Impact of a Draft URCP on BCs &OTs following MSC 96

The Shipbuilders' Association of Japan

Urgent Rule Change Proposal(URCP)

- IACS released draft URCP on 1st September 2016, to rectify non conformities (NC01,NC03,NC04) related to GBS verification.
- Industry review for 4 weeks
  in September 2016 (9/1~9/30).

  ASEF members reviewed the URCP
  and send feedback about this issue to IACS.
- Submission to IMO for audit
  mid - December 2016
- Entry into force on 1st July 2017

Daft URCPs- Non Conformity NC01 &NC03

- NC01 "Non-uniform ship heading distributions"
  - Increase in sea pressure and wave loads for load case of Head sea & Following sea by 5%

Impact on hull girder strength / Ultimate strength

- NC03 "Fraction of time in heavy ballast condition" in North Atlantic for BC-B & BC-C with L < 200m"
  - 25% instead of 15%

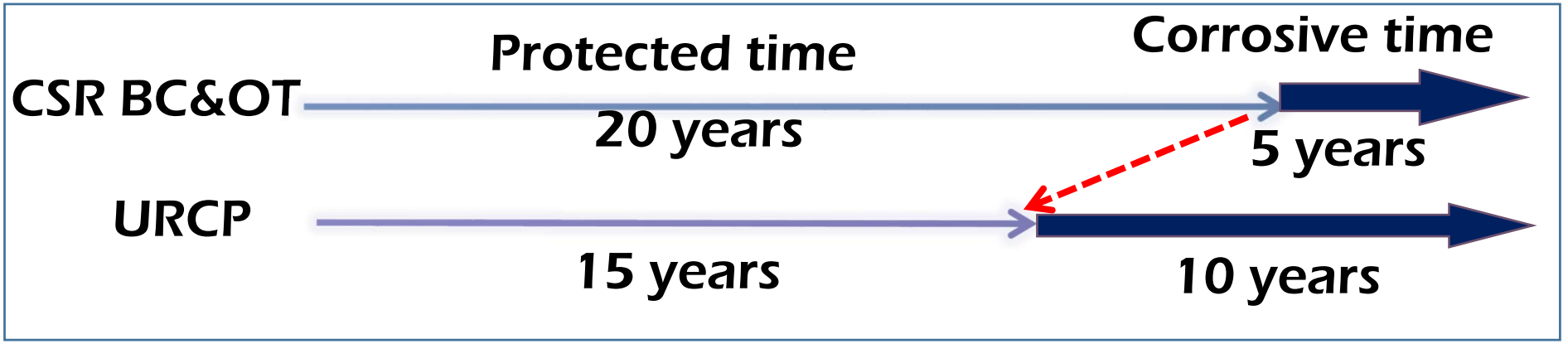
Impact on fatigue requirement in ballast hold

Daft URCPs- Non Conformity NC04

NC04 "Time in corrosive environment"

- 10 years instead of 5years

for ballast/oil cargo tank



- 5 years instead of 2 years for void spaces

Large impact on Fatigue requirement

ASEF has deep concerns about the draft URCP concerning NC04 .

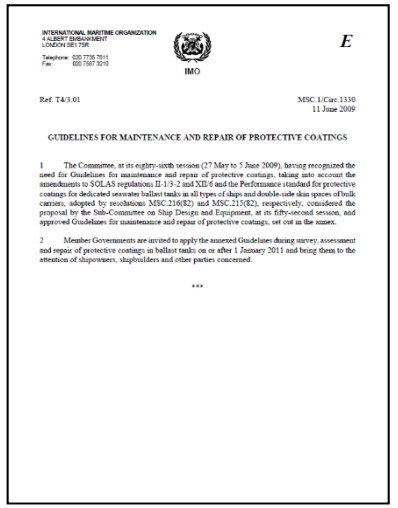
Maintenance and Repair of coatings

1.Guidelines for Maintenance and Repair of Protective Coatings" of IMO recommend:

Annual inspection of all ballast tanks and minor coating restoration work to be carried out by the Crew (by utilizing PMA, etc.)

2.ESP regime requires:

Survey planning documents containing coating condition information to be prepared by Owner and enhanced annual, intermediate and renewal surveys to be carried out by the Class (RO)



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MSC.1/Circ.1330
11 June 2009

GUIDELINES FOR MAINTENANCE AND REPAIR OF PROTECTIVE COATINGS

1 The Committee, at its eighty-sixth session (27 May to 5 June 2009), having recognized the need for Guidelines for maintenance and repair of protective coatings, taking into account the amendments to SOLAS regulations II-1/3-2 and XII/6 and 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 resolutions MSC.216(82) and MSC.215(82), respectively, considered the proposal by the Sub-Committee on Ship Design and Equipment, at its fifty-second session, and approved Guidelines for maintenance and repair of protective coatings, set out in the annex.

2 Member Governments are invited to apply the annexed Guidelines during survey, assessment and repair of protective coatings in ballast tanks on or after 1 January 2011 and bring them to the attention of shipowners, shipbuilders and other parties concerned.

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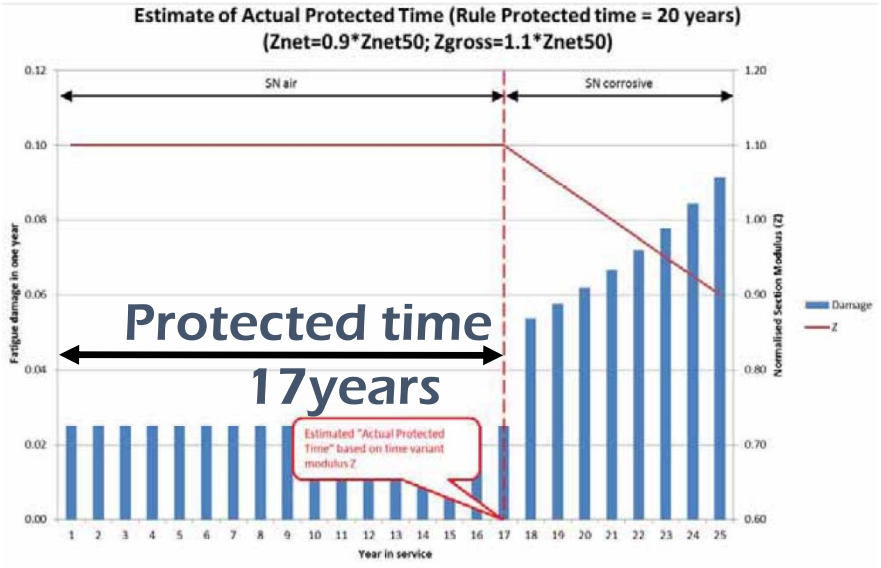
Breakdown spot of coatings can duly be detected, maintained and repaired under present regime.

Useful period of protective coatings

A）Useful period assumed by CSR for BC &OT :17years

A） is closer to B）



Results of IACS study

B) Useful life targeted by PSPC：15 years

No extra inspection & survey is needed since coatings do not break down just after elapse of target useful period of 15years.

Extreme presumption

Decreased Protected time

17 years →13 years(URCP)

For 12 years after elapse of protected time of 13 years,

neither inspection & survey nor maintenance & repair of coatings

Results of IACS study

Such extreme presumption is against IMO/Class principles for safety and even suggests early renewal due to corrosion left untouched.

Safety factor in usual ships

(A) Main North Atlantic (N.A.) route

Wave load (Q =10^{-2})on Northernmost N. A. route (CSR for BC & OT)

= 1.12 x Wave Load on Main N.A. route

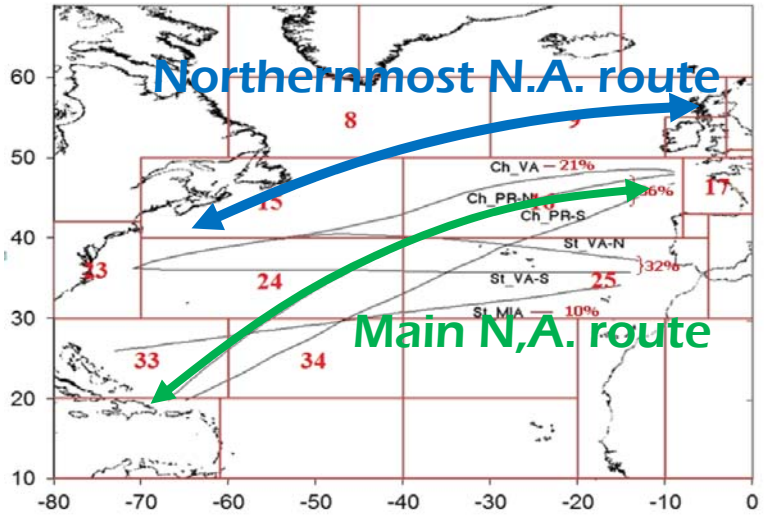
Safety factor in fatigue life :

Around 1.4 (=1.12^3)

(B) World Wide route

Safety factor in fatigue life :

Around 2.8 (=2.0 x (A))



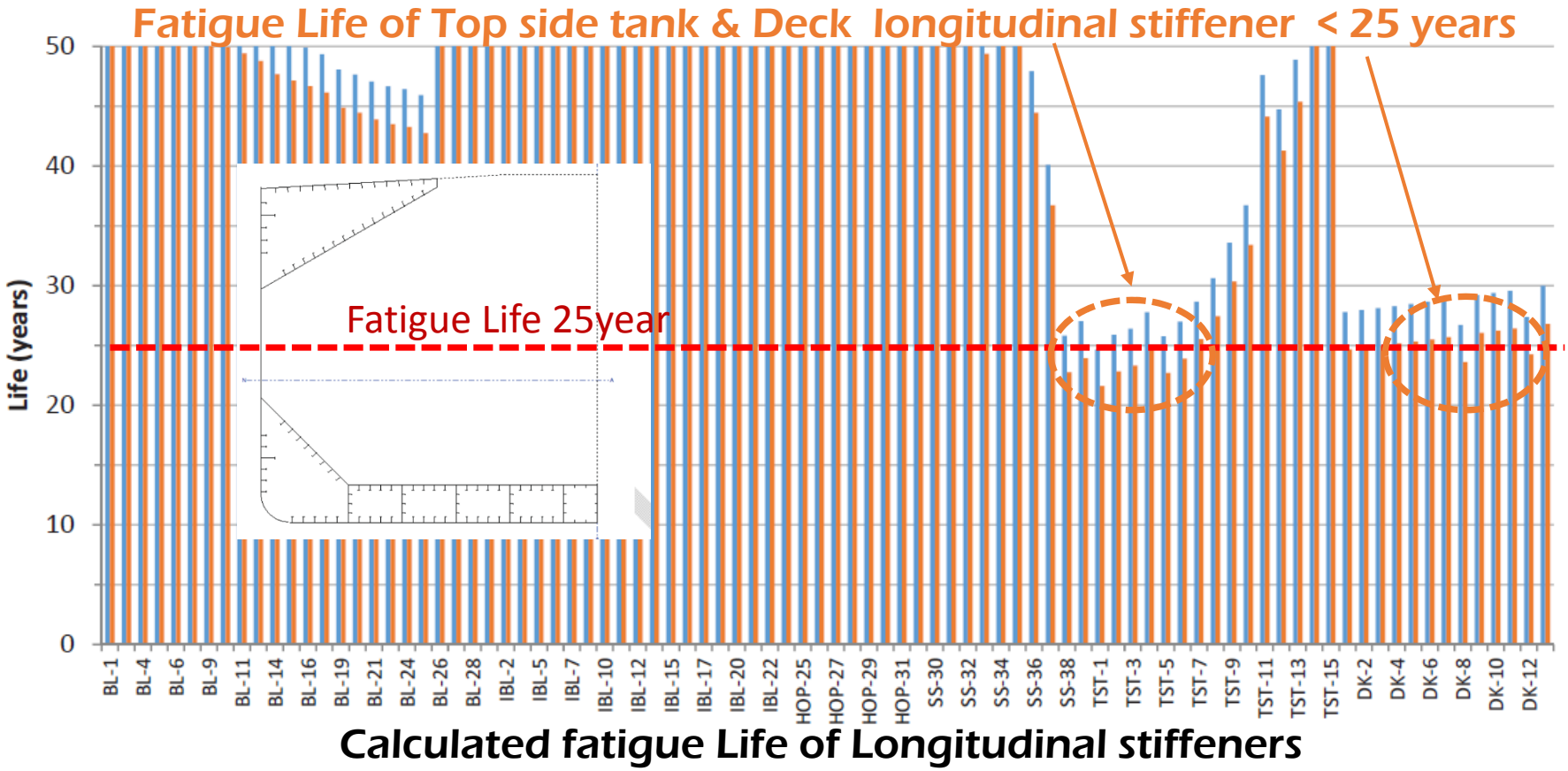
Results of IACS study

Present CSR for BC & OT provide usual ships with sufficient safety level .

Impact analysis
(IACS TB of Draft URCP:NC04)

Blue : Tc 5years (Present)
Red :Tc 10years (URCP)

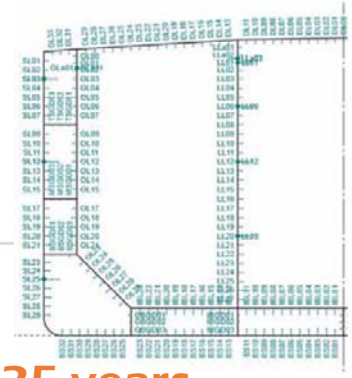
Cape size BC : BC3/Loaded Hold/Fwd Connection



Calculated fatigue Life of Longitudinal stiffeners

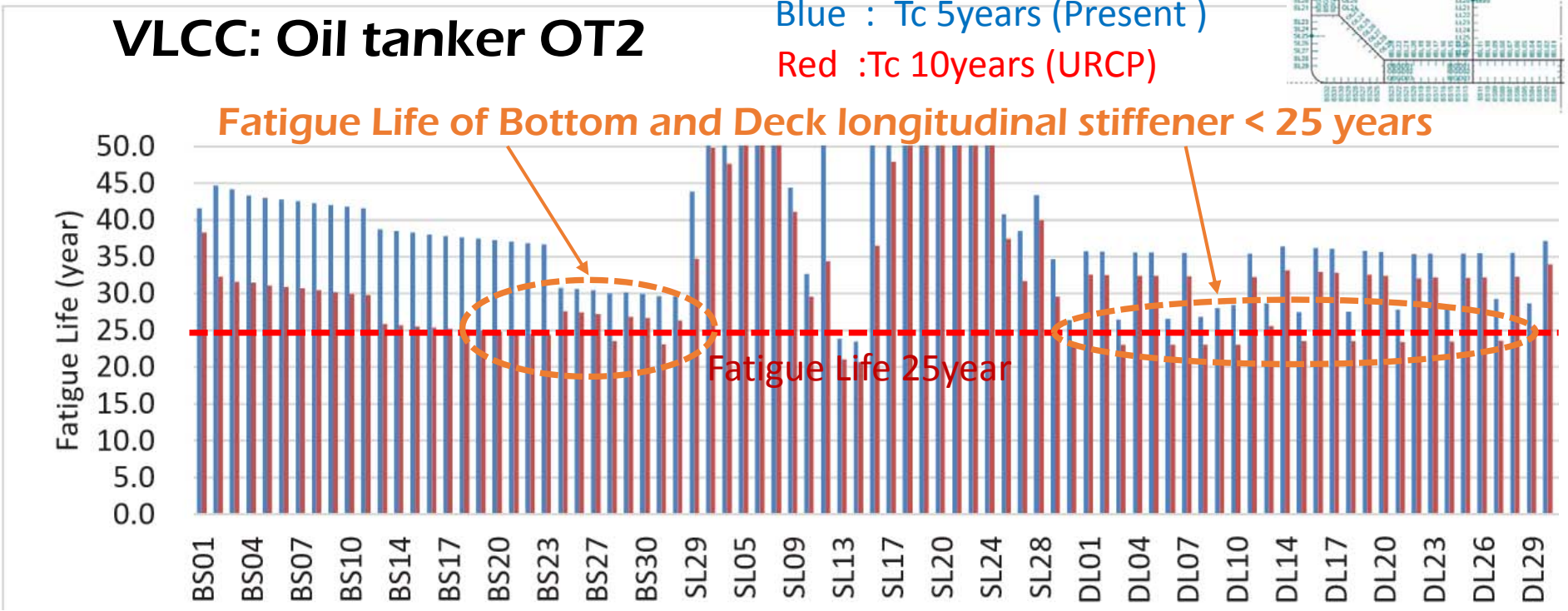
Large impact on deck longitudinal stiffeners

Impact analysis
(IACS TB of Draft URCP:NC04)



VLCC: Oil tanker OT2

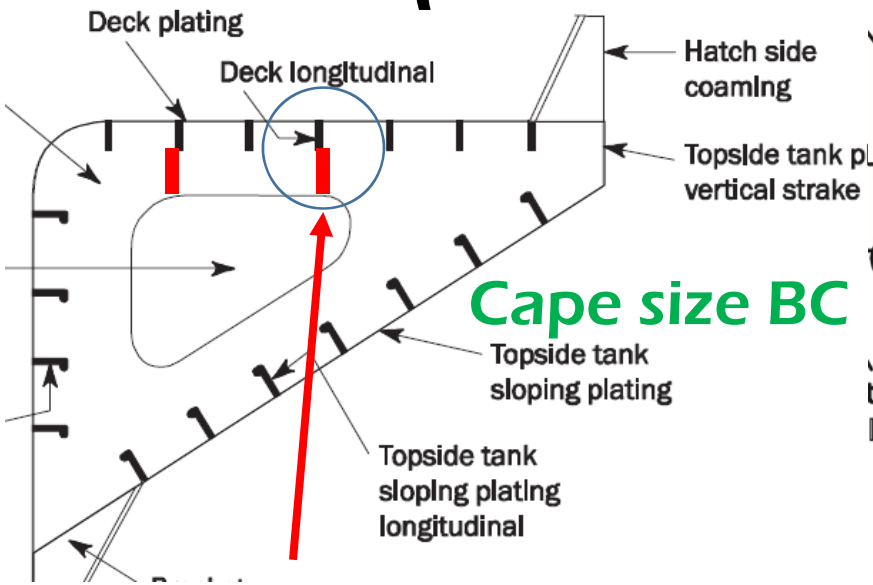
Blue : Tc 5years (Present)
Red :Tc 10years (URCP)



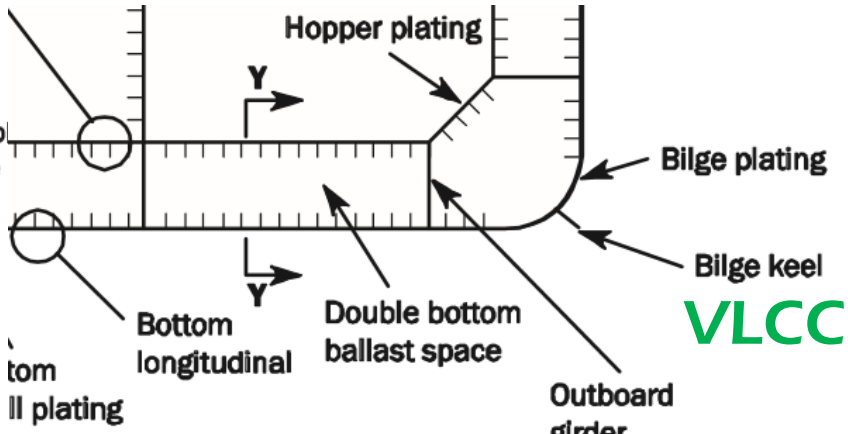
Calculated fatigue Life of Longitudinal stiffeners

Large impact on bottom longitudinal stiffeners

Critical location of fatigue assessment (Draft URCP:NC04)

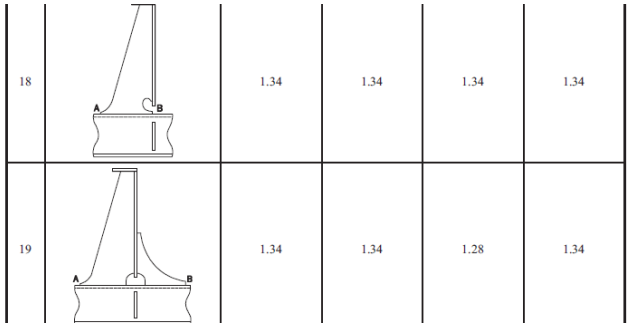


Cape size BC

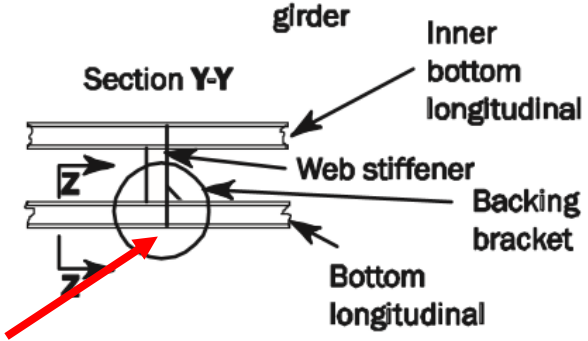


VLCC

Connection of tripping bracket and deck longitudinal Stiffener



Stress concentration factor



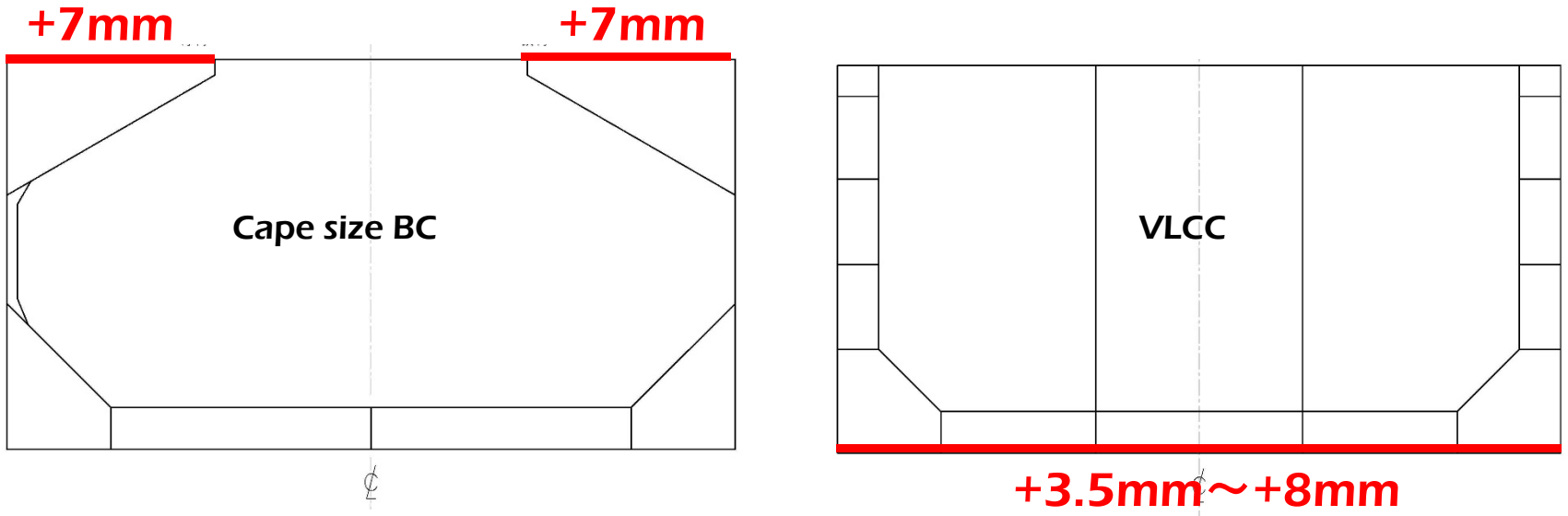
Connection of web stiffener and bottom longitudinal stiffener

Stress concentration factor

THE SHIPBUILDERS' ASSOCIATION OF JAPAN 日本造船工業会

Impact study (Draft URCP:NC04)

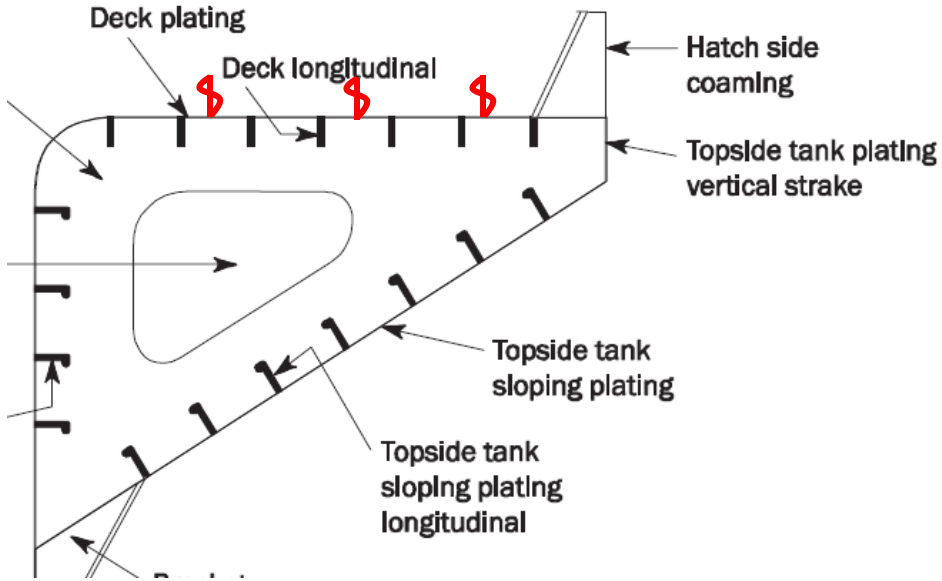
- Increased hull girder section moduli at deck and/or bottom of large BCs and OTs



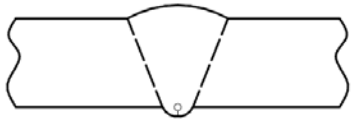
abt. +7mm for deck plates of Cape size BC
abt. +3.5～8mm for BTM plates of VLCC

Impact study (Draft URCP:NC04)

Deck plate thickness of Cape size BC : max 49mm



Challenges and difficulties of One-side Submerged Arc Welding



Increased risk (Draft URCP:NC04)

Heavy thickness for Cape BC and VLCC

- Elongated butt & seam weld lines due to weight/lifting capacity restriction
- More defects embedded in the weld lines which are more difficult to detect by NDT

Fatigue cracking and Brittle fracture risk

Conclusion

Draft URCP:NC04 brings adverse side effects on the shipping and environment.

- Increased risk of structural failure
- Substantial amount of extra steel
- Substantial amount of extra FOC
- Extra CO2 emission

In conclusion, ASEF ask IACS to reconsider and withdraw the Draft URCP:NC04

Thank you
for your attention.