OCIMF & Mooring Equipment Guidelines (MEG)

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Learning from Incidents: The Hazards of Snapback
Incident Outline

Winch Operator

Winch

3/O Signal Relay

Rope Parting Point

Roller

Fairlead

3/O OIC
Snapback Zone
A finite element model of the vessel geometry and quayside was built to assess the dynamic trajectory of the parted rope.
Rope Trajectory
Rope Trajectory
Multiple Roller Fairlead

MOORING FORCE (P)

SHI SIDE

I-ROLLER TYPE

a deg : AS PER MOORING LAYOUT (MAX. 90 deg)
Rope Trajectory

Baseline Results - view from above – Velocity 0.24secs to 0.26secs

Approximate velocity of line whipping round fairlead rollers is ~200m/s
Mass of line is 1.133kg/m. Kinetic energy of line is approximately 23kJ/m
When connecting synthetic tails to HMSF and wire mooring lines, the elasticity of the tails introduces energy that can significantly increase the snap-back hazard.

Elongation is proportional to the length of the tail. The fitting of longer synthetic tails, e.g. 22m tails from 11m tails, proportionally increases the stored energy and the amount of snap-back that can be expected.

Mooring lines led around roller pedestals and fairleads have the potential to create complex snap-back zones.
Mooring Line:
HMSF
44mm
Jacketed
275m length
MBL = 137 tonnes
Life expectancy = 8 years

Source:
https://assets.digital.cabinet-office.gov.uk/media/56b8c217e5274a0369000013/MAIBSafetyBulletin_1-2016.pdf
What do we know now?

Mooring Line:

MBL = 137 tonnes **failed at 24 tonnes**

Life expectancy = 8 years **failed at 5 years**

Source:

What do we know from MAIB?

Source:
https://assets.digital.cabinet-office.gov.uk/media/56b8c217e5274a0369000013/MAIBSafetyBulletin_1-2016.pdf
What are our next steps?
Chairman: Mohinder Rattan (BP) / Vice Chair: Jeff Bayham (ExxonMobil)
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Ian Chadwick (Chevron)  
Tim Hunter (EuroCord)
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What’s the Challenge?
What’s the Challenge?
What’s the Challenge?
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The Mooring System!
Incorporate lessons learned from the Zarga incident and update section on HMSF ropes.

Provide guidance when loads have been exceeded for both ropes and fittings.

Incorporate relevant publications into MEG.

www.ocimf.org/MEG4
MEG – Desired Outcomes

- Keep target audience in mind
  - Operators, Ship Staff, SIRE Inspectors

- Provide Clarity
  - Safety Factors, Terminology, Tail Length, Snapback Zones

- MOC Process
  - Alternate and Emerging Technology, Changing Ropes, Record Keeping

Human Factors
MEG – Desired Outcomes

- Keep target audience in mind
  - **Ship Staff**

- Provide Clarity
  - **Safety Factors, Terminology, Tail Length, Snapback Zones**

- **MOC Process**
  - **Alternate and Emerging Technology, Changing Ropes, Record Keeping**
MEG – Desired Outcomes

Protect our people
Questions?