



Circular

China Classification Society

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TO: All relevant departments of CCS headquarters, CCS plan approval centers, CCS survey units, owners, operators, shipbuilders, manufacturers of product for marine service, ship-design companies and equipment suppliers

Attentions to the Evaluation/Alteration and Survey/Certification for Equipment of Ships Using Low Sulphur Fuel

Revised by Directive 2005/33/EC, article 4b of Directive 1999/32/EC concerning the regulation of maximum sulphur content of marine fuels used by ships at berth in Community ports (see details in attachment 1) has entered into force since the 1 January 2010.

It is mainly indicated by article 4b of Directive 2005/33/EC that with effect from 1 January 2010, ships at berth in Community ports (incl. moored and anchored) for more than two hours should use marine fuel with a sulphur content not exceeding 0.1%*m/m* (hereinafter referred to as “low sulphur fuel”). Whereas this requirement is not supply to the ships which switch off all engines and use shore-side electricity while at berth in ports. Ships at berth in Community ports should change to low sulphur fuel as soon as possible after arrival at berth and to high sulphur fuel as late as possible before departure. Fuel-changeover operation should be recorded in ships’ logbooks.

TM Circular No. 361(032/2009) Notice on the requirement of EC Directive in terms of the use of low sulphur fuel by ships at berth in Community Ports, issued by CCS on 3 December 2009, introduces the detailed requirement of this new EC Directive and to which the characteristic of low sulphur fuel conforms, also analyses the effects of using low sulphur fuel on ships’ existing equipment, and reminds owners to make risk identification/evaluation/alteration to their relative equipment and of the requirements of CCS plan approval, survey and audit that concerned to such process.

COMMISSION RECOMMENDATION of 21 December 2009 on the safe implementation of the use of low sulphur fuel by ships at berth in Community ports (see details in attachment

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2) was released by European Union a period ago, and subsequently advised by CCS in Notice to Shipowners No.141 on 1 January 2010. The main idea of this recommendation is:

Since 1 January 2010, as part of the enforcement actions of aforementioned directive, Member States of European Union can request ships which are found applied but failed to comply with the requirement of using low sulphur fuel during inspections to provide detailed evidence of the steps they are taking to achieve compliance. This should include an alteration contract with a relevant manufacturer and an approved retrofit plan which should be approved by the ship's classification. The retrofit plan should clearly state the scheduled date of completion of the adaptation and certification process. Member States may consider the existence of an approved retrofit plan when assessing the degree of penalties to be applied to non-complying ships. Additionally, Notice to Shipowners No.141 also shows a document *Questions and Answer On the use of fuel containing not more than 0.1% sulphur in ships while at berth* issued by European Union (see details in attachment 3).

Whereas it is indicated clearly in the above recommendation that the retrofit plan of equipment concerned should be approved by ship's classification, in order to make owners/operators understand the requirements concerned to evaluation and alteration and to make surveyors easy carry out plan approvals/surveys/certification in correct way, this circular is to make a further confirmation on those processes as a complement to TM Circular No. 361(032/2009) and Notice to Shipowners No.141. From the date of issuance of this circular, all ship companies and survey units are advised to operate the evaluation/alteration and survey/certification for the equipment of ships using low sulphur fuel under the requirements of this circular.

I. Requirement of safety evaluation, retrofit plan, onboard fuel-changeover procedure and equipment-operation manual

1. Safety evaluation

Before the use of low sulphur fuel of ship, its owner or operator should consult with a relevant manufacturer or professional design company, such as ship's original shipbuilding/equipment design company, to confirm whether the equipment can make safe use of low sulphur fuel and whether there is a further demand of alteration for equipment, pipes and relevant arrangement, and should ask the manufacturer or professional design company for his analysis and evaluation in term of possible problems which may come out after equipment using low sulphur fuel, and for his subsequent measures and recommendations under his analysis and evaluation as well as a final evaluation report. The evaluation report is advised to at least include the analysis and evaluation for following items:

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(1) For diesel engines, involving main engine (in the case of certain ships at berth need to use main engine to drive equipment or run it for test after its repair, etc.), auxiliary engines and other equipment in need of low sulphur fuel (as incinerator, etc.) as well as their accessories:

- a) The safety storage and isolation of low sulphur fuel,
- b) The reliability and adaptability of low-sulphur-fuel transfer system including piping system and fuel pump; Safety of fuel control system,
- c) The feasibility of fuel changeover between low sulphur fuel and other fuel,
- d) The impacts of low flash point, low viscosity and low lubrication of low sulphur fuel on equipment (including effects after certain actions such as adding additive to the low sulphur fuel, or adding cooling equipment to the fuel system in light of the manufacturer's requirement, etc.),
- e) The adaptability of cylinder oil of diesel engines after using low sulphur fuel,
- f) The impacts on the delayed firing and burning effectiveness of diesel engines after using low sulphur fuel.

(2) For oil-fired boilers:

- a), b), c) and d) are the same as the above,
- e) The applicability of the detection of fire and the monitoring facility in boiler after using low sulphur fuel,
- f) The applicability of burner after using low sulphur fuel,
- g) The applicability of burning control system of boiler after using low sulphur fuel,
- h) The changes of evaporation rate as a result of different heat value after using low sulphur fuel.

The evaluation report should contain a conclusion that clearly shows whether the above mentioned equipment can safely use low sulphur fuel, and whether it should be altered for using low sulphur fuel. Also, the grade of low sulphur fuel (as the fuel grade regulated by ISO 8217:2005 standard) which is suitable for the equipment and the parameters of its main performances index concerning the safety of suitable low sulphur fuel, such as viscosity, flash point and lubrication, etc. should be confirmed in the conclusion.

2. If the evaluation report makes a conclusion that diesel engines, boilers and other equipment should be altered for using low sulphur fuel, a retrofit plan should be made according to its suggestions, including the declaration on the intended date of completion of the alteration, and the alteration for equipment and piping arrangement should comply with CCS current rules and the requirements of relevant conventions. The retrofit plan should be sent to CCS plan approval centers for approval. If the evaluation report makes an opposite conclusion that no need to alter the equipment, CCS survey units may issue a relevant statement under owner's application.

3. Owner or operator should develop a fuel-changeover procedure for low sulphur fuel and other fuel and an operation manual for low sulphur fuel. It should be regarded that if the fuel-changeover procedure for onboard diesel oil and heavy oil and the one for fuel with a sulphur content not exceeding 1.5%*m/m* and 4.5 %*m/m* that made for complying with MARPOL Annex VI have already existed, they should be gone on enforced and kept onboard. The new fuel-changeover procedure and operation manual are suggested to be added to onboard SMS documents. It is advised that while buying low sulphur fuel, owner or operator should pay attention to not only its compliance of sulphur content, but also the compliance of its other performance indexes for manufacturers' regulations. And a special attention should be paid that the flash point and the use at certain flash point of low sulphur fuel should comply with the conventions concerned and the requirements of CCS rules.

4. If the operation procedure and steps of low sulphur fuel are changed in the use of equipment, a new operation manual should be made and added to relevant SMS documents.

II Approval of relevant documents and plans

According to the conclusion of evaluation report, if the equipment and piping arrangement should be altered, the following documents and plans of the alteration should be sent to CCS plan approval centers by owner or operator before the alteration taken place:

1 Retrofit plan, including:

- (1) Added or altered fuel tank and piping arrangement, fuel piping plan for main/auxiliary engines and boiler after alteration (incl. fuel supply, transfer, purifying, heating, cooling(if any), etc., and the detailed parameter specification of piping accessories as pump, valve, etc.) and engine room arrangement plan.
 - (2) Added or altered burning control system of boiler and its accessories.
 - (3) Other plans and documents related to the alteration, such as relevant documents provided by manufacturer.
- 2 The evaluation report, fuel-changeover procedure for low sulphur fuel and other fuel and the renewed operation manual (if applicable) should also be submitted to CCS plan approval center as reference.

The delivered plans and documents should comply with CCS rules and the relevant requirements of conventions. It should be paid special attention that for the diesel engine holding EIAPP Certificate or Statement of Compliance, if it needs to be altered for using low sulphur fuel and leads to an alteration of component members of NO_x emission , it

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should be subjected to a new plan approval and survey in light of NOx Technical Code. After approves those documents and plans, CCS plan approval center shall issue an approval including the owner's intended date of completion of the alteration, survey and certification as well as ship name, equipment name, document name and plan no., etc..

III Alteration survey

The alteration should be carried out according to the approved documents and plans, and apply for an occasional survey of CCS. The survey should at least include the following items:

- 1 Tightness test to fuel tank,
- 2 Hydraulic test and tightness test to fuel piping,
- 3 Inspection and test to newly-installed equipment,
- 4 General inspection to alteration project,
- 5 System function test,
- 6 Other necessary tests in need of alteration.

Newly-installed equipment and products should be checked with product certificates according to the requirement of CCS products certification list. The test pressure of hydraulic test and tightness test should be confirmed in light of work pressure and CCS rules.

The site surveyor should confirm that:

- 1 Relevant documents and plans related to the alteration have been approved,
- 2 Appointed low sulphur fuel tank has been identified,
- 3 Fuel-changeover procedure for low sulphur fuel and other fuel has been kept on board,
- 4 Operation manual of low sulphur fuel has been kept on board.

IV Certificate, report and onboard document

After finishing the alteration survey, the survey unit should describe the survey detail in RA report. If equipment changes, relevant certificates, attachments and records should be amended or renewed accordingly. Under the request of owner or operator, a formal statement CSB-2 (see model 1 in attachment 4) can also be issued.

After survey, the following documents should be kept on board:

- (1) Evaluation report,
- (2) Retrofit plan,
- (3) Fuel-changeover procedure for low sulphur fuel,

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- (4) Equipment operation manual (if applicable),
- (5) RA report and statement (if applicable).

In the case of ship can use low sulphur fuel without equipment alteration according to the conclusion in the evaluation report of manufacturer or professional design company, under owner or operator's application, CCS survey unit may carry out an verification on the evaluation report and relevant fuel-changeover procedure and issue a statement CSB-2 (see model 2 in attachment 4) if this verification comes to satisfactory.

It need to be regarded that the date of entry into force of article 4b, Directive 2005/33/EC, is not postponed by EC *COMMISSION RECOMMENDATION of 21 December 2009 on the safe implementation of the use of low sulphur fuel by ships at berth in Community ports*. So since that time, it may fail to comply with this directive if the onboard equipment only finishes the safety evaluation or gains the retrofit plan approved by the ship's classification without completion of the alteration and use of low sulphur fuel required. The recommendation, for the moment, just advises Member States to consider the existence of the above mentioned retrofit plan approved by ship's classification when assessing the degree of penalties to be applied to non-complying ships.

The circular will be released on CCS website (www.ccs.org.cn) and be transmitted by CCS branches to their regional owners, operators, shipbuilders, manufacturers of product for marine service, ship-design companies and equipment suppliers.

Attachment:

- 1 EC Directive 2005/33/EC, EC Directive 1999/32/EC
- 2 COMMISSION RECOMMENDATION of 21 December 2009 on the safe implementation of the use of low sulphur fuel by ships at berth in Community ports
- 3 Questions and Answer On the use of fuel containing not more than 0.1% sulphur in ships while at berth
- 4 Statement issued after equipment alteration
(Model 1: Statement of Ship's Capability of Using Low Sulphur Marine Fuels)
- 5 Statement issued if the equipment in no need of alteration
(Model 2: Statement of Ship's Capability of Using Low Sulphur Marine Fuels)