CCS Rule Change Notice For:

Rules for Natural Gas Fuelled Ships 2017

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Beijing

CHAPTER 1 GENERAL

Section 4 SHIP SURVEYS

The existing paragraph 1.4.3.1(1)③ is revised as follows:

③ External examination of relief valves, and calibrating the maximum opening pressure setting of tank pressure relief valves;

The existing paragraph 1.4.3.1(1)④ is revised as follows:

④ inspecting whether the pressure, liquid level, temperature indicators and attached alarms are in order;

The existing paragraph 1.4.3.1(1)⑤ is revised as follows:

⑤ External examination of the storage tanks including secondary barrier if fitted and accessible. Inspecting any erosion, corrosion, scratch, indent, deformation, weld defect, frosting or condensation of the shell of vacuum insulated type C independent tanks;

The paragraph 1.4.3.1(1)⑧ is added as follows:

⑧ General examination of the fuel storage hold place；

The paragraph 1.4.3.1(1)⑨ is added as follows:

⑨ Examination and testing of installed bilge alarms and means of drainage of the compartment；

The paragraph 1.4.3.1(1)⑩ is added as follows:

⑩ Testing of the remote and local closing of the installed main tank valve.

The existing paragraph 1.4.3.1(3) is revised as follows:

（3）Examining whether the sealing devices of tank connection spaces and gas valve unit spaces are in order, and internal examination of tank connection space;

The existing paragraph 1.4.3.1(7) is revised as follows:

（7）Portable and fixed drip trays and insulation for the protection of the ship’s structure in the event of leakage are to be examined;

The existing paragraph 1.4.3.1(8) is revised as follows:

（8）Examination of the ventilation system, including portable ventilating equipment where fitted, is to be made 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. Where alarms, such as differential pressure and loss of pressure alarms, are fitted, these should be operationally tested as far as practicable;

The existing paragraph 1.4.3.1(9) is revised as follows:

（9）Verification of the satisfactory operation of the control, monitoring and automatic shut-down systems (including manual emergent shut-down function) as far as practicable of the fuel supply and bunkering systems;

The existing paragraph 1.4.3.1(10) is revised as follows:

（10）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 is to be examined, as far as practicable. Special attention is to be given to the expansion joints and brackets on pipes. Means for inerting is to be examined. Stopping of pumps and compressors upon emergency shut-down of the system is to be confirmed as far as practicable.

The existing paragraph 1.4.3.1(11) is revised as follows:

（11）Electrical equipment and bulkhead/deck penetrations including access openings in hazardous areas are to be examined for continued suitability for their intended service and installation area，and checking the maintenance repair records;

The existing paragraph 1.4.3.1(12) is revised as follows:

（12）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 to be confirmed in satisfactory operating condition. Recalibration of the gas detection systems should be verified in accordance with the manufacturers' recommendations;

The existing paragraph 1.4.3.1(19) is revised as follows:

（19）The logbooks and operating records are to be examined with regard to correct functioning of the gas detection systems, fuel supply/gas systems, etc. The hours per day of the re-liquefaction plant, gas combustion unit, as applicable, the boil-off rate, and nitrogen consumption (for membrane containment systems) are to be considered together with gas detection records;

The paragraph 1.4.3.1(20) is added as follows:

（20）The 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 to be confirmed as being aboard the vessel;

The paragraph 1.4.3.1(21) is added as follows:

（21）Operational test, as far as practicable, of the shutdown of ESD protected machinery spaces;

The paragraph 1.4.3.1(22) is added as follows:

（22）Electrical bonding arrangements in hazardous areas, including bonding straps where fitted, are to be examined;

The paragraph 1.4.3.1(23) is added as follows:

（23）Fuel bunkering system

① Examination of bunkering stations and the fuel bunkering system;

② Verification of satisfactory operation of the fuel bunkering control, monitoring and shut-down systems.

The paragraph 1.4.3.1(24) is added as follows:

（24）Examination of the fuel supply system during working condition as far as practicable:

① Verification of satisfactory operation of the fuel supply system control, monitoring and shut-down systems;

② Testing of the remote and local closing of the master fuel valve for each engine compartment.

The paragraph 1.4.3.2(5) is added as follows:

（5）Safety systems: Gas detectors, temperature sensors, pressure sensors, level indicators, and other equipment providing input to the fuel safety system are to be randomly tested to confirm satisfactory operating condition. Proper response of the fuel safety system upon fault conditions is to be verified.

The existing paragraph 1.4.3.3(1) ⑤ is revised as follows:

⑤ The pressure relief valves and vacuum relief valves for the fuel storage tanks are to be opened for examination, adjusted, and function tested(if applicable). If the tanks are equipped with relief valves with non-metallic membranes in the main or pilot valves, such non-metallic membranes are to be replaced.

The paragraph 1.4.3.3(1) ⑦ is added as follows:

⑦ Fuel storage tanks are to be examined in accordance with an approved survey plan. In developing the inspection/survey plan according to paragraph 4.2.1.8 of the Rules, the requirements for the survey of liquefied gas fuel containment systems are to be in accordance with the requirements of PART 2 paragraph A2.3.2.4 of CCS Rules for Construction and Equipment of Ships Carrying Liquefied Gases in Bulk or PART 2 paragraph A1.3.3.4 of CCS Rules for Construction and Equipment of Inland Waterways Ships Carrying Liquefied Gases in Bulk except as noted below:

（a）The tank insulation and tank support arrangements should be visually examined. Non-destructive testing may be required if conditions raise doubt to the structural integrity.

（b）Vacuum insulated independent fuel storage tanks of type C need not be examined internally. Where fitted, the vacuum monitoring system should be examined and records should be reviewed.

The existing paragraph 1.4.3.3(2) is revised as follows:

（2）Piping

① 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 are to be examined. Removal of insulation from the piping and opening for examination may be required. A special inspection is to be carried out to the sealing condition. Where deemed suspect, a hydrostatic test to 1.25 times the Maximum Allowable Relief Valve Setting (MARVS) for the pipeline is to be carried out. After reassembly, the complete piping is to be tested for leaks. Where water cannot be tolerated and the piping cannot be dried prior to putting the system into service, the Surveyor may accept alternative testing fluids or alternative means of testing;

② A random selection of pressure relief valves for the fuel supply and bunkering piping are to be opened for examination, adjusted, and function tested. Where a proper record of continuous overhaul and retesting of individually identifiable relief valves is maintained, consideration will be given to acceptance on the basis of opening, internal examination, and testing of a representative sampling of valves, including each size and type of liquefied gas or vapor relief valve in use, provided there is logbook evidence that the remaining valves have been overhauled and tested since crediting of the previous Special Survey;

③ 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 are to be examined and proven operable. A random selection of valves is to be opened for examination.

The existing paragraph 1.4.3.3（3）、（4）、（5）、（6）、（8）、（9）are deleted.

The paragraph 1.4.3.3(3) is added as follows:

（3）The pressure/vacuum relief valves, rupture disc and other pressure relief devices for interbarrier spaces and hold spaces are to be opened, examined, tested and readjusted as necessary, depending on their design.

The paragraph 1.4.3.3(4) is added as follows:

（4）Fuel handling equipment

① Fuel pumps, compressors, process pressure vessels, inert gas generators, heat exchangers and other components used in connection with fuel handling are to be examined as required in the CCS Rules for periodical survey of machinery;

② Heat exchangers are to be opened up for examination and tested for performance;

③ Examining the inert gas generator to confirm that the generated inert gas is compliance with the technical specifications and the generator is in order;

④ A general examination of inert gas distributing valves and pipes, an internal and external examination of pressure vessels for storage of inert gas and a special survey are to be carried out, and the satisfactory condition of pressure relief valves confirmed;

⑤ Each compressor being opened up to examine the moving parts, fixed parts, valves, valve seat rings, gland covers, relief devices, filters and lubricating equipment, etc. where the Surveyor is satisfied to the alignment and abrasion, the lower bearing and crankcase seal glands may not be opened up for examination.

The existing paragraph number 1.4.3.3(7) is replaced by number 1.4.3.3(5).

The existing paragraph number 1.4.3.3(10) is replaced by number 1.4.3.3(6).

The paragraph 1.4.3.3(7) is added as follows:

（7）Electrical equipment

① Examination of electrical equipment to include the physical condition of electrical cables and supports, intrinsically safe, explosion proof, or increased safety features of electrical equipment;

② Functional testing of pressurized equipment and associated alarms;

③ Testing of systems for de-energizing electrical equipment which is not certified for use in hazardous areas;

④ An electrical insulation resistance test of the circuits terminating in, or passing through, the hazardous zones and spaces is to be carried out.

The paragraph 1.4.3.3(8) is added as follows:

（8）Safety systems

① Gas detectors, temperature sensors, pressure sensors, level indicators, and other equipment providing input to the fuel safety system are to be tested to confirm satisfactory operating condition;

② Proper response of the fuel safety system upon fault conditions is to be verified;

③ Pressure, temperature and level indicating equipment are to be calibrated in accordance with

the manufacturer’s requirements.

CHAPTER 4 FULE CONTAINMENT SYSTEMS

Section 1 GENERAL PROVISIONS

The paragraph 4.1.3.6 is added as follows:

4.1.3.6 Whether a drip tray is needed or not is to be in accordance with the following:

（1）When the tank is located on the open deck, drip trays are to be provided to protect the deck from leakages from tank connections and other sources of leakage;

（2）When the tank is located below the open deck but the tank connections are on the open deck, drip trays are to be provided to protect the deck from leakages from tank connections and other sources of leakage;

（3）When the tank and the tank connections are located below the deck, all tank connections are to be located in a tank connection space. Drip trays in this case are not required.

The existing paragraph number 4.1.3.6 to 4.1.3.17 and referenced paragraph number in the Rules are increased in sequence, such as the existing paragraph number 4.1.3.6 to 4.1.3.17 are replaced by number 4.1.3.7 to 4.1.3.18.