Implementation of the IMO Polar Code in Spain: Certification of the Research Vessel (RV) *Sarmiento de Gamboa*

English translation provided by the author

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***Information Paper presented by Spain***

***Summary***

The entry into force on 1 January 2017 of the International Code for Ships Operating in Polar Waters (Polar Code) adopted by the International Maritime Organization (IMO) necessitated its incorporation into Spanish law. To date, the Spanish Maritime Administration, due to the characteristics of the fleet operating under its flag and of the zones where it operates, has only certified one ship, the Research Vessel (RV) *Sarmiento de Gamboa.* This document details the principal aspects of the Polar Code’s implementation, as well as the most salient aspects of the ship’s certification process.

***Implementation of the IMO Polar Code in Spain***

*Incorporation of the Polar Code into Spanish law*

The Kingdom of Spain tacitly accepted the Resolutions to amend the International Convention for the Safety of Life at Sea (SOLAS) (MSC.386(94)); the International Convention for the Prevention of Pollution from Ships (MARPOL) (MEPC.265(68)); the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) (MSC.416(97)); and the STCW Code (MSC.417(97)). Therefore, due to the need to comply with Resolutions MSC.385(94) and MEPC.264(68) adopting different parts of the Polar Code, the Minister of Foreign Affairs and Cooperation, at the request of the Ministry of Transport, Mobility and the Urban Agenda (MITMA), subsequently sent the texts of the amending Resolutions to the Council of Ministers for their information, pursuant to article 36.2 b) of Act 25/2014 of 27 November, on Treaties and other International Agreements.

Thereafter, the texts were published in the Official State Gazette (BOE) of 5 May 2017, and on 1 January 2017 they entered into force, and the Polar Code was incorporated into Spanish law.

*Necessary steps for an existing ship under the Spanish flag to be certified in Spain*

In Spain, the State has sole jurisdiction over the certification of ships, which is carried out by the Maritime Administration through the Directorate-General for the Merchant Marine (DGMM), a management body under the aegis of MITMA that sets forth and imparts guidelines to the Maritime Authorities, which constitute the local Maritime Administration network.

Requests for certification and the general procedures for it are available to interested parties at all administrative offices and online.

In the particular case of the polar certification of an existing ship, the technical department of the shipowner/operator, should there be any doubts regarding how to proceed, may assess—together with the inspection service of the Maritime Administration—whether the certification will entail carrying out renovations and therefore require technical plans which must be submitted for prior authorization, or whether this certification will only involve bringing aboard additional equipment and/or adapting the ship’s operational procedures regarding safety and the prevention of pollution of the marine environment.

The administrative steps to be followed for polar certification, whether of a new or an existing ship, are no different from those to be followed for any other certification.

*Management facilities made available to shipowners/operators to attain the Polar Certificate*

The DGMM has procedures, manuals (some currently being drafted) and other working documents for use by the Maritime Authorities, which are responsible for making shipboard certification visits and for providing any necessary assistance or management support to interested parties.

The DGMM Training Plan includes a specific module on polar certification, with an annex containing a checklist for polar certification.

For the certification of the RV *Sarmiento de Gamboa*, this checklist was provided to the operator in advance so that a prior assessment could be made of the scope of the work that would be required for the ship to attain certification as a polar vessel.

***Experience of the Spanish Maritime Administration: Certification of the RV Sarmiento de Gamboa***

To date, Spain, as a Flag State, has only certified one ship, the RV *Sarmiento de Gamboa,* under Category C of the Polar Code.

The *Sarmiento de Gamboa* was delivered in 2008 by the Freire Shipyard in Vigo; this ship belongs to and is operated by the Spanish National Research Council (CSIC), affiliated with the Ministry of Science and Innovation.

The ship was designed and built as a multidisciplinary scientific platform, and originally certified by the Spanish Maritime Administration under SOLAS as a cargo ship and as a ship for special purposes, becoming the most high-powered research vessel among those ships managed under the aegis of the Ministry of Science and Innovation.

Since the entry into force of the Polar Code, and to expand Spanish research activities in the Antarctic, it was decided to certify the *Sarmiento de Gamboa* under that Code, taking advantage of its flexibility and goal-based focus. This certification was carried out in 2018, enabling the ship to go on oceanographic campaigns within the area of Spain’s Antarctic bases, around the South Shetland Islands.

Due to its structure and design, the *Sarmiento de Gamboa* meets the requirements for operating, within certain limitations, in the zones covered by the Code, such that the ship’s Polar Certificate confines operations in the Antarctic to the area north of 63ºS, during the Antarctic summer. The *Sarmiento de Gamboa* is only authorized to sail in ice-free waters, and is not authorized to sail at low air temperatures nor at high latitudes; under these authorized conditions, the ship’s stability and the functioning of equipment on board will not be compromised, and will comply with the Polar Code.

Since the ship’s construction, the *Sarmiento de Gamboa* has complied with all MARPOL provisions, having the relevant International Oil Pollution Prevention (IOPP), International Air Pollution Prevention (IAPP) and International Sewage Pollution Prevention (ISPP) certificates, inu addition to complying with the provisions on the prevention of garbage pollution.

*Most controversial aspects of the certification of the* Sarmiento de Gamboa

1. Goal-based standards

The Polar Code has four chapters (Ship Structure, Machinery Installations, Fire Safety/Protection and Life-Saving Appliances and Arrangements) which may be applied not by complying with their associated regulations but rather with their functional requirements through an alternative project. This is the main difference between the application of this Code compared with that of other standards with which we are more familiar.

In the case of the RV *Sarmiento de Gamboa*, functional criteria were not used; rather, operational limits were established, which facilitated the process.

1. Polar Service Temperature requirements

The Polar Service Temperature (PST) is a determining factor due to its crucial importance to the application of the Polar Code, and is calculated using the temperature data set from the past 10 years in the zone of operation during the months of operation.

In the case of the RV *Sarmiento de Gamboa*, the calculations were based on a report from Spain’s National Meteorological Agency (AEMET), which is responsible for the development, implementation and provision of the meteorological services of the Spanish State and which, furthermore, has for the past 25 years operated and maintained weather stations of reference at Spain’s Antarctic bases.

Since the navigable routes necessarily run through zones in which there is no data from direct temperature measurement, it is necessary to extrapolate the data taken from these stations based on the applicable environmental conditions, establishing a temperature map that makes it possible to select those of interest. The Code specifications should be implemented in this manner, and it should be made clear which extrapolation models are considered acceptable.

1. Operational assessment. Development of risk assessment models

The operational assessment set forth in Section 1.5 of Chapter 1 of Part I-A is considered a core issue in the Polar Code.

The RV *Sarmiento de Gamboa* is an existing ship that was not designed for polar navigation and, as has already been stated, its certification necessarily entailed the establishment of a number of operational limits to preclude the risks inherent in polar navigation (e.g. ice, low temperatures, high latitudes), and it was therefore unnecessary to carry out the risk assessments, the lack of models for which has been commented on.

The problem is that to date, and based on Spain's experience, with regard to the hazards listed in Section 3 of the Polar Code’s Introduction and requiring study, the only risk assessment model that has been implemented is that for ice hazards (Polar Operational Limit Assessment Risk Indexing System, or POLARIS, in MSC.1/Circ.1519).

Without a standard assessment model for the other hazards (e.g. low temperatures, high latitudes) it can be very difficult for operators to carry out risk assessments and for the relevant administrations to analyse them, considering that the second greatest hazard would be that of sailing in zones with low air temperatures, due to their implications for the ship’s structure.

1. Certification of life-saving equipment and arrangements for polar conditions

The Polar Code requires that life-saving equipment and systems be fully operational at the PST during the maximum expected rescue time (never less than 5 days).

The problem with this equipment is the lack of corresponding testing standards under these conditions. Moreover, the certificates for conventional equipment do not indicate the temperature limits for the product’s use, the conclusion being that very few current standards guarantee that they would be operational at the PST.

It would be desirable to link the Polar Code to testing standards that could serve as a benchmark so that it would be possible to find equipment on the market with a clear range of applicability, based on a temperature and a time.

The RV *Sarmiento de Gamboa,* does not operate at low temperatures, and therefore the ship’s PST is never below the temperature limit for conventional equipment testing.

*Comparison of requirements for ships classified as Category C, which has much lower requirements with regard to times and needs, very different from those ships to be classified as Category A*

Category C ships may essentially have variable requirements based on the eight different kinds of waters included in this category (risk of ice impact), PST, and latitude of operations. Certification therefore, may range from a document review—when the establishment of operational limits mitigates all hazards inherent in polar navigation (which could extend to practically every steel-hulled ship with an average construction standard)—to much higher certification levels entailing the verification of the hull scantling, ice strengthening, suction design, materials and operational temperature limit of motor fluids in essential systems depending on the PST, the installation of appliances to prevent essential systems and equipment from freezing, as well as the carrying of the Polar Water Operational Manual (PWOM) and other related documents.

*Necessary modifications, life-saving equipment acquired, how operations for the Antarctic campaign are reflected in the PWOM, etc.*

The *Sarmiento de Gamboa* is an example of a conventional ship certified for polar navigation in which the mitigation of risk is absolute due to the operational limits established: the ship may only sail in the Antarctic to the north of 63ºS, during the Antarctic summer, in ice-free waters; i.e. restricted to lower latitudes, outside of low temperature zones, and where there is no possibility of encountering ice. The equipment that had to be brought on board included liferafts that were specially designed to ensure the launch mechanisms will not freeze, personal survival kits, and equipment for communications with aircraft. Moreover, a PWOM had to be drafted, and the MARPOL procedures with which the ship already complied had to be adapted to a polar environment.

*Training of onboard personnel*

In the case of the RV *Sarmiento de Gamboa,* pursuant to Section 3 of Chapter 12 of Part I-A1 of the Polar Code, and taking into account the type of ship, Class C classification, and operational limitations in polar waters, it was not necessary for the ship’s masters, chief mates and officers in charge of a navigational watch to be certified under the provisions of Regulation V/4 of the amended STCW-78 Convention and Section A-V/4 of the Training Code.

At the time when the *Sarmiento de Gamboa* was certified, a national law had not been promulgated in Spain to regulate the necessary conditions and courses for obtaining a competency certificate in basic and advanced training for ships operating in polar waters. Directive 2019/1159/EU specifies 2 August 2021 as the date for its transposition into national law.

Nevertheless, an agreement was reached and it was considered prudent for masters and officers in charge of a navigational watch to obtain the basic training certificates provided for in Regulation V/4 of STCW as amended by the Polar Code. The officers received the necessary training at a nautical academy in Latvia.