

CLASS SURVEY CHECKLIST FOR “LFPF” NOTATION

Ship Name:

Report No.:

I.R. No.:

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| <p>NOTES</p> <p>1. This checklist is to be filled in conjunction with class periodical survey checklist.</p> |
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| DOCUMENTATION |
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| a. Examining the logbooks and operating records with regard to correct functioning of the gas detection systems, fuel supply/gas systems, etc. |
| b. Confirming that manufacturer/builder instructions and manuals covering the operations, safety and maintenance requirements and occupational health hazards relevant to fuel storage, fuel bunkering, and fuel supply and associated systems for the use of the fuel, are available on board. |
| c. Confirming availability of IGF Code, or national regulations incorporating the provisions of IGF Code is on board. |
| d. Confirming availability of maintenance procedures and information for all gas related installations and records for same are maintained. |
| e. Confirming availability of suitable emergency procedures covering all aspects of fuel handling systems including procedures for the emergency shutdown of any equipment that has the potential to become hazardous under certain abnormal condition. |
| f. Confirming that necessary information and procedures are in place for maintenance of electrical equipment installed in explosion hazardous spaces and a record of maintenance is available. The procedure provides that the inspection and maintenance of electrical installations in explosion hazardous spaces shall be performed in accordance with recognized standard. |
| g. Confirming availability of operational procedures including fuel handling manual to ensure trained personnel can safely operate the fuel bunkering, storage and transfer systems. |
| h. Verifying that inspection/survey plan for the liquefied gas fuel containment system approved by the Administration is on board. (Note: The inspection/survey plan identify aspects to be examined and/or validated during surveys throughout the liquefied gas fuel containment system's life and, in particular, any necessary in-service survey, maintenance and testing that was assumed when selecting liquefied gas fuel containment system design parameters. The inspection/survey plan may include specific critical locations where effective defect or crack cannot be assured.) |
| MACHINERY SPACES AND ELECTRICAL INSTALLATIONS |
| DRIP TRAYS Examining that portable and fixed drip trays are in satisfactory condition and thermally insulated from ship's structure. |
| VENTILATION SYSTEM |
| a. Examining the ventilation system, including portable ventilating equipment where fitted, for spaces containing fuel storage, fuel bunkering, and fuel supply units or components or associated systems, including air locks, pump rooms, compressor rooms, fuel preparation rooms, fuel valve rooms, control rooms and spaces containing gas burning equipment |
| b. Testing as far as practicable, alarms such as differential pressure and loss of pressure alarms. |
| CONTROL, MONITORING AND SAFETY SYSTEM |
| a. Confirming that gas detection and other leakage detection equipment in compartments containing fuel storage, fuel bunkering, and fuel supply equipment or components or associated systems, including indicators and alarms, is in satisfactory operating condition. |
| b. Confirming the satisfactory operation of the control, monitoring and automatic shutdown systems of the fuel supply and bunkering systems. |
| c. Verifying that calibration of the gas detection systems carried out in accordance with manufacturer requirement and record of same available. |
| d. Confirming of shutdown of ESD protected machinery spaces operational and tested operationally as far as practicable. |
| HAZARDOUS AREAS Examining that electrical equipment and bulkhead / deck penetrations including access opening in hazardous areas are maintained and in satisfactory condition |

Condition to be reported using number code as follows:

1. When examined found to be satisfactory and/or examined/tested satisfactory and/or confirmed arrangements exist in satisfactory condition. No repairs considered necessary this time.
2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
3. Repairs now recommended and remain outstanding.
4. Opportunity to examine/test was not provided this time. Remains outstanding.

NA - Not Applicable

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| ELECTRICAL BONDING Examining electrical bonding arrangements in hazardous areas including bonding straps where fitted. |
| FUEL SYSTEM |
| FUEL HANDLING PIPING, MACHINERY AND EQUIPMENT |
| a. Examination and testing; as far as practicable, of piping, hoses, emergency shut-down valves, remote operating valves, relief valves, machinery and equipment for fuel storage, fuel bunkering, and fuel supply such as venting, compressing, refrigerating, liquefying, heating, cooling or otherwise handling the fuel. |
| b. Examination that means of inerting provided on board is in satisfactory condition. |
| c. Confirmation; as far as practicable, of stopping of pumps and compressor in case of emergency shutdown of the system. |
| FUEL STORAGE SYSTEM |
| a. Examining the condition and arrangement of fuel storage systems including external examination of storage tank (including secondary barrier if fitted), internal examination of tank connection space and relief valves if accessible. |
| b. Verification of satisfactory operation of tank monitoring system, examination and testing of installed bilge alarms and means of drainage. |
| c. Examination and testing of the bilge alarms and means of drainage of the compartment. |
| d. Testing of the remote and local closing of the installed main tank valve for fuel storage system |
| FUEL BUNKERING SYSTEM |
| Examining and testing of bunkering stations and the fuel bunkering system including satisfactory operation of the fuel bunkering control, monitoring and shutdown systems. |
| FUEL SUPPLY SYSTEM |
| a. Examining of fuel supply system during working condition as far as practicable including the fuel supply system control, monitoring and shut-down systems |
| b. Examining and testing of remote and local closing operation of master fuel valve for each engine compartment. |
| ADDITIONAL REQUIREMENT TOWARDS INTERMEDIATE SURVEY |
| SAFETY SYSTEM Examining and testing gas detectors, temperature sensors, pressure sensors, level indicators, and other equipment providing input to the fuel safety system, including verification of the response upon fault conditions |
| ADDITIONAL REQUIREMENT TOWARDS SPECIAL SURVEY |
| FUEL HANDLING AND PIPING Examining of all piping for fuel storage, fuel bunkering, and fuel supply such as venting, compressing, refrigerating, liquefying, heating storing, burning or otherwise handling the fuel and liquid nitrogen installations. Confirmation of removal of insulation from the piping and opening for examination and hydrostatic test of suspected pipeline as necessary, and leak test of complete piping after reassembly carried out and found satisfactory. |
| FUEL VALVES Examining and testing of all emergency shut-down valves, check valves, block and bleed valves, master gas valves, remote operating valves, isolating valves for pressure relief valves in the fuel storage, fuel bunkering, and fuel supply piping systems, with randomly selected valves being opened for examination. |
| PRESSURE RELIEF VALVES |
| a. Examining pressure relief valves connected to fuel storage tanks, connecting pipes & venting system checked in open condition, tested for the setting, and found satisfactory. |
| b. Confirmation that pressure relief valves in fuel supply/bunker lines, checked in open condition for internal examination, tested for the setting and found satisfactory. (Note: Where proper record of continuous overhaul and resetting of individually identifiable relief is maintained, consideration to be given to acceptance on the basis of opening, internal examination, and testing of representative sampling of valves, including each size and type of valves in use, provided logbook evidence that remaining valve have been overhauled and tested since crediting of the previous special survey.) |
| c. Confirmation that pressure/vacuum relief valves, rupture disc and other pressure relief devices for interbarrier spaces and hold spaces, examined in open condition, tested for setting and found satisfactory. |
| FUEL STORAGE TANK Examining of fuel storage tanks internally in accordance with an approved survey plan, visual examination of tank insulation and tank support arrangement, NDT of suspected area if required. |

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NA - Not Applicable

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| (Note: Vacuum insulated independent fuel storage tank of type C without access openings need not be examined internally and where fitted vacuum monitoring system to be examined and record to be reviewed) |
| FUEL HANDLING EQUIPMENT Examining of fuel pumps, compressors, process pressure vessels, inert gas generators, heat exchangers and other components used in connection with fuel handling. |
| ELECTRICAL EQUIPMENT |
| a. Confirming that electrical equipment fitted in hazardous area are certified safe type (intrinsically safe, explosion proof or increased safety features) and are maintained in satisfactory condition |
| b. Confirming that electrical cable installed in hazardous area are continuous and are in satisfactory condition. |
| c. Examining and functional testing of pressurized equipment and associated alarms and testing of system to de-energization electrical equipment, which are not certified for use in hazardous areas |
| d. Verifying that electrical insulation resistance of the equipment, electrical circuit terminating in, or passing through hazardous zones and spaces are carried out and meeting the requirement. |
| SAFETY SYSTEM |
| a. Examining and testing gas detectors, temperature sensors, pressure sensors, level indicators, and other equipment providing input to the fuel safety system, including verification of the response upon fault conditions, |
| b. Confirmation that calibrations of pressure, temperature and level indicating equipment in accordance with the manufacturer's requirements carried out and record for same available. |

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