

# Propeller Shaft Condition Monitoring Systems

## Amended Rules and Guidance

Rules for the Survey and Construction of Steel Ships Part B  
Rules for the Survey and Construction of Inland Waterway Ships  
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Guidance for the Survey and Construction of Inland Waterway Ships

## Reason for Amendment

- (1) Ships adopting Propeller Shaft Condition Monitoring Systems (PSCM) are expected to prevent accidents before they happen by monitoring the conditions of their propeller shafts and stern tubes through proper bearing temperature monitoring and regular lubrication oil analysis. The number of ships adopting PSCM has been increasing in recent years because of the direct impact the results of such monitoring can have on the timing of open-up surveys for propeller shafts. Basically, the more effective the monitoring, the greater the interval between surveys requiring the actual drawing out of propeller shafts for inspection.

Certain ships are unable to adopt PSCM because they cannot satisfy the redundancy requirements (e.g., 2 or more embedded temperature sensors or a single embedded temperature sensor which can be replaced from inside the ship) for bearing temperature monitoring devices. It is believed, however, that such ships can sufficiently monitor propeller shaft conditions in either of two ways: (a) By carrying out the lubricating oil analysis at intervals not exceeding 6 *months* required for PSCM ships and by carrying out monthly lubricating oil water content analysis; or, (b) By carrying out the lubricating oil analysis required for PSCM ships at intervals not exceeding 3 *months*.

Accordingly, relevant requirements were amended to specify that ships satisfying the above (a) or (b) are to be treated as ships satisfying PSCM requirements.

- (2) The ClassNK Rules required that the results of the lubricating oil analysis required by Propeller Shaft Condition Monitoring System (PSCM) be regularly submitted so that they can be verified.

However, the results of such analyses are checked and verified on board the ship itself during annual surveys and any abnormalities found are reported to the Society; Moreover, this survey scheme has been in effect for a number of years with more than adequate track record. Therefore, relevant requirements were amended that to specify that the results of lubricating oil analysis are to be maintained on board, and that said results are no longer required to be submitted to the Society on a regular basis.

## Outline of Amendment

- (1) Specified a new Propeller Shaft Condition Monitoring System (PSCM), based upon existing PSCM requirements, which states that ships with at least one embedded bearing temperature sensor are required to either carry out lubricating oil analysis at intervals not exceeding 6 *months* as well as monthly lubricating oil water content analysis, or lubricating oil analysis at intervals not exceeding 3 *months*.

- (2) Specified that the Society is to assign the notation “*Propeller Shaft Condition Monitoring System • A*” (abbreviated to “*PSCM • A*”) as classification characters to ships deemed to have satisfied **(1)** above.
- (3) Amended requirements related to the results of lubricating oil analysis required by PSCM to specify that said results are to be maintained on board and are no longer required to be submitted to the Society.