

Progress report on coating issues And action plan

TC1554, 22 Dec 2015

1. Progress at INTERCARGO Technical Committee

Coating issues were on the agenda of last 3 sessions of TC meetings.

- At TC30 on the 10th March 2014 in Singapore, members agreed that Intercargo should continue to work on these issues... ensure no loopholes are created to allow single coat epoxy systems without further appropriate long-term durability testing and stringent application requirements.
- At TC31 on 6 October 2014 in London, members noted that IACS has been revising a Unified Interpretation on PSPC (as submitted to IMO SDC 1) to include the approval of alternative systems. The TC considered and agreed that single coat epoxy coatings could not be accepted. IACS UI should permit alternatives to PSPC but not single coat systems.
- At TC32 on 8 Mar 2015 in Hong Kong, Members noted that NACE had proposed to initiate discussions with a view to amending the 'Performance Standard for Protective Coatings' if this was determined appropriate following the initial experiences with the application of this standard. There has been little development in this matter to date due to personal difficulties encountered by the NACE representative. Members indicated their willingness to become involved in this work when it resumes.

2. SOLAS and PSPC Standard

- SOLAS

Amendments to SOLAS to mandate PSPC Standard was adopted by resolution MSC.216(82) on 8 Dec 2006, with a revised Reg 3-2 of Ch II-1 (SOLAS regulations II-1/3-2) as follows:

"2 All dedicated seawater ballast tanks arranged in ships and double-side skin spaces arranged in bulk carriers of 150 m in length and upwards shall be coated during construction in accordance with the Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers, adopted by the Maritime Safety Committee by resolution MSC.215(82), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I."

The amendments entered into force on 1 Jan 2008.

- PSPC Standard

The IMO PSPC Standard refers to resolution MSC.215(82) on "Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers". The MSC.215(82) specifies minimum surface preparation and application standards.

Item 1.4 "Job specification" of Table 1 of the IMO PSPC Standard specifies:

"There shall be a minimum of two stripe coats and two spray coats, except that the second stripe coat, by way of welded seams only, may be reduced in scope where it is proven that the NDFT can be met by the coats applied, in order to avoid unnecessary over-thickness. Any reduction in scope of the second stripe coat shall be fully detailed in the CTF."

IACS Interpretation to 1.4 "Job specification" (SC 223, Page 13 of 23, 2008/Rev.2 2011):

- Wet film thickness shall be regularly checked during application for quality control by the Builder. PSPC does not state who should check WFT, it is accepted for this to be the Builder. Measurement of DFT shall be done as part of the inspection required in PSPC 6.
- Stripe coats should be applied as a coherent film showing good film formation and no visible defects. The application method employed should insure that all areas that require stripe coating are properly coated by brush or roller. A roller may be used for scallops, ratholes etc., but not for edges and welds.

- IMO circular

IMO issued a circular of MSC.1/Cir 1330 on Guidelines for maintenance and repair of protective coatings on 11 June 2009, as outcome of MSC 94 held on 27 May to 5 June 2009.

MSC.1/Cir 1330 refers to in-service inspection and maintenance of protective coatings.

3. IACS framework on PSPC

IACS UI SC223, Rev. 2 Corr.1 Jun 2012, specifically makes all footnoted standards in IMO's PSPC adopted by MSC.215(82) mandatory.

IACS Rec.87 (and IMO circular MSC.1/Cir 1330) refers to in-service inspection and maintenance.

Individual class societies have other procedures and requirements on coating application, such as:

- ABS Guide for the class notation - Coating Performance Standard, Jul 2010
- LR Verification Guidelines for the application of the Performance Standard for Protective Coatings (PSPC) for Dedicated Seawater Ballast Tanks, Version 5, January 2013

4. NACE International's initiative

At the last Tripartite on 16-17 Oct 2015, NACE made a presentation "PSPC – REVIEW & STUDY", inviting participation from Builder/Class/Owners in its PSPC Study of data collection and analysis of:

- Performance
- Costs
- Lessons Learned – Good and Bad

On 14 Dec 2015, NACE sent a proposal with draft thoughts and scope of the study for input. An cross industry meeting was proposed by ICS to be held during IMO' SDC 3 (18-22 Jan 2016). NACE proposal refers to Annex 1 of the document.

Background:

NACE International was established in 1943 by eleven corrosion engineers from the pipeline industry as the "National Association of Corrosion Engineers"(NACE). Since then, NACE International has become the global leader in developing corrosion prevention and control standards, certification and education. The members of NACE International still include engineers, as well as numerous other professionals working in a range of areas related to corrosion control.

5. Actions requested from INTERCARGO members

- 1) Taking note of the progresses at different platforms, INTERCARGO members are requested with appreciation to provide feedback on PSPC Standard application and compliance;
- 2) Coating issues including feedback from members will be discussed at the next TC meeting on 7 Mar 2016 in Singapore.

End

Annex 1: NACE's proposal on PSPC Study

From: D. Terry Greenfield [mailto:dtg@corrmetrics.com]

Sent: 14 December 2015 14:39

Subject: Tripartite 2015 - NACE International Follow Up on PSPC Study Proposal

Proposed PSPC Study by NACE International

The Performance Standard for Protective Coatings Resolutions MSC.215(82) and MSC.215(48) technical requirements for protective coatings in all ballast tanks for new ships was adopted December 8, 2006 and came into full effect in 2008. The PSPC details specific application, inspection and documentation requirements related to new construction as well as in-service maintenance, repair and partial re-coating. The standard has now been in effect for a period of time that should provide good information as to the current performance and predicted performance expectation of the installed coating systems for ships whose ballast tank coatings were installed under the requirements of the PSPC.

This Standard is based on specifications and requirements whose intent was to provide a target useful coating life of 15 years, which is considered to be the time period, from initial application, over which the coating system is intended to remain in "good" condition.

The PSPC is noted as an item for review in the 2016 IMO calendar. The opportunity exists now – with the cooperation of the ship owners, shipbuilders, and classification societies – to review and study the impact and effectiveness of the PSPC and provide significant data to determine the best path forward for the PSPC. The study could include the following **proposed** topics to begin the discussion:

Performance – Is the PSPC successful in achieving the 15-year service life and are there opportunities for improvement? Data on the current condition of coatings applied to ships since the PSOC became mandatory. It is recognized that Class would be an integral part of this effort as they record the condition of coatings and thickness measurements as part of the hull structural surveys they perform

Process – Are there opportunities for improvement in the process that can result in optimum service life and efficiency - data which could assess the efficiency of the PSPC enforcement Experience with the initial meeting between all parties to agree on the coating plan, the selection of coatings, experience with the steel surface preparation, quality of coating application and experience related to the inspection activity.

Cost – Review if available the costs associated with the PSPC implementation with regards to build and operation. The cost element as related to "cost efficiency" and "cost reduction"

Any additional "To Be Determined" by Tripartite focus groups – For example one suggestion was including a review of the effect of systems using chemicals for ballast water treatment systems on the coating system, so that PSPC could be duly amended if necessary after the ballast water convention has entered into force. This particular effort would require delaying the study for a significant period and the IMO schedule has it scheduled for review in 2016. However, there would be an opportunity to establish the framework so that data could be entered as it becomes available. So it is a very viable suggestion.

In 2013 NACE International embarked on a data gathering study related to global corrosion management practices. That study is coming to a successful end and will be available for public use in March 2016. The process used to conduct this study is one we would consider to clearly understand the impact of PSPC Resolutions on the life of protective coatings in ballast tanks.

NACE utilized the services of a specialized data collection firm (APQC) to collect the data as determined. APQC was utilized to maintain the confidentiality of those providing information to the study as. This confidentiality element of data collection allowed companies to provide information detailed and accurate information that was needed to provide significance to the study with no risk to corporate integrity and to increase the willingness to provide the necessary information. APQC is strictly a "tool" for

confidential data collection as determined to collect. The information to be collected would be determined by NACE International working with the Tripartite.

The two-year NACE-sponsored IMPACT study utilized very comprehensive research and data collection methods for conducting the IMPACT study. This process included:

- Data collection thru survey questionnaires and focus group interviews
 - Specifically developed templates for survey questions and interviews with goal of apples to apples comparison
- Data as planning tools by owners, maintainers, builders
 - Demonstrate how the data collected can be used to make better design and maintenance decisions
 - Demonstrate industry best practices from data collected
 - Demonstrate cost benefit analysis of various practices
 - Recommend strategies for marine industry that could reduce cost and re-work

NACE International would advocate the proposed impact study in addition to the study of the PSPC and its performance to include a global analysis of Marine Corrosion as a separate effort, actually a more detailed effort within an existing NACE International program that would be presented in detail to the Tripartite. This effort could easily ally with the PSPC effort and provide exceptional data for the marine industry. Its addition is only presented after internally considering the effort required to collect the PSPC data and realizing that it would only require minimal additional effort and cost to include the additional scope.

To clarify, the PSPC study remains the focus and primary intent of any study effort. This additional effort could easily ally with the PSPC effort and provide exceptional data for the marine industry and I would ask that you withhold judgment until a presentation is available to the Tripartite. But again, this is not intended to replace, alter, or interfere with the PSPC study.

We would propose this undertaking to initiate as soon as possible and look to suggestions from the group how best to accomplish this. NACE International will be attending the IMO SDC meeting in January 2016 in London and would welcome this as an opportunity to further discuss the best way to begin the process. Primarily we would seek your advice in the best way to organize the participants to initiate a kick-off meeting. Some baseline processes and objectives could be discussed at this time for review and modification as necessary to achieve the identified goals to present to the Tripartite and chart the most effective and efficient course forward. This would also be an opportunity to have the NACE International program manager for the Worldwide Corrosion Impact study to explain the program and its impending deliverable release in March 2016 and answer any questions as to process and intent. The two-year NACE-sponsored IMPACT study utilized very comprehensive research and data collection methods for conducting the IMPACT study.

There is a significant opportunity present to consider the performance of the PSPC and capture potential improvement in the performance and process along with the magnified intelligence from a separate global marine corrosion data collection effort. This information would provide exceptional guidance to the marine industry in its effort to mitigate and control the corrosion of its assets. With the commitment from the Tripartite Stakeholders to support the effort by sharing their expertise and data, NACE International would be equally committed to facilitate and expedite this investigation. We look forward to your comments and appreciate your consideration.

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