

Corrosion Protection for COT of Crude Oil Tankers



IMO



Japan Ship Technology Research Association
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Agenda

- **Schedule at IMO/MSC**
- **Draft SOLAS regulation**
- **PSPC for COT**
- **Test Procedure for Protective Coating**
- **PS for Alternative means**
- **PS for Corrosion Resistance Steel & Test procedure**
- **Summary**

Schedule at IMO/MSC

since 1990s
Oil Spilled Accidents
Ex. Erika(1999)&Prestige(2002)



2006. 8	Proposal to establish mandatory requirements for protective coating of COT by 28 countries and NGOs at MSC82
2008~ 2009	Discussion at DE 51 and DE 52
2009. 5	Approval of Draft SOLAS amendments at MSC86

Envisaged Future Schedule in the earliest case

2010. 2	Final agreement of draft Performance Standards at DE53
2010. 5	Adoption of draft SOLAS amendments and performance standards at MSC87
2012. 1	Entering into force of the regulations

Structure of Regulations on Corrosion Protection of COT

SOLAS Amendments

PSPC for COT

Test Procedures for Coating Qualification

Maintenance and Repair Guideline

PS for Alternative Means

PS for Corrosion Resistance Steel

Test Procedures for Corrosion Resistance Steel

Guideline for Exemption of Corrosion Protection

Outline of Draft SOLAS Amendments (1)

- **Crude Oil Tankers of 5,000 DWT and above(New building ships)**
- **Application date of SOLAS amendments: TBD**

SOLAS amendments on protective coating of dedicated seawater ballast tanks

- the building contracts of ships are placed on or after 1 July 2008(effective date); or
- the keel of ships are laid on or after 1 January 2009; or
- the delivery of ships is on or after 1 July 2012

Outline of draft SOLAS amendments (2)

Requirements (SOLAS II-1/A-1/ Regulation 3-[]):
All cargo oil tanks of crude oil tankers shall be:

1. Coated in accordance with Performance Standard for Protective Coating for Cargo Oil Tanks of Crude Oil Tankers (PSPC for COT)
2. Protected by alternative means or utilization of corrosion resistance material to maintain required structural integrity for 25 years in accordance with Performance Standard for alternative means of corrosion protection for cargo oil tanks (PS for alternative means)

Outline of draft SOLAS amendments (2)

Exemption from corrosion protection :

1. The administration may exempt a crude oil tanker from the requirement of corrosion protection to allow the use of novel prototype alternative to the coating system for testing, under certain conditions

2. The administration may exempt a crude oil tanker from the requirement of corrosion protection if the ship is built to be engaged solely in the carriage of cargoes and cargo handling operations not causing corrosion. A guideline for this exemption will be developed in IMO.

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Draft PSPC for COT (1)

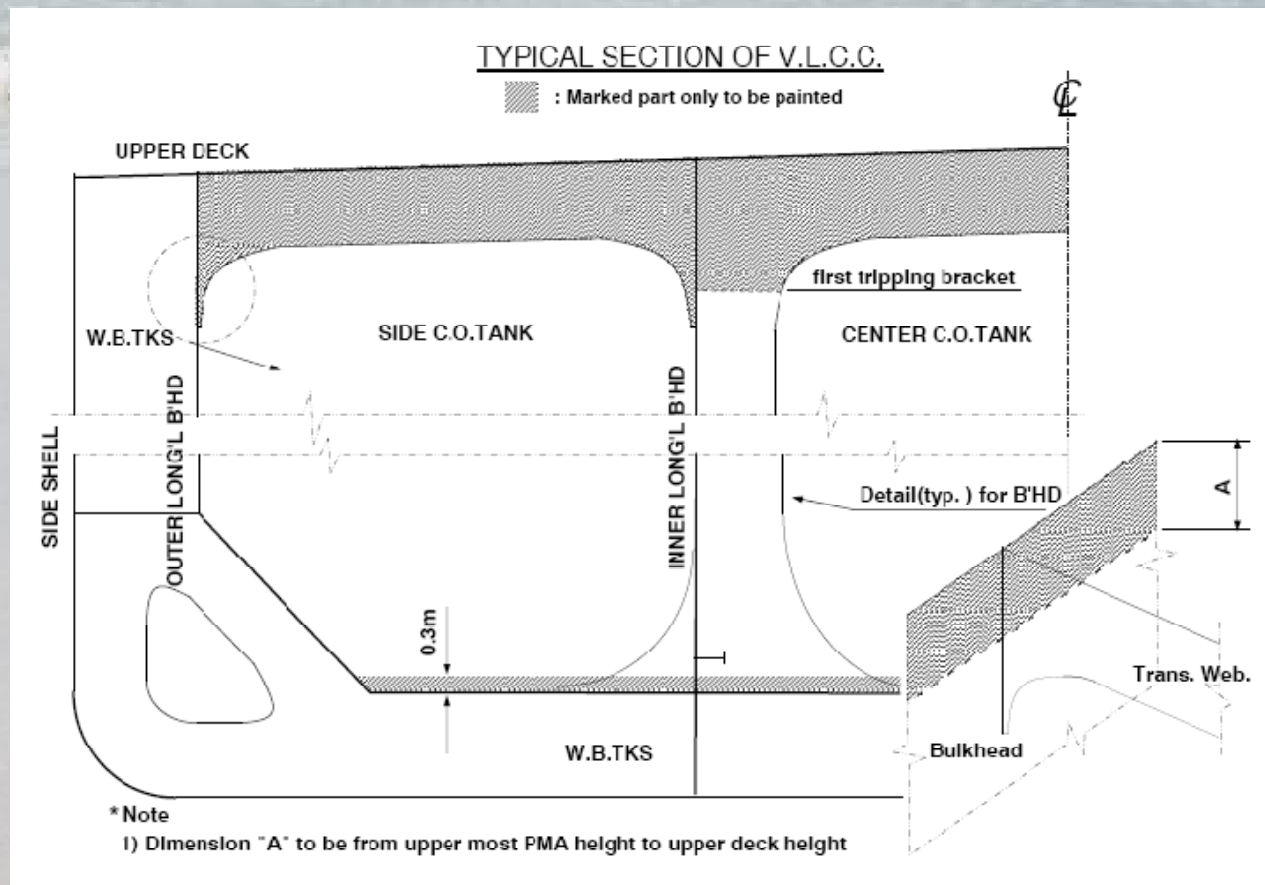
- ✓ Mandatory regulation
- ✓ Developed based on PSPC for dedicated seawater ballast tanks

Many requirements are similar to PSPC/BWT

- *Target useful life: 15 years in Good Condition*
 - *Epoxy Coating & Two Stripe Coats and Two Spray Coats*
 - *Nominal Dry Film Thickness: 320µm*
 - *Accept intact Zinc silicate shop primer*
 - *Coating Technical File on board*
- ✓ Most Parts of draft PSPC for COT has been already agreed at IMO. Some remaining items had discussed in the Correspondence Group of IMO.

Draft PSPC for COT (2)

- Minimum protected area for coating



Draft Test Procedures for coating qualification

- ✓ Mandatory requirement as an appendix of PSPC for COT
- ✓ Industry Joint Working Group (JWG) had been established to develop the draft test procedure. International Paint and Printing Ink Council, IPPIC, coordinated the JWG.
- ✓ Draft test procedures developed by JWG has been reviewed by coating manufactures of Europe and Asia. Final Draft was submitted to the correspondence group. (Full result of the six month test series continues until the beginning of January , 2010.
- ✓ Due to ¹²time constraint, CG could not make detailed discussion on this item.

Outline of Regulations on Corrosion Protection of COT

SOLAS Amendments

PSPC for COT

Test Procedures for Coating Qualification

Maintenance and Repair Guideline

PS for Alternative Means

PS for Corrosion Resistance Steel

Test Procedures for Corrosion Resistance Steel

Guideline for Exemption of Corrosion Protection

Draft PS for Alternative Means & Draft PS for Corrosion Resistance Steel

- ✓ Mandatory requirement according to SOLAS regulation 3-[]/3.2
- ✓ Draft PS for alternative means had been discussed in the correspondence group based on DE51/19/2.
- ✓ SOLAS amendments requires structural integrity for 25 years.
- ✓ Only the standard for Corrosion resistance steel is included as an annex of the draft PS at this time. Standards for another alternative means will be added when they are developed and recognized by the Organization.

Summary

- ✓ Draft PSPC for COT and Draft PS for alternative means should be finalized at DE53 in February 2010 so as to adopt draft SOLAS amendments at MSC87 in May 2010.
- ✓ If adopted at MSC87, SOLAS amendment will enter into force in the beginning of 2012 in the earliest case.
- ✓ These Standards had been discussed in the correspondence group (No big controversial issue except a few items). Test procedure for coating qualification will be further discussed at DE53.
- ✓ Non-mandatory guidelines will be discussed after DE53.¹⁵



Before conclusion...

Are there any problem on PSPC for ballast seawater tanks?

Issues on PSPC for ballast tanks

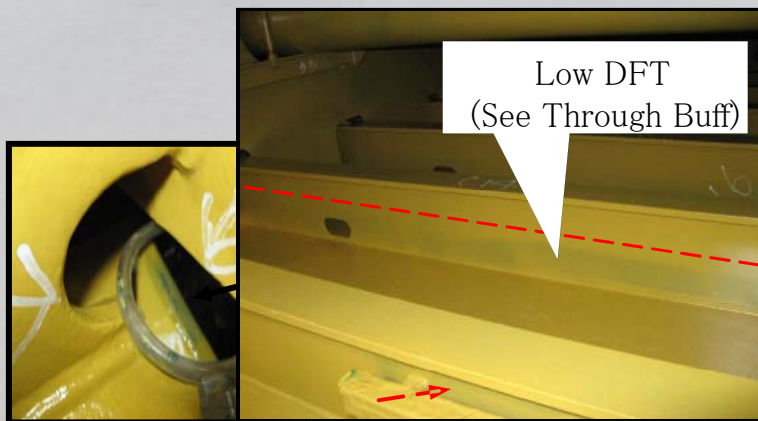
(example)

1. Table 1.1.4 “Job specification”

*“There shall be a minimum of **two stripe coats and two spray coats...**”*

However.. There are technologies which enable one stripe coat and one spray coat.

Ex. Coating Self Identified by color



SI coating on narrow, critical parts



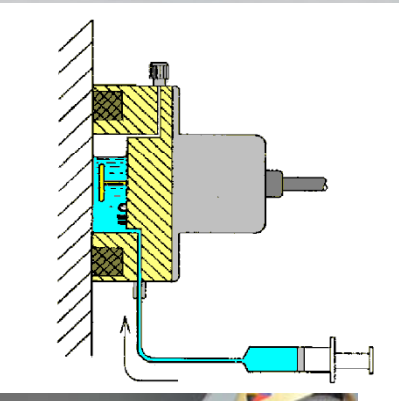
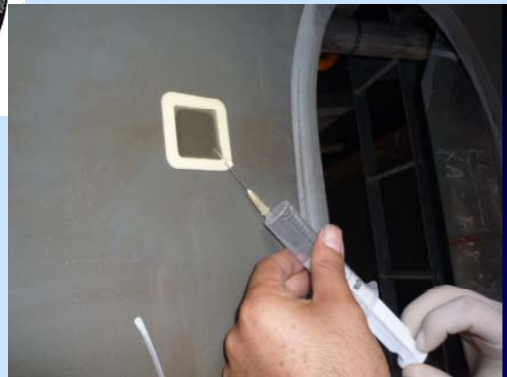
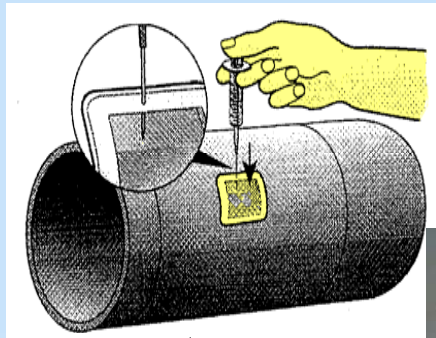
No-pinhole

Issues of PSPC for ballast tanks

(example)

- Footnote 8 of PSPC :
water soluble salts limit, equivalent of NaCl: 50mg/m²

- Conductivity measured **accordance with ISO 8502-9 & ISO 8502-6/Bresle Patch Method**



Alternative and more practicable means can be accepted?

A photograph of a beach with waves breaking on the shore. The sky is a clear, bright blue. At the top of the image, there is a decorative graphic consisting of several overlapping, wavy bands in shades of cyan and blue. The text "Thank you" is overlaid on the right side of the image in a bold, cyan, sans-serif font.

Thank you