

Readers Ask, SWZ Answers

The editors of SWZ|Maritime love to hear from you and answer any questions you may have concerning articles that were published in SWZ or maritime topics in general. In response to the article on the ASRV Nuyina, SWZ received the following questions:

A State-of-the-art
Antarctic Icebreaker:
ASRV NUYINA



Mr Jeroen Leenders, B.Mo

QUESTION

'Why have heating coils not been fitted in the fuel oil bunker tanks of the Nuyina?'

Mr Leenders wonders how the operator will cope with deteriorating gas oil quality. He feels that cold flow properties of fuels will become an issue in view of the fast approaching 2020 sulphur cap. See the article on the CIMAC website (www.cimac.com): "Cold Flow Properties of Marine Fuel Oils". The article highlights the risk of getting fuels with poor cold flow properties in various bunker stations.

ANSWER

Heating coils have not been applied in the fuel and cargo tanks. Damen Naval pointed out that the client did not require these facilities. The Nuyina and the Antarctic stations consume Special Arctic Blend (SAB), loaded in Hobart. The fuel is quality controlled in accordance with the requirements of the Australian Antarctic Division (AAD). During its lifetime, the ship will be operated and maintained by Serco Defence for the AAD. The possibility of loading fuel oil in "risk areas" as quoted from CIMAC guidelines, is therefore negligible. Furthermore, the fuel and cargo tanks are located in the inner hull and are not directly exposed to the low temperatures at the side shells or bottom plating. This is confirmed by Lloyd's Class notation ECO-P.



Mr Theo Holierhoek, Chief Eng.

QUESTION

'How will the operator of the ASRV Nuyina restrict the ecological impact on the delicate environment of Antarctica?'

Antarctica and its surrounding ocean are dominated and shaped by the presence of snow and ice which, while themselves controlled by the climatic regime and very sensitive to climate change, also influence and provide major feedbacks to the global climate system. Of course, the area is also important to different kinds of wildlife. All the more reason to tread carefully when sailing there.

Mr Holierhoek wants to know more about the measures taken when designing the ASRV Nuyina to protect this fragile ecosystem.

ANSWER

The protection of the delicate Antarctic and Southern Ocean environment has indeed not been described in depth in the article we published, which was primarily aimed at a technical description of the ship design.

The main design requirements and their solutions have been discussed. These include the complex and dangerous operations in ice, the number of special personnel with tools and laboratories, the transportation of containers from Hobart to the Antarctic stations and back. Last but not least, the most stringent Rules and Regulations enforced by Flag and Class. Many of these are related with environmental care and have resulted in specific technical applications. That is why the ASRV Nuyina features:

- Double hull protection to prevent oil spills from possible shell rupture in ice.
 - Fuel tanks located within the inner hull.
 - Oil pollution booms to encircle the vessel in case of damage/oil spill.
 - Special arctic blend (SAB) fuel with low sulphur content, to limit SO_x emissions.
 - SCR units for the main engines to limit NO_x emissions.
 - Economisers installed for waste heat recovery.
 - Incinerator for burning garbage.
 - Clean bilge to limit the oil content in the bilges.
 - Oil skimmer provided for the moon pool.
 - Helicopter and hangar deck drainage systems which can be switched between overboard or to a dedicated tank.
 - Special collecting systems from laboratory sinks.
 - Bio security barriers and capture systems to reduce risk of introduction of species, such as insects to the Antarctic and sub Antarctic.
 - Water ballast treatment system.
 - Measures to minimise the risk of marine introductions from the moon pool, drop keel's space and other critical enclosed seawater volumes by an exchange pump system.
 - Bio degradable oils in all external systems.
 - Water lubricated stern tube and shaft bearing/seals.
 - Waste from the stations and vessel returned to Hobart in containers.
- The requirements have been confirmed in specific ECO class notations assigned by Lloyd's Register. The full series is listed here: ECO (BIO, BWT, EnMS, GW, IBTS, IHM, NO_x-2, OW, P, SEEMP, SO_x). A detailed clarification is available on request (swz.rotterdam@knvts.nl). The class notations also cover the international regulations of IMO, MarPol Annex VI, as ratified by Australia. The full environmental protection of the Antarctic and the Southern Ocean with its bio-diversity has been arranged in the "Protocol on Environmental Protection", as part of the "Antarctic Treaty" of the United Nations, ratified by Australia (www.antarctica.gov.au).



The article "A State-of-the-art Antarctic Icebreaker: ASRV Nuyina" was published in SWZ|Maritime's November 2017 issue. The response to the questions submitted to SWZ was prepared by editor Rob Bos in consultation with Damen Naval and Lloyd's Register.