

CCGS Louis S. St. Laurent

The "Louis", Canada's largest and heaviest ice breaker is an Arctic Class 4 ship built in 1969 that has undergone several major refits and at least one life extension since it was commissioned. It is fitted with diesel electric propulsion power three propeller shaft lines. After an earlier refit revealed that the original stave bearing dove tails were in very poor due to wear and tear, there were a number of options considered by the Canadian Coast Guard (CCG) as to how to repair the ship to ensure it could meet its missions over the next 10 years or more until it is replaced at some time in the future when Canada's new heavy ice breaker is delivered.



Avalon Marine was approached by CCG to make a proposal for repairing the existing stern tube bearings in order to extend the operating life of the stern tubes. It became clear very early on that in order to justify the costs of upgrades, SCM implementation would be needed in order to reduce the life cycle costs for the remaining life of the ship. A number of life cycle cost scenarios were completed by Avalon taking into account the costs of implementation and upgrades as well as the periodical survey cycles required by Class.



The outcome was a series of contracts between CCG and Avalon Marine to engineer, assess, submit and obtain the Class approvals as well the design the bearing upgrades and shipboard equipment integration. Thordon and Avalon supplied three full shaft line sets of Full form Thordon XL bearings and three custom water quality packages to continuously condition the bearing lubrication water. This contract was unique as it was the first time WQPs had been customized and integrated into the existing propulsion cooling water system of the ship (without dedicated pumps). Avalon worked very closely with the shipyard handling the dry docking and the Quebec Thordon Distributor, RMH Industries who handled all of the machining to recondition the propeller shafts and machine the new bearings. The ship went back into service with all new bearings and WQPs in August 2017 and headed straight to the North Pole to rendez-vous with an ice breaker from USA.

