



**BUREAU
VERITAS**

BUREAU VERITAS NORTH AMERICA, INC.
MARINE DIVISION

June 3, 2005

VIA FAX & FIRST CLASS MAIL

Mr. Thomas K. Roth-Roffy
Engineering Group Chairman
National Transportation Safety Board
Office of Marine Safety
490 L'Enfant Plaza East, S.W.
Washington, DC 20594-2000

Re: S/S Norway Boiler Accident

Dear Mr. Roth-Roffy:

As a party to the S/S Norway boiler explosion investigation, we herewith provide the National Transportation Safety Board with Bureau Veritas' ("BV's") proposed remarks, additional to the first ones we already made, on the NTSB draft factual engineering report and relevant documents, as they relate to the S/S Norway's boiler classification surveys.

The Role of Classification Societies

1. As explained by the International Association of Classification Societies ("IACS"), classification societies establish and apply technical requirements ("rules") in relation to the design, construction, and survey of marine-related facilities including ships and offshore structures.

2. A vessel that has been designed and built to the appropriate rules of a society may apply for a Certificate of Classification from that society. The society issues this certificate upon completion of relevant classification surveys. Such a certificate does not imply, and should not be construed as an express warranty of safety, fitness for purpose or seaworthiness of the ship. It is an attestation only that the vessel is in compliance with the rules that have been developed and published by the society issuing the classification certificate.

3. Classification is one element within a network of maritime safety partners. Other elements are parties such as the ship owner, the ship builder, the flag State, port States, underwriters, and shipping financiers, among others. Classification societies do not control the operation and maintenance of a vessel.

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Classification Societies' Guidelines

4. Classification guidelines generally contain:
- a description of the items to be surveyed;
 - objectives of the survey;
 - a proposed method to conduct the survey;
 - advice on the interpretation of results, criteria for their acceptance and/or for repairs, how to report;
 - indications about specific items which may have been identified as important in the experience of the classification society; and
 - a reminder of the personal precautions to be observed by the surveyor with regard to the identified risks he may incur during the survey.

Classification Societies' guidelines (or instructions to surveyors) are internal, non-published, documents intended for the surveyors of a given classification society.

5. A comparison of BV's guidelines with other Classification Societies' guidelines, indicates that BV's guidelines are not significantly different from other societies' guidelines as they relate to procedures for boiler surveys. For example, most classification societies' guidelines consider a hydraulic test to be an acceptable substitute for the direct visual examination of some pressure parts.

6. In addition, the classification societies' guidelines generally agree on the main items to be surveyed during a boiler inspection:

- mountings, condition of level gauges and alarms;
- starting sequences and firing safety devices;
- pipe penetration in steam and water drums, accessories, supports and attachments, manholes and other openings and their joints, condition of the shell and weld seams at these locations;
- superheater and other exchangers;
- furnace brickwork integrity; and
- operation under steam, safety valves adjustment.

BV's Surveys of the S/S Norway's Boilers

7. The S/S Norway boilers were submitted to occasional, annual, and internal and external (also known as "complete") surveys.



8. An occasional survey is any survey which is not a periodical survey. Occasional surveys are carried out at the time of, for example, unscheduled repair or renewal work or damage or suspected damage.

9. Annual boiler surveys are performed every 12 months as part of the annual survey of machinery. An annual survey consists of an external visual examination of all boilers and their appurtenances, main and/or auxiliary, including safety devices, foundations, controls, high pressure and steam escape piping, insulation and gauges.

10. External and internal, also known as "complete," surveys of the boilers are performed approximately every 2 and ½ years. A complete survey means an internal and external examination of the boiler and accessories such as the superheater, economizer, air-heater internal organs, and all mountings.

Past and published experience on boilers hazards

11. Most publications discussing the risks related to steam boilers, notably the U.S. Navy naval ships technical manual chapter 221, boilers, refer to black smoke hazards, *i.e.*, gas side explosion due to either unburnt fuel or deposits.

In the recent past, we are not aware of any report of a marine water tube steam boiler drum failure which resulted in an explosion.

Sincerely,

P. Frey
Pierre FREY
on behalf of Michel Lambert