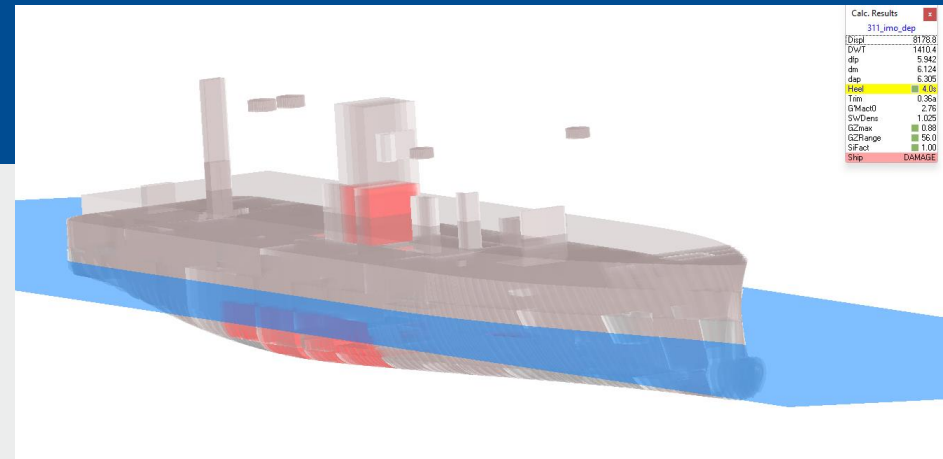


The LOADMASTER X5-SRtP Loading Computer

Presented by:

James Undén

Naval Architect, Kockumation AB



KOCKUMATION^{GROUP}



Kockum Sonics



POLARMARINE

Texon

Why is a SRtP-compliant Loading Computer needed?



The Safe Return to Port regulations were implemented by SOLAS due to:

- **A history of incidents on passenger ships with severe consequences**
- **Increasing size of vessels and number of passengers**
- **More remote and exposed operational patterns**
- **The risks associated with lifeboat evacuation**

The regulation that started it all

SOLAS Reg. II-1 / 8-1.3

For the purpose of providing operational information to the Master for safe return to port after a flooding casualty,

- Passenger ships constructed (keel laid) **after 1 January 2014** shall have:
 - **Onboard Stability computer; OR**
 - **Shore-based support**

based on guidelines in MSC Circulars 1400, 1532

Passenger ships constructed **before** 1 January 2014 shall comply with above not later than the first renewal survey after 1 January 2025

What's the best choice?

Regulations state that Shore Based Support (ERS) must be operational within 1 hour

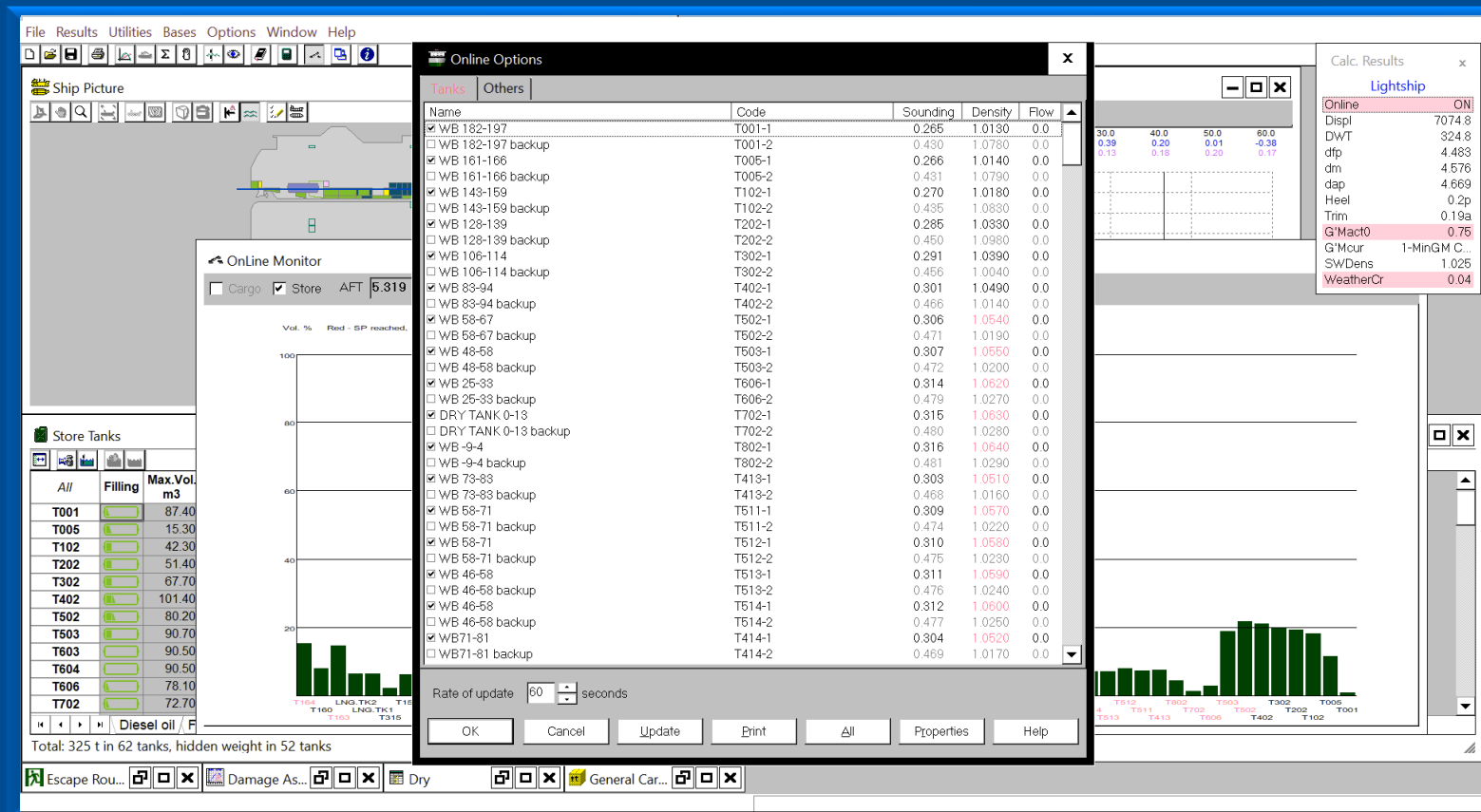
The safe & reliable solution:

- A SRtP-compliant Onboard Loading Computer for instant access to stability evaluation and for additional guidance from experts
- Emergency Response Service, utilizing the latest stability data from the loading computer



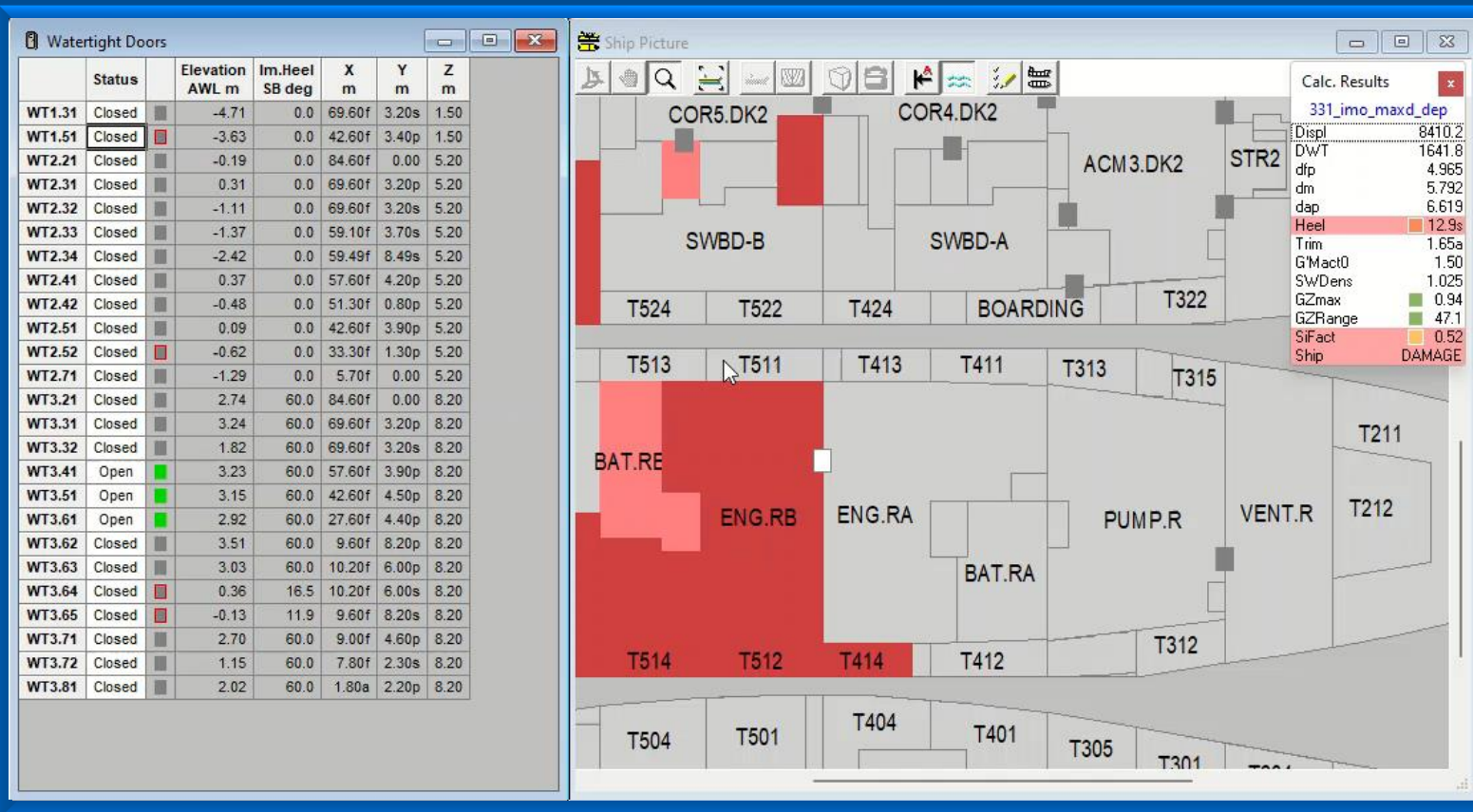
The LOADMASTER X5 - SRtP

- 3D model of hull and all compartments
- Accurate calculation based on any condition and combination of damaged compartments
- “Open to Sea” or “Fixed Volume” damage
- Possible to input damage description manually or with imported data from flooding detection system



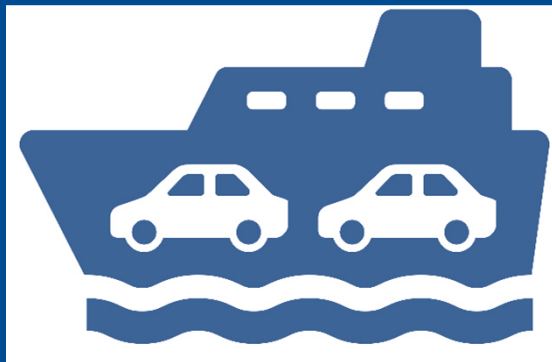
The LOADMASTER X5 - SRtP

- Effects of open/closed Watertight doors included in calculations
- Status of all Emergency escape routes
- All internal connections defined for progressive flooding



The LOADMASTER X5 - SRtP

- For RoPAX vessels – “Water on Deck” calculation according to Stockholm Agreement
- Clear & Accessible reports. Reports and electronic data can be sent to ERS to speed up their assistance.
- The Loadmaster X5 has a strong track record and approvals for SRtP compliance from DNV, LR, CCS.



中国船级社

LR Design Appraisal Document

Address (Add): 上海市福州路 (Post Code): 20001
 传真 (Fax): 021-518333
 电话 (Tel): 021-610800
 电报 (Telex): 021-610800
 主送单位(TO): KOCKUMATION
 抄送单位(CC): CCS 现场

Lloyd's Register EMEA
 Copenhagen Technical Support Office
 Statutory Department
 Strandvejen 144A, 2nd Floor
 DK-2300 Hellerup
 Denmark

Date: 5 February 2021

LR 921
 Final Enhance
 Appraisal of the hull
 'LOADMASTER'

This Design Appraisal Document is dated 30 November 2020.

1. The Document(s) listed in paragraph 1.1 are approved for use for specific ship approval for strength an appraisal status as indicated subject to the following conditions:

2. Final acceptance of the Loading Computer witnessed by a Lloyd's Register surveyor.

3. It remains the Master's responsibility item are included in any assessment.

4. The supplier is responsible for ensure handling changes without loss of the software and hardware to handle all has not been demonstrated to Lloyd's Register.

5. The Master should be aware that reg damage stability should be undertaken made to tank content (for example if emptied), such changes may have to be made.

General Comments:

6. The program has General Approval for use.

意见类别: A—批准无意见; 未审返图: T2—转图局审核

贵公司选定的下列图纸:

序号	图样编号
1	
2	

Document No. 19-1864
 Rev. 001
 Title: Test Conditions
 Code: 107.2
 Status: Approved

Document No. 19-1865
 Rev. 001
 Title: Ship data
 Code: 107.2
 Status: For Inf.

Document No. 21-1913
 Rev. 001
 Title: C_03+CamWOP2(EXT_130_150)
 Code: 107.2
 Status: Approved

Document No. 19-1864, "Test Conditions" has been reviewed in accordance with DNV Rules for Classification - Ships (July 2021) Pt. 6 Ch. 4 Sec. 6, with the following comments:

468 Rule reference

Based on this document and the submitted ship data the software is approved for calculation and control of loading conditions with respect to the following requirements:

Intact stability:

- DNV GL rules for classification - Ships (January 2016) Pt. 3 Ch. 15 Sec. 1 [A.1.1] and [A.2] (Main Class +1A) and Pt. 3 Ch. 4 Sec. 4 [1.2] (Class Notation Passenger ship), corresponding to the intact stability requirements of IMO 2008 IS Code Part A Ch. 2 and Ch. 3.1

Damage stability (limit curve):

- SOLAS (2009) Reg. 9-18 to 9-8

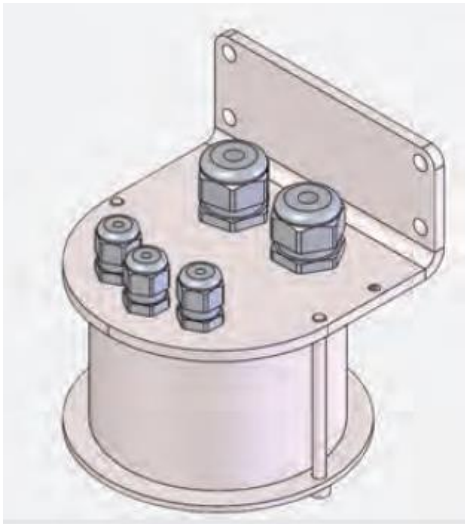
Longitudinal strength:

- Check of bending moment and shear force against approved limits

Damage control:

- Check of damage stability for real case scenario as required by SOLAS 2009 Reg. 10-16-1.3.1

DNV Headquarters, Vestvæien 1, P.O. Box 300, 1322 Høvik, Norway. Tel: +47 67 97 99 00. www.dnv.com



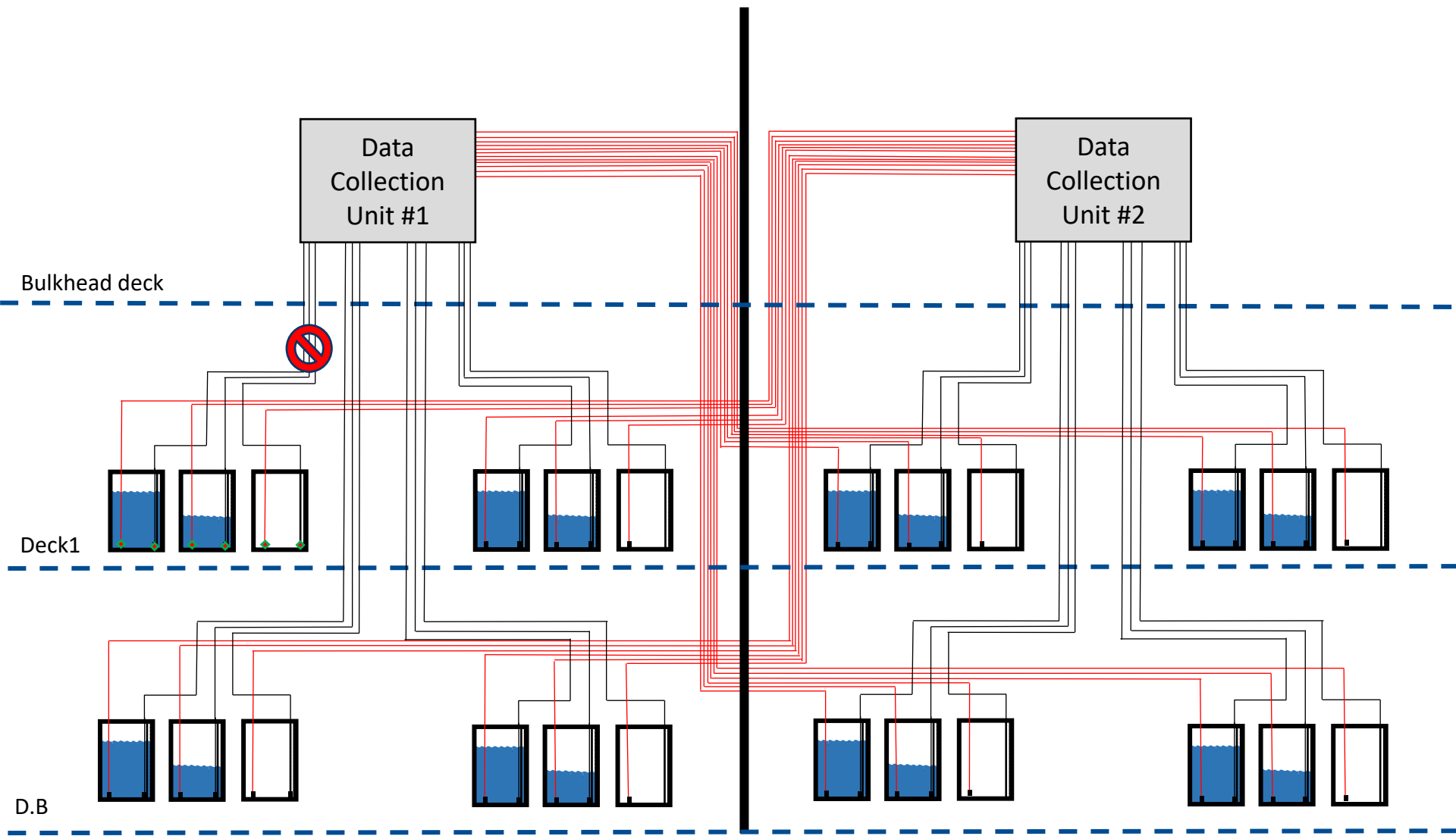
Solving the challenges of SRtP regulations for the Flooding Detection System

- Flooding detection system may only be lost in spaces directly affected by fire or other damage. All other detectors shall remain operational.
- This means that each sensor needs to be connected to two different PLCs above bulkhead deck, dramatically increasing amount of wiring.
- Combining the **LevelMaster SRtP Box** and **Kockumation sensors** reduces the required amount of wiring by ~95% compared with conventional methods.



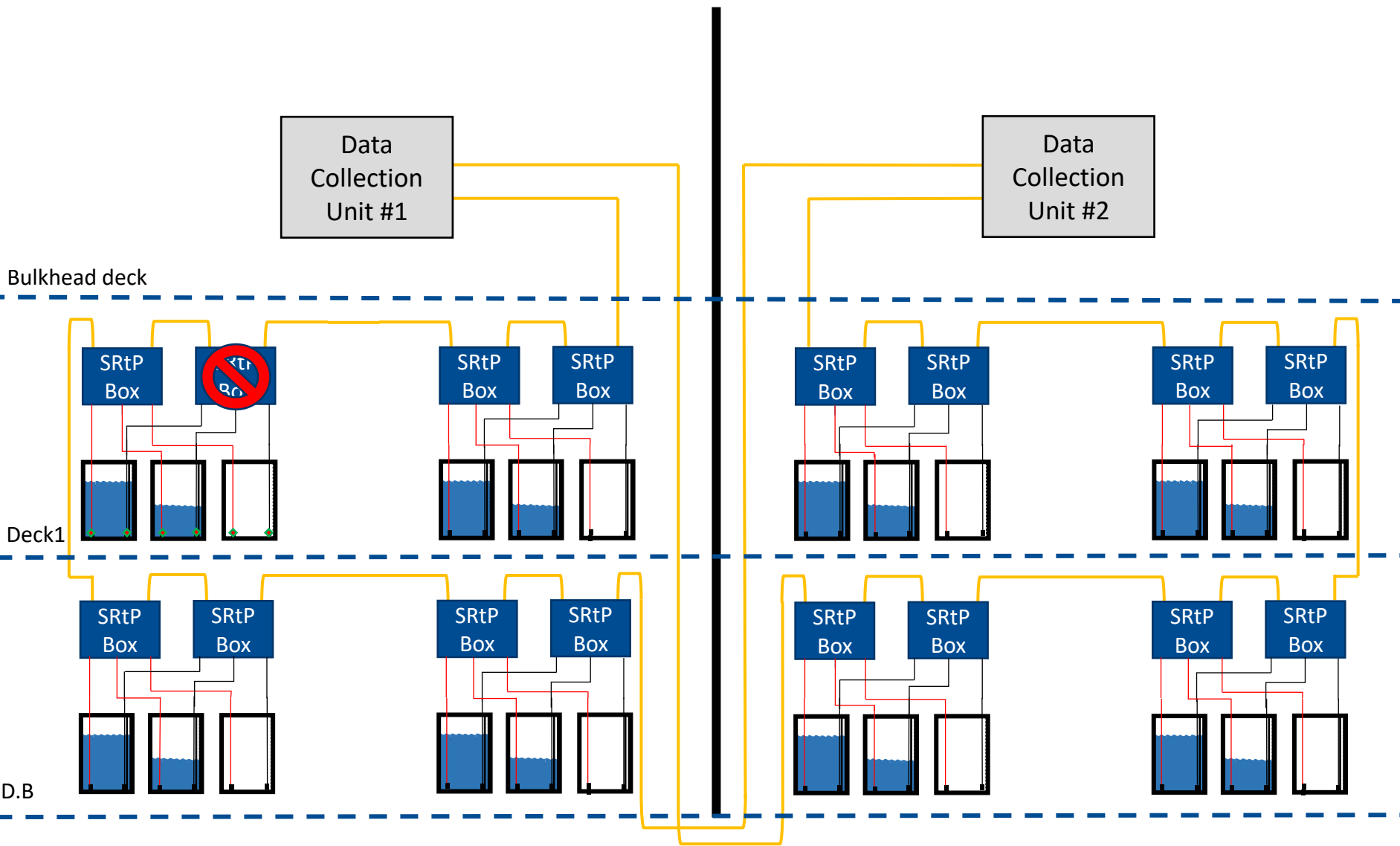
Main Vertical Fire Zone A

Main Vertical Fire Zone B



Main Vertical Fire Zone A

Main Vertical Fire Zone B



Thank you!

james.unden@kockumation.com

Loadmaster.SRTP@kockumation.com

The logo for Kockumation Group features the word "KOCKUMATION" in a large, bold, blue sans-serif font. A thick, dark blue curved line arches over the text. To the right of "KOCKUMATION", the word "GROUP" is written vertically in a smaller, blue sans-serif font.

KOCKUMATION GROUP

 **Kockum Sonics**  **POLARMARINE** *Texon*