Guide for Vessels Operating in Low Temperature Environments

Foredragsholder: Dan Oldford, American Bureau of Shipping

Resymé av foredrag

ABS is the leading classification society for the offshore industry, and the Corporate Technology group is a critical component of the organization. Corporate Technology carries out research and development (R&D) in collaboration with industry partners as part of the process of developing and improving Rules, Guides, and Guidance Notes. Because R&D is the foundation for this work, the organization has expanded its technology footprint by establishing five international centers of excellence through which ABS engineers work with local industry and academic research partners. One of these, the Harsh Environment Technology center in St. John's, Newfoundland and Labrador, Canada, was established jointly with Memorial University in 2009 with the goal of supporting technology development for ships and offshore structures operating in harsh environments, particularly the Arctic.

ABS has been involved heavily in the Arctic since the inception of modern Arctic operations, classing the *SS Manhattan*, the world's first commercial ice breaking tanker, which transited the North West Passage in 1969. ABS continued to take the lead in the Arctic as the primary class society for Arctic drilling programs of the 1980s, classing such units as the steel-encased Arctic drilling rig MOLIQPAK, built to ABS class in 1984 for exploration in the Beaufort Sea and refitted under ABS class for service in Russia's Sakhalin I Field in 1999.

The *Guide for Vessels Operating in Low Temperature Environments* was first published by ABS in 2006. This guide extends beyond the ice class rule requirements for hull and machinery to cover winterization for vessels operating in low temperature environments.

Today, ABS is working with several industry partners in extensive R&D activities that target Arctic operations. An example is the Risk Based winterization project, which is a methodology for using risk assessments as the basis for design choices or for evaluating design options. Another example is the Sustainable Technology for Polar Ships and Structures ($STePS^2$) project, which includes laboratory experiments and numerical experiments being conducted to develop new design tools for assessing future polar class units. A third project has resulted in the ability to use high-speed simulation through the use of graphical processor units for the Discrete Element Method (DEM) as well as GPU-based Event Mechanics (GEM).