Exhaust Gas Monitoring – The Position of Class

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What is Class?

- Classification Rules and Regulations cover the physical aspects of a vessel – hull structure, propulsion and auxiliary machinery, electrical and control systems, etc.

- International and national statutory regulations cover the other attributes of ship design and operation, e.g. intact and damaged stability, safety equipment, fire safety, pollution prevention, safety management systems, etc.

- A Classification Society acts both on its own behalf and may also act as a Recognised Organisation on behalf of a Flag State for statutory requirements.
Relationship between Class and Statutory Requirements

Classification

Implementation of standards for:

- Strength
  - Strength
- Propelling Machinery
- Electrical Systems
- Control Systems
- Anchoring Equipment

IMO Conventions

- Safety
  - SOLAS
  - Fire
  - Lifesaving
  - Communications
  - Damage Stability
- Floatability
  - Loadline
  - Freeboard
  - Intact Stability
  - Damage Stability
- Pollution
  - MARPOL
  - Operational
  - Accidental

Statutory Certification
Emissions Monitoring – Class Interest

- Class is interested in whether emissions monitoring equipment is safe, it may issue Type Approvals and will appraise equipment as part of the design appraisal process. Class is not concerned with environmental compliance.

- Emissions performance and compliance with statutory requirements lies outside the scope of class and are within the competency of the Flag State.

- However, a Classification Society may act as a Recognised Organisations for the Flag State. When carrying out this role they are not acting on behalf of Class.
Monitoring vs. Control

- Emissions monitoring may be purely for the purposes of monitoring emissions or it maybe for control of emissions abatement equipment.

- Where emissions monitoring equipment is used to control emissions abatement plant (e.g. controlling reductant injection for a SCR) then it is of interest to Class and within the scope of Classification.

- Where it is used only for emissions monitoring then it lies outside class.
• Statutory compliance requirements for NOx monitoring and compliance verification are contained in the NOx Code and lie outside of Class.

• However, LR anticipates that NOx monitoring equipment will be widely fitted for controlling NOx abatement equipment such as SCR. LR believes in a goal based, non prescriptive approach to such equipment when used for process control and will appraise such designs against Class Rules.

• LR is confident that instrument suppliers can supply NOx monitoring instrumentation which is suitable for the marine environment and which will meet the requirements of Class Rules.
Where SOx abatement is used as an alternative to combusting low Sulphur fuel then this is subject to Flag State approval which will include the means of verifying compliance with the relevant emissions regulations. This may be by means of continuous direct measurement but this is not compulsory and lies outside the scope of Class.

However as with NOx, LR anticipates wide adoption of SOx monitoring equipment to control abatement equipment and to improve efficiency and costs (eg. by optimising water flow, chemical consumption). As with NOx, instrumentation forming part of machinery control systems is of interest to Class.

LR is confident that instrument suppliers can supply SOx monitoring instrumentation which is suitable for the marine environment and which will meet the requirements of Class Rules.
LR anticipates that shipping is still many years away from CO2 abatement technologies therefore we only foresee a requirement for CO2 monitoring. CO2 emissions monitoring carried out for statutory reasons or as part of emissions trading schemes will be outside the scope of class.

Class may offer Type Approval services and may require instrumentation meets class rules for use of equipment onboard, but measurement accuracy and other aspects related to environmental performance will be matters for the Flag State.

LR is anticipates that such monitoring may use either direct measurement or a calculation derived from fuel usage.
• LR considers that there are measurement instruments suitable for both direct measurement of emissions and for measurement of fuel usage.

• The decision as to whether to use direct measurement of emissions or to use a fuel usage based methodology should be based on a goal/performance based evaluation rather than a prescriptive requirement, and that as with NOx and SOx the determining factors should be accuracy and transparency.
Classification Societies acting as a Recognised Organisation

- Classification Societies may carry out most of the responsibilities for approvals, monitoring and surveying emissions for the purposes of verifying compliance with statutory requirements, but when doing this are acting on behalf of the Flag State, not Class.
Conclusion

- LR considers that direct measurement of emissions is technically achievable and that it will form a significant part of the control philosophy for emissions abatement systems.

- Providing such measurement equipment meets Class Rules for electrical equipment, equipment in zoned areas etc then LR have no objections to its use and support the development of such instruments for the marine environment.

- LR provides services on behalf of Flag States for statutory approvals, compliance and verification, but these services are not a part of Class requirements.
Any questions?
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