GUIDELINES FOR LAY-UP OF SHIPS

2009

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CHAPTER 1 GENERAL

1.1 Introduction to the Guidelines

1.1.1 "Laid-up ships" as referred to in the Guidelines mean ships which, notified by the owner, will cease to be engaged in any trade and will have reduced manning. See 1.3 of this Chapter for lay-up condition.

1.1.2 The aim of the Guidelines is to provide a systematic and cost effective approach for preparing the ship for lay-up and maintaining it in a safe and cost effective condition during lay-up. The requirements in the Guidelines are not classification requirements except for those in Chapter 5.

1.1.3 The Guidelines are of a general nature. Appropriate modification may be made to suit a specific ship type or the environmental feature of lay-up area when applying the Guidelines. Meanwhile, it is to be noted that the specific requirements of original equipment manufacturers may take precedence over the Guidelines, and the regulations or requirements for lay-up of ships as stipulated by Administrations or related bodies are not to be replaced by the Guidelines.

1.1.4 It is also to be noted, when applying the Guidelines, that the flag State Administration and/or maritime and port authorities of the lay-up location, as well as insurance companies may have individual lay-up requirements not covered by the Guidelines.

1.1.5 The general procedures for lay-up of ships are as follows:

(1) the general requirements of each party involved in the lay-up are to be documented to assist the owner in evaluating the lay-up schemes;

(2) a lay-up is to be carried out by members of the crew, the owner's technical shore staff in consultation with a ISC Surveyor;

(3) after a satisfactory examination on board, ISC will issue a lay-up report stating that the ship has been laid up in accordance with the recommendations detailed in Chapters 2 and 3 of the Guidelines;

(4) the class of the ship during the lay-up period is to be maintained in accordance with the requirements for annual lay-up condition survey in Chapter 5 of the Guidelines, and the classification certificate is to be endorsed;

(5) the owner is to consider the time needed to make preparations for reactivation of ships in different lay-up conditions and inform ISC in advance. The preparations for reactivation are to be carried out in accordance with Chapter 4 of the Guidelines and reactivation surveys are to be carried out in accordance with Chapter 5 of the Guidelines in consultation with a ISC Surveyor.

1.2 Scope of services

1.2.1 Lay-up services include one or more of the following items:

(1) general advisory services with regard to lay-up programmes;

(2) preparation (or review) of detailed lay-up schemes;

(3) supervision during lay-up;

(4) periodic inspections of laid-up ships;

(5) supervision during reactivation;

(6) Lay-up Declaration as requested by the parties involved such as insurance companies and port authorities where lay-up surveys have been carried out.

1.2.2 Periodic inspections as referred to in 1.2.1(4) above will have a particular emphasis on safety and fire extinguishing arrangements, emergency equipment (including machinery, pumps and generators), mooring and anchoring equipment. The inspection report is to state whether or not the lay-up schemes are being implemented effectively and if necessary, detail those items requiring further attention. Such inspection would be a part of lay-up surveys required for maintaining the class, where both of them are undertaken simultaneously.

1.3 Lay-up condition

1.3.1 lay-up considerations

(1) The choice of lay-up condition will generally be determined by a consideration of technical and commercial trade-offs for the following factors:

① estimated time in lay-up condition;

② the time that will be needed to reactivate the ship;

③ operational cost savings;

④ next intended destination after reactivation;

⑤ age of ship and recycling value.

(2) A summary of relevant lay-up considerations for each condition is given in Appendix 1 of the Guidelines.

1.3.2 Hot lay-up

(1) In hot lay-up condition, the machinery is kept in operation for the sake of fast reactivation, but necessary measures may be taken to reduce various operational costs. Depending on the reactivation time, this lay-up condition is suitable for up to 1 month or 12 months out of service.

① Hot lay-up for up to 1 month is suitable for 24 hours reactivation time. During this period:

a. the ship is to comply with all of the classification and flag State requirements;

b. the crew may be reduced to the level as required by minimum safe manning certificate;

c. machinery is to be kept running with consideration to minimum consumption.

② Hot lay-up for up to 12 months is suitable for 1 week reactivation time. Where the ship is planned to be in this condition, the owner is to notify the flag State and/or ISC. During this period:

a. manning may be reduced below the minimum safe manning certificate limit in agreement with the flag State, underwriters (if any) and other local authorities;

b. local requirements and restrictions on operations of laid-up ships of port authorities are to be complied with, such as restrictions on the discharge of oily bilge water, wreck removal or minimum manning.

1.3.3 Cold lay-up

(1) In cold lay-up condition, the machinery is taken out of service and the ship is kept "electrically dead" with the exception of emergency power. This condition usually implies 3 weeks reactivation time or more depending on the level of preservation and maintenance during lay-up. The level of preservation is mainly decided based on the age and value of the ship and the most likely reactivation scenario, i.e. ship returning to normal trade, ship sailing to repair yard or scrap yard.

(2) Cold lay-up condition is suitable for up to 5 years out of service. During this period:

① the ship manning is at least in line with emergency and/or routine operation requirements to deal with fire, flooding, mooring and security watch;

② on reactivation, the ship may need to go directly to dry-dock before trading, depending on the extent of hull marine growth;

③ it is important that all documents and records during cold lay-up are well maintained because the crew changes may be significant.

1.3.4 Long-term lay-up

(1) Long-term lay-up is a condition that the lay-up period is over 5 years and the reactivation time is unpredictable.

(2) Preparations for reactivation of ships in long-term lay-up condition may take 3 months or more depending on maintenance and preservation applied. In this extended condition, the preparations will be comprehensive to the extent that original equipment manufacturers are to be consulted for critical equipment.

1.4 ISM and ISPS certification

1.4.1 If the ship is laid-up for a period of up to 6 months, ISC will suspend the ship's International Safety Management Code (ISM) and International Ship and Port Facilities Security Code (ISPS) certificates. In the event the ship is later brought back into service, an additional audit, the scope of which is not less than that of intermediate audit, will be required to reinstate the ISM and ISPS certificates. If the intermediate audit window expires during lay-up, the certificate will be considered invalid. In the event the ship is brought back into service, an interim audit is to be carried out, the scope of which is the same as that of renewal audit.

1.4.2 If the ship is laid-up for a period exceeding 6 months, ISC will withdraw the ship's International Safety Management (ISM) and International Ship and Port Facilities Security (ISPS) certificates. In the event the ship is later brought back into service, an interim audit is to be carried out, the scope of which is the same as that of renewal audit.

1.5 Disclaimer of liability

1.5.1 Based on 1.1 of the Guidelines, notwithstanding every effort has been made by ISC to provide accurate and complete information in relation to lay-up of ships contained in the Guidelines, ISC does not warrant their absolute accuracy, completeness or adequacy. ISC assumes no liability for any foreseeable or unforeseeable legal risk caused by the use of information in relation to lay-up of ships contained in the Guidelines, and assumes no responsibility and shall not be liable for any loss, damage or expense caused by reliance on the information or advice in the Guidelines.

CHAPTER 2 SHIP SAFETY

2.1 Location considerations

2.1.1 The local requirements applicable to specific lay-up locations and mooring arrangements are normally determined by the relevant port authority and the appropriate salvage association. It is recommended that the owner considers the following factors before selecting lay-up locations:

(1) the extent of shelter from open seas, strong winds, swell, surge and strong currents;

(2) the proximity to shipping routes or open roadstead anchorages;

(3) the proximity to known tropical cyclone or hurricane areas, moving ice, etc;

(4) the proximity to wrecks, submerged pipes, cables and other bottom projections;

(5) the proximity to corrosive waste or effluent discharges;

(6) the water depth with regard to keel clearance at extreme low tides versus excessive water depth with regard to anchor chain limitations;

(7) the characteristics of the seabed with regard to anchor-holding capability (which may require confirmation by diving inspection);

(8) the availability of local tug and fireboat assistance;

(9) the characteristics of the windage area (including cargo container considerations, if applicable) in relation to changes in wind, tidal and swell conditions;

(10) the weaknesses and limitations of the specific type, design and condition of mooring equipment, as well as access to and the readiness of additional moorings, if required;

(11) the suitability of the mooring pattern with respect to the number of lines, lengths, angles and leads and the ability to maintain even tensions on the lines;

(12) the capacity and capability of the crew during normal and adverse weather conditions;

(13) the reliability and frequency of local weather forecasts and warnings;

(14) the proximity to other ships and related traffic hazards in the vicinity;

(15) the scope of local emergency preparedness plans and services for potential fires, flooding, security incidents, mooring failures or medical emergencies.

2.2 Mooring arrangements

2.2.1 The mooring arrangements will depend on the selected lay-up location conditions, readiness of main machinery and manning levels. The arrangements are to include a ship’s own anchoring equipment augmented by stern anchoring arrangements and mooring or anchoring arrangements, including buoys and/or bollards on shore.

2.2.2 The choice of mooring arrangements are to be in line with the following general requirements:

(1) when ships are laid-up to buoys or anchored, they are to be moored to prevent swinging in wind or as a result of tidal changes;

(2) when ships are anchored, the chain cables must not be capable of twisting or cross contact, and anchors must be placed to avoid tripping;

(3) additional stern anchoring arrangements, if necessary, will be required for single anchor ships;

(4) anchor cables are to be led and protected to prevent chaffing against the ship;

(5) where laid-up ships are subjected to wave movement or surge, anchor cables are to be periodically moved at intervals to shift points of wear on the cables;

(6) anchored ships are to have ample chain scope with regard to water depth, i.e. cable lengths are to ideally be around 7 times the water depth. In any event, the local port authorities are to be consulted for their knowledge of prevailing conditions by the ship;

(7) anchor lights and fog signals are to be fully operational and additional deck lighting is to be required if lay-up is near shipping lanes;

(8) ships are to be sufficiently ballasted to reduce windage, roll and surge, with due regard to hull stresses. Furthermore, when draught is finally established, it is advantageous to paint clearly visible reference marks at bow and stern, just above the water line as an external indicator of hull integrity (leakage);

(9) an emergency means for the quick release of all moorings is to be provided and arrangements for towing are to be readily available if propulsion machinery cannot be bought into operation;

(10) all anchors are to be provided with marker buoys;

(11) the windlass and mooring winches, if electronically driven, are to be provided with an adequate source of electrical power for intermittent and emergency operation;

(12) day and night anchor dragging GPS position fixing (or compass bearings) are to be established and monitored on a regularly basis;

(13) attention is to be given to the change in heel and trim conditions of laid-up ships which are moored to a jetty seriously affected by tides. A monitoring and watchkeeping system is to be in place especially for ships where no constant tension devices are provided for mooring winches;

(14) for ships moored to buoys or a jetty by means of several mooring lines in the same direction, attention is to be given that even stress is to be obtained in each mooring line, especially under severe sea or severe weather conditions, in order to avoid ship drifting caused by fracture of separate mooring lines due to uneven stress.

2.2.3 When ships are to be laid-up in groups, mooring arrangements are to be in line with the following additional requirements:

(1) adjacent ships are to be similar in size to avoid differential surging motions and they are to be ballasted to similar freeboards to permit breast lines to be directly led;

(2) ships are ideally to be anchored in alternate directions (alongside bow to stern);

(3) the fore and aft direction of each ship is to be parallel to prevailing strong winds;

(4) breast mooring lines are to be provided, sufficiently tensioned and be of similar stretch characteristics;

(5) sufficiently sized fendering arrangements are to be provided alongside at areas of possible contact with other ships or shore structures;

(6) if the auxiliary engine on one ship is used to supply power to other ships, it is recommended that all ships are electrically connected to avoid stray currents.

2.3 Record keeping

2.3.1 The owner is to prepare and complete a lay-up logbook, in order to achieve traceability of reactivation in future.

2.3.2 An inventory of the ship's equipment that is moved ashore is to be prepared and kept.

2.4 Navigational safety

2.4.1 An updated chart of the lay-up area is to be readily available onboard the laid-up ship, whereas all remaining chart folios may be landed ashore.

2.4.2 The correct navigation shapes and lights for the lay-up condition of the ship are to be provided.

2.5 Safety conditions

2.5.1 Power supply

(1) Adequate power supply is to be supplied, or readily available, all around the clock, either from independent means on board the ship or from shore.

2.5.2 Manning

(1) Watch personnel are to be provided. The number of the watch personnel is to depend on the size of the ship, the lay-up location and mooring arrangements, the shore assistance available in case of fire, leakage, flooding or any other emergency, and the maintenance required to provide adequate preservation.

(2) The owner is generally to conduct a risk assessment for the expected emergency that may occur with regard to the planned manning level of watch personnel to mitigate the extent of onboard risks.

(3) Staff required to carry out routine maintenance are to include at least one engineer officer and one navigating officer, who are stationed on each ship, unless ships are laid-up in a group.

(4) The navigating and engineer officers are to be capable of operating essential equipment that is critical to the lay-up operation, e.g. electrical generating sets, pumps, fire-fighting equipment, etc.

(5) The owner is to assess the flooding risks in the machinery spaces posed by various manhole doors being left open to drying of salt water coolers and other equipment in the engine room.

(6) Necessary shore communication installations are also to be available.

2.5.3 Fire protection and fire fighting

(1) The following requirements are to be complied with:

① automatic fire alarm systems, where provided, are to be in working condition and readily available;

② fire-fighting installations are to be inspected regularly and readily available. Where fixed foam or CO_2 systems are installed, the system is to be maintained in a readily available condition;

③ the fire main is to be drained via a small-bore drain to prevent freezing;

④ ventilation trunks, air inlets and watertight doors are to be kept closed;

⑤ all fire dampers are to be inspected to be freely operable and regularly greased whereas dampers that are not required for essential ventilation may be closed;

⑥ the emergency fire pump is to be regularly inspected and maintained in a readily available condition;

⑦ an international shore connection is to be retained in an accessible position.

2.5.4 Protection against explosion

(1) Cargo spaces and piping systems are to be cleaned and ventilated to prevent gas from forming any pockets.

(2) An inert gas system in operation is recommended for oil and chemical tankers.

(3) Warning notices are to be placed in conspicuous places advising staff of the dangers of entering enclosed spaces. Pump rooms, tank spaces, cofferdams, etc are not to be entered unless they are proved to be gas free, and the normal safety precautions have been taken.

(4) All flammable materials, sludge, etc. are to be removed from the ship's bilge, tank tops, double bottom tanks, engine room, pump rooms and similar spaces. No hot work is to be carried out during lay-up, unless special preventative measures have been taken.

2.5.5 Safety equipment

(1) All equipment necessary for the routine operation is to be provided, e.g. oxygen and explosion meters where the type of ship requires such safety equipment.

(2) The usual life-saving equipment such as life rafts, lifejackets, breathing apparatus, oxygen masks and distress signals is to be provided and made accessible.

(3) A sufficient number of approved safety torches are to be available onboard.

(4) The transfer arrangement is to be kept in a satisfactory condition.

2.5.6 Emergency power

(1) The emergency source of power, emergency generator and/or emergency air compressor are to be kept in readily available condition and tested weekly.

2.5.7 Safety precaution

(1) A system of registration of embarkation during the lay-up period is to be established to prevent the embarkation of idle personnel.

CHAPTER 3 PRESERVATION MEASURES FOR LAY-UP AND MAINTENANCE

3.1 General requirements

3.1.1 The maintenance work and tests carried out during the lay-up period are to be entered in a lay-up logbook with the corresponding dates. The nature and frequency of the maintenance, inspections and tests are also to be defined in the lay-up logbook.

3.1.2 Appropriate measures for preservation and maintenance during the lay-up period are to be taken by the owner according to the type of ship, hull equipment, machinery installations and the specific cases of lay-up conditions.

3.2 Exposed parts of hull

3.2.1 To protect the external hull below the waterline, it is recommended that the impressed current cathodic protection system (if fitted) is to be continuously operated.

Impressed current cathodic protection systems are to be regularly examined, maintained and monitored (specifically, current outputs and hull potentials). Sacrificial anodes (e.g. zinc block) mounted on the hull are to be renewed where necessary before lay-up and these are to be regularly examined.

If a laid-up ship has no impressed current cathodic protection system, sacrificial anodes (e.g. zinc block) can be suspended at regular intervals around the hull below the waterline. This precaution is particularly important if a laid-up ship is moored near a structure with its own impressed current protection system (such as a jetty or another ship). In the event, the hull's electrical potential is to be periodically checked along the underwater side area with portable voltmeters.

3.2.2 The coating of the hull above the waterline, exposed decks, access doors or covers on exposed decks, and hatch covers is to be maintained in a satisfactory condition.

3.2.3 All accesses leading to internal spaces are to be kept closed.

3.2.4 All vent pipes and ventilation trunks are to be kept closed.

3.3 Internal spaces

3.3.1 Cargo tanks and cargo holds are to be emptied, cleaned and kept dry.

3.3.2 Ballast tanks are to be kept either full or empty. When ballast spaces are kept filled with seawater, special care is to be taken to keep such spaces topped up and protected against corrosion. When provided, sacrificial anodes are to be renewed when deemed necessary. The topping up is to be regularly verified.

3.3.3 Chain lockers are to be drained, cleaned and kept dry. Suitable coating is to be applied.

3.3.4 Fuel oil and lubricating oil tanks are to be drained regularly. Flame screens on fuel tank air pipes are to be in good condition.

3.3.5 Lubricating oil analysis is to be performed regularly and the oil renewed when necessary. Prior to being refilled, tanks are to be cleaned.

3.3.6 Empty lubricating oil tanks are to be cleaned and kept dry.

3.3.7 Fresh water or distilled water tanks are to be kept full or empty. Empty tanks are to be cleaned and kept dry.

3.3.8 The bilge and tank top in engine rooms are to be cleaned and kept dry.

3.3.9 Hull sea inlet and outlet valves not in use are to be kept closed and secured.

3.4 Deck fittings

3.4.1 The windlass, capstans and winches are to be regularly greased.

3.4.2 All wire cables are to be kept greased. Visible parts of chains are to be examined regularly.

3.4.3 Chocks and hawse pipes are to be coated if deemed necessary.

3.4.4 Oil and water piping on all exposed decks not in use during the lay-up period is to be drained, blown through if deemed necessary and kept dry by opening up drains.

3.4.5 Electrical machinery and navigational equipment are to be protected by watertight covers.

3.4.6 Any mooring ropes or soft fibre materials which are sensitive to ultraviolet (UV) light degradation are to be stowed out of the sun.

3.4.7 Cargo and other lifting gear wires and blocks not retained in use are to be dismantled, greased and stored and gear which is not dismantled is to be protected with grease and covered. Hooks and other objects hanging in air are to be secured.

3.5 Accommodation areas and outfitting

3.5.1 Accommodation areas

(1) Lay-up staff living onboard are to be accommodated in one area to allow all other areas to be dehumidified, or at least provided with heaters, to reduce humidity to an acceptable level.

(2) If the ship galley is being used by lay-up staff, the galley exhaust fans and grease trap are to be regularly inspected and cleaned. If the ship galley facilities are not used, the arrangements of gas for domestic purpose used by lay-up staff are to comply with relevant requirements.

(3) For all unoccupied areas, the humidity level in accommodation areas is to be reduced and maintained at 45-55% relative humidity (RH) by dehumidifiers. This is particularly important for spaces such as the radio room, navigation bridge and other spaces housing electrical machinery or electronic control equipment.

(4) Ship’s linen and napery are to be stored in one single dry compartment with mattresses stowed on their edge to assist free air circulation.

(5) All provision room, cabin and cabinet doors are to be secured in the open position.

(6) Water services in unoccupied areas are to be shut off and drained and sanitary fittings and toilet bowls are to be sealed.

3.5.2 Outfitting

(1) "On hire" equipment such as gas bottles, etc is to be returned to suppliers, or an agreement may be reached regarding reduced hire charges and insurance premiums.

(2) Electricals on deck and telephones, telegraphs, etc are to be covered and sealed with moisture absorbing desiccant bags within.

(3) All loose navigational equipment, chronometers, sextants, etc not required during the lay-up period are to be removed and placed in locked storage.

(4) The engine workshop, electrician's workshop and deck workshop tools and loose equipment not required during the lay-up are to be cleaned, greased and put into locked storage.

(5) All loose gear, lifeboat gear, rescue boats and similar equipment are to be removed, protectively coated and placed in locked storage, except for retained safety equipment.

(6) Medical and lifeboat perishables are to be removed ashore (or to another ship, as required).

(7) Any food stuffs, pyrotechnics (particularly expiry date stamped), cotton waste, matches, etc not required during lay-up are to be removed ashore.

(8) Broached drums of chemicals are to be removed ashore.

3.6 Machinery

3.6.1 The air temperature inside the machinery spaces is normally to be kept above 0°C. Humidity is to be kept as low as possible and within acceptable limits.

3.6.2 Exposed mechanical parts of machinery are to be greased. All rotating machinery such as diesel engines, reciprocating engines, pumps, turbines, electric motors and generators are to be turned at regular intervals (the lubricating oil system is to be put in operation or proper priming applied). Units are not to be stopped in the same position as the previous one.

3.6.3 Bearing boxes are to be emptied, cleaned and refilled with new oil.

3.6.4 For large reduction gears, a fan activating the circulation of hot air in closed circuit with air hoses is to be fitted (intake at lower part of casing and discharge at upper part).

3.6.5 Condensers and heat exchangers are to be drained and kept dry. Desiccant is to be placed in steam spaces. Water sides are to be washed with fresh water. The condition of the zinc anodes is to be periodically checked.

3.6.6 Auxiliary machinery

(1) Air receivers are to be drained, opened up and cleaned. Safety valves are to be cleaned and slightly lubricated.

(2) Air compressor crankcases are to be drained, cleaned and refilled with clean oil. Cylinders and valves are to be lubricated. Coolers are to be drained and dried.

(3) Air start lines, air drains, feed pumps and extraction pumps, air ejectors, main circulation pumps, evaporators are to be drained and dried.

3.6.7 Pipes not in use are to be drained and kept dry.

3.6.8 Diesel engines

(1) Daily tank fuel oil outlet pipes and all injection equipment are to be filled with filtered gas oil.

(2) Fresh water circuits are to be filled with water mixed with rust inhibitors. Fresh water pH is to be checked monthly.

(3) Oil of hydraulic regulators is to be replaced.

(4) Seawater cooling pipes are to be drained.

(5) Crankcases are to be provided with desiccant.

(6) Starting valves are to be lubricated (internally and externally).

(7) Motor oil is to be sprayed in cylinders and on all external parts liable to corrosion. Cams and cylinders are to be motor oil sprayed monthly.

(8) Turbo-compressor/charger ball bearings are to be oil sprayed and rotated for an integer number of revolutions plus one quarter of a revolution.

(9) Engine air inlets and exhaust gas pipes are to be sealed.

(10) Scavenge spaces are to be cleaned.

(11) Engines are to be turned weekly.

3.6.9 Shafting

(1) Shaft lines are to be coated with grease. Shaft bearing cooling pipes are to be drained.

(2) For seawater lubricated propeller shafts, the packing gland of the engine room stuffing box is to be tightened.

(3) For oil lubricated stern tubes, lubricating oil is to be analyzed and if necessary, renewed. The oil level in the tank is to be verified regularly.

(4) Propeller shaft lines are to be rotated an integer number of revolutions plus one quarter of a revolution.

3.7 Electrical installations

3.7.1 Main and emergency switchboards, sub-feeder panels, fuse panels and starters are to be made tight. Desiccant is to be provided.

3.7.2 Contacts of relays, breakers and switch-breakers are to be coated with neutral Vaseline.

3.7.3 Bearings of generators are to be cleaned of old grease and protected with new oil or grease.

3.7.4 Carbon brushes are to be lifted off their commutations.

3.7.5 Electrical insulation of each item is to be kept at a minimum 200,000 Ω and general insulation is to be not less than 50,000 Ω.

3.8 Steering gear

3.8.1 Exposed mechanical parts are to be greased or oil sprayed.

3.8.2 It is recommended that the steering gear be operated monthly.

3.9 Boilers

3.9.1 Smoke sides of boilers are to be swept, washed clean with hot water and hot air dried.

3.9.2 Water and steam sides are preferably to be preserved using the dry method, keeping the moisture at the lowest possible level, the ideal level being between 30% and 35%.

3.9.3 Air heaters are to be cleaned and kept dry.

3.9.4 The internal condition of boilers is to be checked every three months.

3.10 Automation equipment

3.10.1 Maintenance for electronic components is to be the same as 3.7.

3.10.2 For pneumatic parts, the manufacturers' recommendations are to be followed and the system is to be checked regularly.

3.11 Propeller shafts or tube shafts

3.11.1 If the ship is to be laid-up for a period of more than one year, then it is to be anticipated that the ship may subsequently be towed to a dry dock on reactivation, depending on hull marine growth. To ensure the ship to comply with the requirements for being towed to a dry dock, some means of locking the ship's main shafting prior to laying-up are to be prepared.

3.12 Software system

3.12.1 Back-ups of computer software onboard are to be available.

3.13 Spares

3.13.1 The removal of spares from a laid-up ship is to be strictly recorded and controlled to determine spares purchases at the time of reactivation.

3.13.2 The obvious absence of machinery components of the laid-up ship may affect any valuation of the ship.

3.13.3 If the ship keeps spare main shafts such as turbo charger, pumps, etc, bolted and hung from bulkheads, it may be prudent before a long lay-up to rotate these through 180° to balance distortion (‘age droop’).

3.13.4 All spares are to be protected in line with the requirements of this Chapter.

CHAPTER 4 PREPARATIONS FOR REACTIVATION

4.1 General requirements

4.1.1 Notify local port authorities in the lay-up area.

4.1.2 Notify ISC and confirm that classification requirements have been fulfilled prior to leaving the lay-up location.

4.1.3 Ensure that all statutory certificates are valid.

4.1.4 The crew is to be manned as required.

4.1.5 The preparations would be a part of the reactivation survey, where both of them are undertaken simultaneously.

4.2 Preparations

All temporary installations in connection with the maintenance measures are to be removed. Protective materials and coatings (oil, grease, rust inhibitor, desiccant) applied during the lay-up period are to be removed or it is demonstrated that they will not have harmful effects if remaining in the systems.

4.2.1 Hull

(1) The sea chests are to either be confirmed free from excessive marine fouling, or such fouling (if any) is to be removed.

(2) Anchoring and mooring equipment is to be checked and operated.

4.2.2 Cargo tanks

(1) Temporary zinc blocks are to be removed. Tanks which have been filled with water ballast containing corrosion inhibitor are to be emptied and cleaned in accordance with manufacturer's instructions. All tanks are to be well ventilated and proved gas-free.

(2) Heating coils are to be blown through by steam or air.

(3) All other tank equipment is to be checked and verified to remain efficient.

4.2.3 Safety equipment

(1) All equipment is to be checked. Particular attention is to be given to emergency and fire fighting systems.

4.2.4 Machinery

(1) Samples of lube oil are to be submitted for full analysis.

(2) All systems are to be checked for completeness and sufficient operation.

(3) Representative samples of all fuel oils kept on board during the lay-up period are to be taken and thoroughly analyzed prior to use in diesel engines. Depending on lay-up location (climate), representative samples of residual fuels may not be possible until steam is available to heat up the fuels.

4.2.5 Boilers

(1) All burners are to be dismantled and cleaned. Fuel oil is to be circulated through the oil burning system.

(2) All safety measurers and emergency shut-off are to be tested. Care is to be taken to proceed slowly when raising steam production.

4.2.6 Main engines

(1) If rust-prevented oil has been used, this is to be removed in accordance with supplier's recommendations. Cooling water for pistons and jackets is to be circulated and checked for leakage.

(2) A complete survey of one cylinder unit with gear as well as two main bearings is to be carried out to check condition of contact surfaces.

(3) Fuel valves are to be cleaned and adjusted and the fuel system checked for leakage.

(4) Checking of crankshaft deflection is to be considered.

4.2.7 Electrical equipment

(1) All circuits are to be checked for insulation resistance to earth.

(2) All electrical cables and equipment are to be examined.

(3) Overload trips of all generator breakers are to be checked for satisfactory operation.

4.2.8 Navigation

(1) All navigation equipment is to be verified to be in good order. All required charts and publications are to be up to date.

4.2.9 Spares

(1) Spares removed from the ship during the lay-up period are to be replenished.

4.2.10 Testing

Testing is to include at least the following equipment:

(1) main engine safety alarms;

(2) engine is to be run ahead and astern by engine room and bridge controls, including testing of shut-down and slowdown functions;

(3) auxiliary engines with connected automation equipment;

(4) all pumping, pneumatic and hydraulic systems, all alarms covering ME, auxiliaries with steering gear;

(5) remote operation of fuel oil and lube oil, pumps and valves;

(6) cargo and ballast pumps;

(7) bilge pumping systems;

(8) all communication systems;

(9) steering gear, including emergency operation;

(10) all deck machinery and equipment;

(11) all navigation and sounding lights and signals.

4.2.11 Antifouling system

(1) All ships will experience fouling during the lay-up period. The extent of the fouling is dependent on time, location and duration among other factors. Hence the hull is to be cleaned prior to reactivation of the ship.

(2) It is advisable to contact the coating supplier for the best cleaning procedure.

(3) The most common in-water cleaning methods are rotating brushes or flushing. Brushing is mainly used on conventional antifouling coatings and hard coatings. Rotating brushes can damage and remove some of the antifouling coating. Depending on the local environmental legislation, one may be required to get a permit to carry out this kind of work as coating fragments are released to the environment.

(4) It is not unlikely that during the cleaning operation, the antifouling system is damaged to such an extent that reapplication of antifouling coating in dry-dock will be necessary.

CHAPTER 5 SURVEYS OF SHIPS IN LAY-UP

5.1 General requirements

5.1.1 The owner is to inform ISC of a ship laid up with ISC class in writing.

5.1.2 For maintaining the class of laid-up ships:

(1) initial lay-up survey is requested at the beginning of the lay-up period;

(2) annual lay-up condition survey is carried out during the lay-up period;

(3) reactivation survey is requested at the termination of the lay-up period.

5.1.3 Where a maintenance scheme agreed by ISC is available for a ship being laid up for a period beyond due date of the special classification survey, all surveys after construction which fall due during lay-up will then be held in abeyance until it is reactivated, subject to satisfactory completion of the annual lay-up condition survey stated in 5.1.2 (2) above.

5.1.4 At request of the owner and as determined by ISC, part or all of surveys after construction may be carried out for a laid-up ship, with particular attention being given to the scope and date of the surveys. Such surveys may be taken into account for determining the scope of a reactivation survey and/or determining the due date of next survey of the same type after construction.

5.2 Initial lay-up surveys

5.2.1 The purpose of the survey at the beginning of the lay-up period is to confirm compliance of safety condition, maintenance measures, location and mooring arrangement of the ship with the lay-up maintenance scheme agreed by ISC.

5.2.2 Upon satisfactory completion of the initial lay-up survey, the lay-up report is to be issued and the classification certificate is to be endorsed to the effect that the ship is laid up.

5.3 Annual lay-up condition surveys

5.3.1 An annual lay-up survey is to be carried out, in lieu of the normal annual survey during the lay-up period, to determine whether the ship remains in compliance with the lay-up maintenance scheme. The scope of the survey is to check whether the lay-up arrangement has been changed, and whether the ship maintenance and testing have been carried out in accordance with the maintenance requirements and recorded in the lay-up logbook.

5.3.2 Ships manned during lay-up are to comply with the requirements regarding fire safety. The requirements may be limited to engine room areas and any high risk area in use, assuming ships are laid up in ballast condition and that the cargo area is clean and gas free.

5.3.3 Upon satisfactory completion of the survey, the classification certificate is to be endorsed.

5.4 Reactivation surveys

5.4.1 The owner is to inform ISC of termination of the lay-up period and apply for the following surveys prior to reactivation of the ship:

(1) an occasional survey, the scope of which depends on the duration of the lay-up period and the surveys carried out during the lay-up period;

(2) all other surveys after construction that are being held in abeyance according to 5.1.3, taking into account the requirements of 5.1.4.

5.4.2 Where the date of reactivation is beyond the original due date of the special survey which is held in abeyance according to 5.1.3, and where surveys have been carried out according to 5.1.4, a complete special survey is to be carried out prior to the reactivation. Those items which have been surveyed in compliance with the special classification survey requirements within 15 months preceding the reactivation may be credited.

5.4.3 Scope of the survey

(1) General requirements

① a general examination of the hull, deck fittings, safety systems, machinery installations (including boilers the survey of which is not due) and steering gear;

② all surveys due at the date of reactivation or which became overdue during the lay-up period.

(2) Hull

① examination of shell plating above the waterline, deck plating, hatch covers and coamings;

② examination of load line items;

③ overall survey of all cargo tanks/holds;

④ overall survey of representative ballast tanks when the lay-up period does not exceed two years;

⑤ overall survey of all ballast tanks when the lay-up period exceeds two years;

⑥ function tests of bilge and ballast systems.

(3) Deck fittings

① examination of the fire main under working pressure;

② where possible, examination of deck piping under working pressure;

③ function tests of class items;

④ checking inert gas installation under working condition after inspection of water seal and function test of deck non-return valve and pressure/vacuum valves.

(4) Machinery installations

① where the notation Lubricating Oil Condition Monitoring is assigned to main engines, auxiliary engines, reduction gears, main thrust bearings and stern tube, the report of analysis of lubricating oil is to be provided;

② general condition of crankcase, crankshaft, piston rods and connecting rods of diesel engines;

③ crankshaft deflections of diesel engines. When engines have been laid up for more than two years, one piston is to be disconnected and one liner removed for examination. Dismantling may be extended if deemed necessary;

④ condition of condensers, heat exchangers and expansion arrangements;

⑤ performance test of safety valves of boilers and air bottles;

⑥ test of bilge level alarms, if fitted.

(5) The main and emergency electrical installations are to be tested. The parallel shedding of main generators and main switchboard safety devices are to be checked.

(6) Other survey items required by the Administration.

(7) For cold lay-up or long-term lay-up, on completion of the above surveys, sea trials are to be performed in the presence of a Surveyor of ISC. The sea trials are to include:

① verification of the satisfactory performance of the deck installations, main propulsion system and essential auxiliaries, including a test of the safety devices;

② an anchoring test;

③ complete tests of steering gear;

④ full head and full astern tests;

⑤ tests of automated machinery systems, where applicable.

5.4.4 Upon satisfactory completion of the surveys, the classification certificate is to be endorsed to the effect that the ship is reactivated.

Appendix 1

SUMMARY OF LAY-UP CONSIDERATIONS FOR EACH CONDITION

	Ship in hot lay-up up to 12 months	**Ship in cold lay-up up to 5 years**	**Ship in long-term lay-up over 5 years**
Lay-up period	1～12 months	12～60 months	> 60 months
Reactivation period	Within 1 week	3 weeks and above	Over 3 months if possible
Manning	Engineering and navigation officers	Only requirements relating to fire, flooding, mooring and security watch to be complied with	Only requirements relating to fire, flooding, mooring and security watch to be complied with
Ship spares control	Crew onboard to control spares removal	Strict procedures to be in place to control spares removal	Strict procedures to be in place to control spares removal
Lay-up equipment onboard generator	As required	Deck generator	Deck generator
Lay-up equipment onboard dehumidifier	As required	Required	Required
Combustible materials control	Normal operation	All combustibles removed	All combustibles removed
Class status	Lay-up		
Class attendance	Annual lay-up condition survey		
ISM and ISPS certificates	Suspended within 6 months, withdrawn after 6 months		
Authority of port State	See requirements of port authority of lay-up location		