

Lessons to be learned

Reefer vessel - Condenser failure resulting in total system breakdown

What happened?

During loading cargo of frozen poultry, the hold temperatures did not respond properly to the reefer system's thermostat. Loading continued during fault finding. However, by the end of loading the entire system was found to be completely blocked by frozen water.

Managers of the vessel sent out reefer assistance and it was found that water had leaked into the Freon system inside the condenser, most likely due to fractured or punctured piping.

What was the result?

Due to total system breakdown, the cargo temperature gradually increased and no immediate solution could be found in order to discharge the cargo on short notice.

Eventually, weeks later the cargo was discharged again at the country of origin, but in seriously thawed condition, resulting in a very substantial loss of cargo.

Why did it happen?

It appeared that the condenser's technical defect was not identified soon enough and instead of ceasing further loading, the situation gradually worsened, mainly due to lack of proper remedial action.

While at the stage of issuing this advice, managers have not yet identified the exact cause of the fracture / punctured condenser piping, the most important issue in this case appears to be inadequate response to a technical reefer failure.

What can we learn?

Due to the ageing world fleet of reefer vessels, the risk of technical failures increases. This not only calls for strict adherence to tighter planned maintenance schedules, but also to the formation of emergency response teams within the managers' offices and close monitoring of reefer vessels' performance when in operation.

System failures can be difficult to identify for the on board engineering teams alone, and they therefore need back-up from highly qualified reefer engineers, either employed by the company, or "hired in" from external companies.

Apart from technical specialists, the emergency response teams should preferably consist of senior members of the management team and a legal advisor.



Examples of such response teams have proved to be very successful in avoiding that technical failures become major loss disasters.

The condition of condensers can be regularly assessed by opening the water and freon covers, preferably every three to six months, to monitor the condition of the anti-corrosion anodes and, beyond a certain age, to check the condition of the tubes by, for instance, eddy current testing. Should repeated problems with condensers or deterioration of the condenser tubes / plates occur, timely replacement of the condensers should be considered.

