



## To whom it may concern

Cargill International as ship owner (in total 43 vessels over a period of almost 30 years) was always looking to improve the efficiency, reliability and safety of their vessels.

One of the main problems on board were the cleanliness conditions of the scavenge air cooler tube nests for the main- and auxiliary diesel engines. The existing washing units, to be used in ports only when the engines were idle, proved to be insufficient to maintain the coolers in a clean condition over longer periods and the coolers needed to be removed during dry-docking periods for chemical cleaning. A costly and time consuming affair.

In 1991 we came in contact with the good company VICMAR offering an on line washing system, using only small quantities of hot freshwater. The first system was installed on our Panamax vessel the "Papago" in 1991 (B&W main engine) and proved to be very effective to maintain the scavenge air pressure drop in the air cooler tube nest at constant levels and no further removals of the air coolers during the dry-dock periods were necessary. No adverse consequences like higher cylinder liner wear etc were noted at all, which was also not expected as the washing water quantities are very small and can not have any adverse effects to the engine components.

Since then, we have installed the VICMAR on line washing system on 11 vessels to different type and make of main- and auxiliary diesel engines which all proved to be very successful. Some air coolers needed to be removed during the dry dockings because of problems on the seawater ends, erosion at the tube ends, and it always proved, that the tube nest at the air side was clean as new and did not require any additional cleaning.

In 1995 and 1996 we have installed the VICMAR on line system on our new buildings right from the delivery, on four(4) Panamax vessels with Sulzer RTA engines and Daihatsu auxiliary engines (all operating on RMG 35 fuels) and on two Cape size bulkers fitted with B&W main- and three (3) Wartsila auxiliary diesel engines again operating continuously (from berth to berth) on RMG 35 fuels.

We have never experienced any adverse consequences with these on line washing systems. As said earlier, the injected hot water washing quantities are very small and can have no negative effects to the engine performance or wear rates. In tropical areas with very high humidities, tons of condensate water rushing through the engine scavenge air- and exhaust systems, apparently also without any major negative effects.

Today we are injecting approx 12 mt per day freshwater into the scavenge air system of a Sulzer RTA engine (heavy fuel consumption 25 mt per day) to reduce the NOx emission values by about 25% and the overhaul of one main engine cylinder unit after about 3000 running hours with water injection system revealed only clean and bright engine running parts and hardly any measurable wear datas. This proves, that the arguments against water injection into the scavenge air system are not justified.

Can recommend to any one to install the "On line washing system" to the main and auxiliary diesel engines whether new or already in service. The system is very simple and actually maintenance free.

Hans-Jurgen Hollstein  
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