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New requirement for thickness measurements of SOx scrubber overboard piping

Based on recent experiences, DNV GL has updated its rule requirements for SOx scrubber overboard piping requiring annual thickness measurements of the scrubber overboard valve distance piece.

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Background

When the Fleet in Service requirements for SOx scrubber systems were initially introduced, the damage history of inert gas scrubber overboard piping was reviewed. Based on the results of that review, it was decided that a five-yearly inspection and examination during the bottom survey would suffice to guarantee the condition of the overboard piping (valve and distance piece).

Experience

Recent experiences however have shown that the elevated temperature of the exhaust gas scrubber discharge, compared to the inert gas scrubber discharge temperature, is causing a far more corrosive environment. In addition, the possibility to use 3D modelling of the acidity distribution of the discharge, instead of direct measurements of the discharge plume pH levels, has led to even lower pH levels directly at the overboard valve location.

These two factors have contributed to several vessels suffering from excessive corrosion of the SOx scrubber overboard distance piece, necessitating exchange of the distance pieces after less than a year of operation.

It should also be mentioned that newer SOx scrubber systems often are equipped with diffusers inside the distance piece. These diffusers themselves are vulnerable to corrosion attacks, but more important, their fixation to the distance piece, either welded or bolted, often forms a weak spot in the corrosion protection of the distance piece. These locations therefore should be examined carefully prior to delivery and during service to ensure that the applied corrosion protection is sufficient and intact.

Requirements

Because of these experiences, DNV GL has introduced an additional requirement for the SOx scrubber overboard valve distance piece. It shall be verified during the annual class survey that the distance piece has not diminished in thickness. Normally, these pipes are of the coated type and any reduction of the wall thickness indicates that the coating has been damaged and the pipe needs to be replaced within a reasonable amount of time.

UTM measurements done by a level II qualified operator in the three months leading up to the survey can be accepted as documentation of the condition of the distance pieces. Alternatively, if divers have performed an underwater inspection during that period and have been able to inspect the condition of the entire distance piece up to the overboard valve, their report can be accepted as documentation.

Outlook

SOx scrubber technology is relatively young and continuous progress is being made towards more robust and maintenance-friendly systems. Once robust solutions are developed and this problem is a thing of the past, the rules will be updated to reflect that situation. However, at the moment, for the safety of the crew and the vessel, we believe it is necessary that the condition of the distance piece be confirmed on a yearly basis.

Recommendations

We recommend that our customers plan for the new requirement, as stated above. This implies an annual survey of the distance piece.

References

Please see DNV GL class rules, Part 7, Chapter 1, Section 2 3.1.9

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