase in wind force on beam of vessel, resulting in increase in thrusters activity greater than 70% and a position excursion more than 10 meters away from the initial cable landing position . Large wave start to build up pushing the vessel closer to unsafe water depth contour.

Danger
Vessel is vulnerable to further position loss. A further loss of position towards the coast may result in striking/grounding . The outcome could result in personnel injury, extensive thrusters and structural vessel damage and pollution. Hazard severity is HIGH.

Risk

Without making any changes the likelihood of a further loss of position is LIKELY. The associated risk is EXTREMELY HARMFUL . This requires that additional measures are well thought-out and should be implemented rapidly. To continue the operation is INTOLERABLE

Risk reduction measures

Immediate response is to make vessel safe. Cease operations.
Change vessel position and heading to reduce the forces acting on the beam of the vessel. Optimize thruster activity by using joystick manual control . Hazard severity is still HIGH. Vessel should reposition and resume DP operations on leeward side . Obviously Cable/s should be abandoned or cut-free before relocating in safer water depth. After relocation new hazard is MEDIUM. The operation is now MODERATE.

Assessment

Environmental forces are never constant. Wind, current and swell should be monitored continuously as should their effects on position keeping. Electronic monitoring methods, such as wind sensors and resultant force vectors provide the DP control system with inputs, but these methods should be supported by visual monitoring and forecasting.

Great care should be taken where there is likely to be sudden wind and/or current changes. Preventative measures may require the vessel to cease operations during these periods . At the outset change heading then move off to a safe location if situation deteriorate further . Loss of propulsion force is likely to happen when severe cavitations occurs due to the decreasing immersion depth of propeller in waves and the interaction effect with current .

Weather side

Position where any combination of environmental forces through wind, waves, swell, wave drift, surface current, surge current, tidal current, as well as changes in those factors, could move the vessel towards the danger .

Lee side

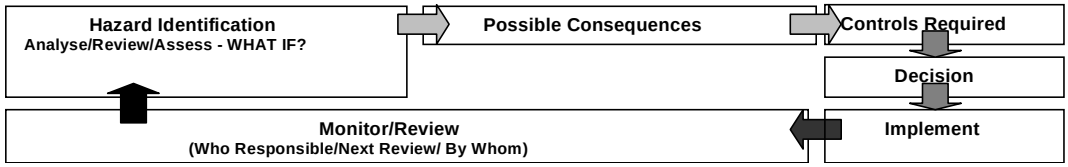
Position where any combination of environmental forces through wind, waves, swell, wave drift, surface current, surge current, tidal current, as well as changes in those factors, would move the vessel away from the danger.

To “Buoy up” the risk assessment process Cable laying DP Operations Risk Assessment can be prepared getting hold of information from the DP Watch-keeping Handover Checklist and Dynamic Positioning System Arrival Checks Document .

CABLE LAYING DP OPERATIONS RISK ASSESSMENT	OPERATIONAL	DEGRADED

Ships Name	GIULIO VERNE	Ship No	

Planned or Activity in progress	



No	Operation or condition that could cause hazard	How could the hazard arise	Likelihood	Risk Level
1	Wind and sea state Conditions & Forecast			
2	Visibility & Lightning			
3	Surface current			
4	Water depth			
5	Cable laying activity			
6	Proximity of other obstruction or other vessel			
7	ROV or other underwater activity			
8	DP System			
9	Machinery Components and safety devices.			
10	Thrusters or Diesel Generators			
11	Other			

The likelihood of harm can be assessed as highly unlikely, unlikely, or likely.
The risk level can be determined according to the nature of the operation and can be assessed as slightly harmful , harmful , or extremely harmful.

Operational Control Measures

DEDUCTIONS		Action and procedures to be enforced		
Hazard Severity	**Operation**	**RISK ASSESSMENT - OPERATIONAL**		
		Start operations as normal	**YES**	**NO**
		Start operations but with following restrictions and recommendation	**YES**	**NO**
Low	Tolerable			
Medium	Moderate			
High	Intolerable			
Hazard Severity	**Operation**	**RISK ASSESSMENT - DEGRADED**		
		Cessation of all operations and relocate	**YES**	**NO**
		Continue operations but with following restrictions and recommendation	**YES**	**NO**
Low	Tolerable			
Medium	Moderate			
High	Intolerable			

The hazard can be assessed as low severity , medium severity, or high severity .
Operation can be assessed as tolerable, moderate, or intolerable

Additional Comments /Review :

Assessors:		**Location**	

NOTE : Tick or circle throughout the document were necessary .

Signed _____ **Master** _____**Date** _____

29.0 SHIP GENERAL PARTICULARS

Identifications

Name:	GIULIO VERNE
International call sign :	IBPU
Flag:	ITALIAN
Port of registry :	NAPLES

Builders

Hyundai Mipo Dockyard Company Limited
Ulsan
Korea
Construction year 1984

Main Dimensions

- Length Overall 133.18 m
- Molded Breadth 32.08 m
- Draft at max load (operating four thrusters) 8.50 m
- Molded Depth 7.62 m
- Loaded Draft Summer Freeboard 5.197 m
- Summer Freeboard 1.79 m
- Deadweight Tonnage 9,366 tons
- Gross Tonnage 10,674 tons
- Net Tonnage 3,202 tons
- Deck Strength Uniform Loading 9.28 tons/m^2
- Max speed 10 knots
- Bollard pull 100 tons
- Light weight 8,155 tons

Power sources

The vessel is powered by five Daihatsu diesel generating sets, running on gas oil.

- Diesel Engines : Daihatsu 6 DV 22A V12 2,200 BHP at 1,000 RPM
- Generators : Fuji 1500 KW 600 Volt GFV 563ZB-6Z

Power Supply

600 Volt - 50 Hz for Propulsion
440 Volt - 50 Hz for General Board Network
220 Volt - 50 Hz for user supplies

Propulsion

Aft: Two Schottel Lips Azimuth Fixed Pitch Thrusters with Propellers in Nozzles.

Forward: Two Retractable Schottel Lips Azimuth Fixed Pitch Thrusters with Propellers in Nozzles.

Bulb: Kamewa Tunnel thruster

Dynamic Positioning Systems

SIMRAD SDP 21.
Reference inputs :

Two DGPS
One Taut Wire
One Sonardyne HPR
One Artemis

Cargo capacity and availability of deck areas

Total cargo capacity is approximately 8,000 tons.
The turntable has a maximum capacity of 7,000 tons of cable.
On the main deck, ahead from the turntable, an area of about 500 m² is available, in which a cable coil of maximum diameter 19 m can be placed: the relevant maximum capacity is approx 2,500 tons of cable.

Accomodations

- Crew 19
- Technicians and Representatives 71
  Total 90
  The ship is anyway certified for 96 people

- Hospital with two beds
- Two Clients offices
- One Officer lounge
- Two Crew/General lounges

Accommodation and laying-testing control rooms are air conditioned.

LSA Equipment

Four totally enclosed lifeboats , 50 persons each.
Maker : Watercraft (totally enclosed, equipped in accordance with Solas)

Four liferafts
Type: Viking DK (for 12 persons with emergency pack)

Four liferafts
Type: Pirelli Londra 86 (for 16 persons with emergency pack)

Cranage

Four Asea cranes:
Hook capacity 25 tons at 22 metres; revolving capacity on 360°
One Electric 2 tons Store Davit next to accommodation starboard side
One Sormec crane 13 tons at 6 m

30.0 GENERAL USEFUL INFORMATIONS

Meals

Breakfast	**0630 – 0800**
Lunch	**1130 – 1300**
Dinner	**1830 – 2000**
Night Lunch	**1130 – 0030**

Hot meal will be available at night for personnel on night shift only .If hot meals is not available, cold cuts and other victuals will be left on the buffet table.
Self service applies in the dining room, please, take your own dishes to the counter after finishing your meal. For your own convenience do not wear dirty clothes at the meal.

Fresh water supply

Fresh water is not produced aboard , thus, be economical with your water consumption.

Toilets

The salt water based toilet system has very narrow pipes. It is most important that you do not put anything else but toilet paper in the toilet bowls. Be extra aware of this rule as even one clogged toilet puts the whole toilet system out of function resulting in a very inconvenient situation.

Electricity

The electric current is 220V/50Hz. Three-phase 380V is available. British standard sockets are used throughout the vessel , please read carefully the section of this manual named “electrical”.

Laundry

Dirty washing should be left in the provided laundry sack , the cabin staff will take care of the washing. The laundry is located on the main deck and the use of the washing machines and tumbler drier will be permitted only if authorized by the laundry staff.

Videotapes

Only films in Italian language are available , the deck cadet is in charge for this service , tapes can be borrowed from 1800 to 1830 Hrs , every day in the officer lounge 3rd deck .

Bonded Stores

Bonded stores are carried onboard in quantities on voyage - basis requirement .
Italian and foreign customs allowances, often present serious problems, enforcement can range from nominal to extremely strict; to be on the safe side, you should expect that you will be required to conform to the law. Cable ships enjoy no special status as they are treated just as any other vessel. It is the responsibility of individuals to familiarize themselves with the regulations, and abide by them. Our staff , is available to assist you in these matters. Failure to do so can result in delays, and quite possibly, payment of penalties. The Second Officer is in charge for the sale of bonded stores .

Communications

Communications with Giulio Verne both for operational and private needs are by INMARSAT, which offers electronic mail, fax, and telephone service. SSB is also available. The equipment and

frequencies provide quite reliable communications from any oceanic location.
By law, all radio equipment and messages are regulated by the Captain. Licensed GMDSS deck officers on board serves as radio officers, acting under the Captain's orders. They will assist you in placing calls, or receiving communications. No one is allowed to use the radio equipment without permission and supervision of those in charge.
It is strongly recommended not to use mobile phones in the wheel house areas , they may interfere with electronic navigational equipment or distract mates from their duties.

Operating Spaces on Board Ship

Shipboard spaces fall into two categories: **operational; and housekeeping**.
Most of the housekeeping areas are for joint use by crew, technicians and guests. With regard to the operating spaces, while these are technically for the use primarily of the operating crew and technicians, guests are encouraged to move around the ship, become familiar with its capabilities, limitations, and the operating procedures.
There are only a few precautions to be observed. The navigation bridge (wheel house) is the primary command and control centre for the ship; regulations are posted governing who (by Flag state regulation) is permitted to be in those areas. While these regulations are not rigorously enforced, they should be considerate.
Don't get in the way of personnel on watch, or distract them from their duties at critical times. When entering or leaving port, the bridge and bridge wings are very busy areas, and you should not visit during those time periods. The heli-deck area (open area on top of the wheelhouse) is a good locations from which to observe the operation and the scenery without being in the way.
If you go to the wheel house at night, remember that it is kept as dark as possible to preserve night vision for personnel on watch. If you are interested in the details of "ship driving," such as navigation, DP system operations, the mates will be delighted to provide information when things are slack.
The engine rooms and auxiliary machinery spaces are located below deck. Here are found the main propulsion and generating equipment, plus all the myriad of accessory machinery that contribute to keeping the vessel in operation. If you enjoy fine machinery, a tour of the engine rooms or cable deck machinery are well worthwhile, and engineer on watch or designated cable deck personnel will be happy to guide you. These spaces pose personnel hazards both in the moving parts of the machinery and the very high noise level. Ear protectors are available at the entrance to the spaces. You are advised not to go there alone, keep clear of all moving machinery, and never tamper with valves, switches, and other controls.
Enjoy your stay.

Welcome Aboard