

Research Vessel Operators Committee



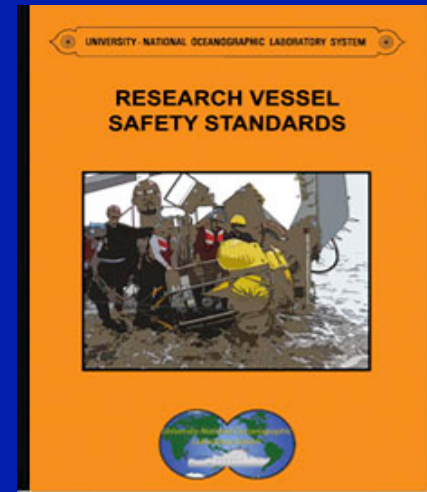
Committee Report

UNOLS Council Meeting March 2011
Joe Malbrough

Highlights of RVOC



- Safety Committee and Research Vessel Safety Standards (RVSS)
 - Workshops for Appendix A- Rope and Cable Safe Working Load Standards- By Rich Findley
Hosted by- WHOI, URI and LUMCON
Future locations SCRIPPS, UW/MTNW, Miami
 - Final Review of Draft for Appendix B
Overboard Handling Systems Design Standards
- Research Vessel Operators Committee Meeting



Appendix A & B

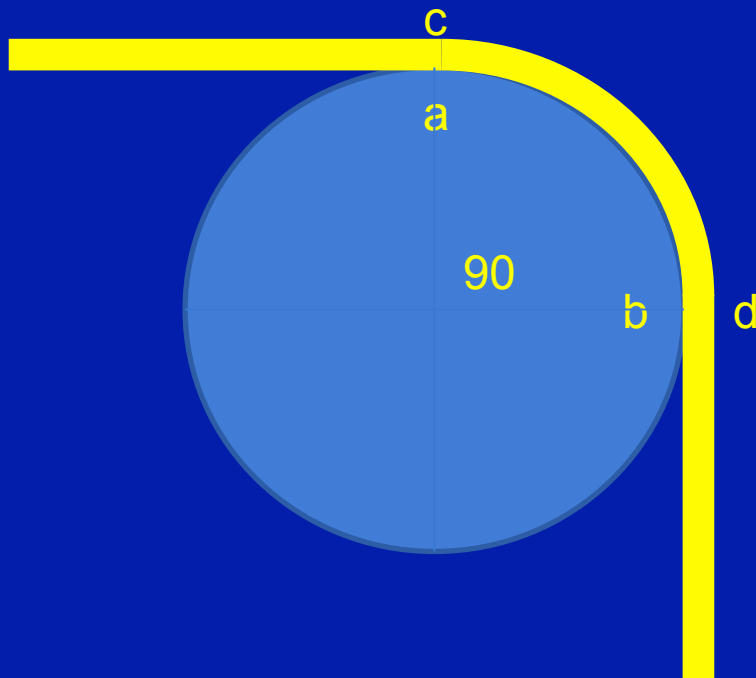
Look at as a system

- Every component in the system needs to be considered and evaluated.
 - Appendix “A” applies to tension members
 - Appendix “B” applies to winches, over boarding structures (a-frames, j-frames etc.), sheaves and ship foundations.

Why Appendix A- Rope and Cable Safe Working Load Standards?

- Tension members (Wire Rope & Cables) are normally operated at 20 % of their breaking strength by shore side regulation.
- In order to meet scientific research requirements it is necessary to operate at 50% of the breaking strength or higher.
- Appendix “A” of the UNOLS Research Vessel Safety Standards was created in order to operate safely at these higher tensions.

Tension Member Behavior in Bending (Simplified Explanation)



- The distance from 'a' to 'b' is less than the distance from 'c' to 'd'.
- Therefore, the wires closest to the sheave are not loaded as much as the wires on the outside of the sheave.
- Stated differently, the wires on the outside are carrying most of the load.
- If the load is high enough, the wires on the outside yield, or stretch permanently and become thinner and weaker.

Proposed Changes Involves Sheaves

- “D” = The root (sometimes referred to as tread or thread) diameter of the sheave.
- “d” = The outside diameter of the cable or rope.
- “d1” = For cable the largest diameter wire in the armor wires. For wire rope the largest of the outer wires.
- “w” = The width of the sheave groove supporting the sides of the wire or cable.

Proposed Changes to Appendix A

Limit	Current	Proposed
5	The D/d ratio must be equal to or greater than the manufacturer's recommendations	The sheave diameter must be at least equal to or greater than the manufacturer's recommendations
2.5	The D/d ratio must be at least 40:1 or 400d1 (whichever is greater) throughout. Grooving of the sheaves should be as close to "d" as practical, and generally no larger than 1.5d	The sheave and roller diameter(s) throughout should be equal to or greater than the larger of either: the manufacturer's recommendation; 40 x d; or 400 x d1 (use the largest). Grooving of the sheaves should be as close to "d" as practical, and generally no larger than 1.5d
2	The D/d ratio must be at least 40:1 or 400d1 (whichever is greater) throughout. Grooving should be per Ref A. 1.1, Chapter 1, and Section 11.0 to provide adequate support.	The sheave and roller diameter(s) throughout should be equal to or greater than the larger of either: the manufacturer's recommendation; 40 x d; or 400 x d1 (use the largest). Sheave grooving should be per Ref A.1.1, Chapter 1, and Section 11.0 to provide adequate support.
1.5	The D/d ratio must be at least 40:1 or 400d1 (whichever is greater) throughout. Grooving should be per Ref A. 1.1, Chapter 1, and Section 11.0 to provide adequate support.	The sheave and roller diameter(s) throughout should be equal to or greater than the larger of either: the manufacturer's recommendation; 40 x d; or 400 x d1 (use the largest). Sheave grooving should be per Ref A.1.1, Chapter 1, and Section 11.0 to provide adequate support.
d1	d1" = The diameter of largest single <u>strand</u> wire in a rope or cable armor.	"d1" = For cable the largest diameter wire in the armor wires. For wire rope the largest of the outer wires.

Appendix B- UNOLS Overboard Handling Systems Design Standards Criteria for the Design and Operations of Overboard Handling Systems

Applies to:

- All fixed and portable overboard handling systems
- Each component of the overboard handling system:
 - Winches, Frames, Davits, Cranes, Booms and Sheaves
 - Foundations for all components – including ship structure
 - Deck tie downs and shackles
- This document WILL apply to cranes if they are used to lift, deploy, and/or recover science packages
- This document DOES NOT apply to manned lifting operations

Appendix A & B

- The pending updates to Appendix A will be sent out for final review and incorporate comments received from the fleet through the Appendix A workshops.
- The draft of Appendix B is currently out for review and NSF is reviewing all funding requests for replacement of overboard handling equipment for compliance.

The UNOLS Research Vessel Operators Committee (RVOC) April 26-28, 2011

- Hosted by SCRIPPS Institution of Oceanography
- Guest Speakers:
 - Demian Bailey- GOM Deepwater Horizon Experience
 - Dr. Jeff Babcock – SCRIPPS
 - Todd Hassel- Prisms Systems/Shipboard Control Systems and VMS
 - Nick Van Overdam- Kongsberg/DP systems