Practical Approaches to Marine Terminal Human Factors

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Management Systems

• The most influential factor with regards to the potential for human error
• Auditing techniques, like Safety Assessment of Marine Systems (SAMS), can assess Safety Management System (SMS) effectiveness
Anthropometry refers to the physical dimensions of the human body based on sex, race, and origin.
Valve Height and Orientation
Valve Criticality Analysis

- Provide guidance to:
  - formalizes the decision process for determining the location of valves
  - to facilitate access for operations or maintenance
Equipment Accessibility
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Labeling/Coding
Instructions/Procedures

• Should:
  – use common terms
  – use appropriate language
  – be clear
  – be concise
  – use proper grammar
  – be consistent
Hazard/Warning Labels

- These labels should:
  - use a signal word (e.g., Danger)
  - state the hazard
  - tell you how to avoid the hazard
  - state potential consequences
  - always be visible
Environmental Issues

Lighting

Noise
Communications

• IMO Speak, Constrained Language
• Communication Protocols for
  – Ship-to-shore
  – Control Rooms
  – Tank Farms
• Emergency (including USCG and other regulators)
• Throughput Quality
Other Personnel Issues

- Emergency Drills
- EER Planning
- PPE Design
- Behavioral Based Safety