MOTEMS COMPLIANCE OF MULTI-USE TERMINALS

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Agenda

• What are Multi-Use Terminals?
• Shared Berth Challenges
• MOTEAMS Compliance Challenges
• Take-Aways
What is an Multi-Use Terminal?

- Shared berth marine oil terminal
- Multiple operators/tenants at berth
- Variety of operations on terminal
- Varied vessel traffic
- Operational hierarchy
Shared Berth Challenges

• Other tenants can be difficult!
  • Don’t understand or care about MOTEAMS
  • They want unrestricted wharf access
  • They are the top tenant

• Permanently deployed equipment limited
  • Manifolds & piping
  • Fire suppression system
  • Lighting
  • Secondary containment

• Potential Electrical Hazard Class conflicts (Beware of cold ironing!!)

• Potential incompatible mooring & berthing systems/operations
Shared Berth Challenges

- Transfer manifold forced into deck vaults
  - Motorized ESDs/SIVs = Large vaults
  - Large vaults = Heavy covers
    - Difficult to design
    - Difficult to open
    - Difficult to seal
- Vaults are difficult to ...
  - Operate
  - Maintain
  - Drain
  - Clean
  - Protect
Shared Berth Challenges

- Portable operations
  - Not considered by MOTEMS
  - Difficult for frequent transfers
- MOB/DeMOB each transfer ...
  - Hoses
  - Booms
  - Metering equipment
  - Fire suppression components
  - Containment
  - Additional lighting
    - USCG requires fixed
- Reliance on vessel crane
Differences by Division

• Division 1 – MOT Scoping
  • MOTEMS Jurisdiction
  • MOT Oil Spill Exposure Category
  • Management of Change (MOC)
Defining MOT Limits

- What is regulated by MOTEMS?
  - A lot!
    - Oil system offshore of SIVs
    - Nearly the entire wharf structure
Defining MOT Limits

• What is regulated by MOTEMS?

- Tank Farm
- Oil Pipelines
- Transfer Manifold
- SIVs

MOTEMS Jurisdiction
Differences by Division

• Division 2 – Audit & Inspection
  • What to look at?
    • Structure supporting oil system
    • Structure supporting pipelines
    • Fender & mooring hardware
    • Critical system supports
  • Don’t inspect non-MOTEMS stuff!

• Divisions 3 and 7 – Structural Design
  • Vault cover design difficult
    • Rails
    • Cranes
    • Front loader traffic
Differences by Division

- **Divisions 4 & 6 – Seismic Hazards**
  - Mixed use = Mixed seismic criteria
  - Heavy non-MOTEMS equipment
  - Anchorage of portable critical systems

- **Division 5 – Mooring & Berthing**
  - Incompatible berthing operations
    - Large vessel variety
    - Vessel sliding at berth
    - Vessel stand-off
  - Simultaneous berthing
  - Incompatible mooring arrangements
  - MOTEMS mooring hook requirements
    - Quick-release hooks v. bollards
    - Tension monitoring
Differences by Division

• Division 8 – Fire Protection
  • MOTEMS Critical Systems Assessment
    • Find the real risks
    • Think safe shutdown
    • Minimize MOTEMS exposure
  • MOTEMS Fire Hazard Assessment & Risk Analysis
    • Consider both MOTEMS and non-MOTEMS ops
      • Beware of cold ironing!!!
Differences by Division

• Division 8 – Fire Protection (cont.)
  • Fire Suppression Coverage
    • Required (New & Existing)
      • Extinguishers
      • Hydrants
      • 2 independent streams of fire water
      • Reliable fire water source
    • Required (New)
      • Sprinklers or monitors
    • Foam is not required by MOTEMS
    • Selection and placement of coverage equipment critical to compliance
Differences by Division

• Division 8 – Fire Protection (cont.)
  • Fixed or deployable?
    • Fire hoses
    • Fire monitors
    • Extinguishers
  • Sensors & alarms
    • Only manifold coverage required
    • May be located away
Differences by Division

• Division 9 – Pipelines
  • Buried/Below deck alignments
    • Conflict with MOTEMS
    • Pipe trenches with covers
  • Secondary containment
    • Req’d for vault and hose layout area
    • Storm water drainage/treatment
    • Avoid SUMPS at vaults!
    • Consider portable systems for hoses
  • Small vaults impacts ...
    • Manifold valves
    • Motorized SIVs & ESDs
    • Secondary piping/pumps placement
Differences by Division

• Division 10 – Mechanical & Electrical Equipment
  • Hose considerations
    • Mobilization – need forklift or tractor
    • Lots of movements = Extra wear
    • Storage
  • Vapor recovery not an easy issue!
    • Dock Safety Unit placement – USCG
  • Need dirty-water collection system
    • Avoid sumps
  • Shore-to-vessel access
    • Depend on the vessel
  • Boom deployment
  • Spill boom storage
Differences by Division

• Division 11 – Electrical Systems
  • Locating fixed lighting
  • Managing Electrical Hazard conflicts
    • Watch non-MOTEMS equipment
    • Beware of cold ironing!
Take-Aways

• MOTEMS geared for dedicated MOTs, not multi-use terminals
• Multi-use MOT compliance is more challenging, but not impossible!
• Be smart about defining the MOT – Work to minimize MOTEMS footprint
• Use the MOTEMS Critical Systems Seismic Assessment
• Carefully think about your operational design to avoid compliance pains
• Consider deployable resources
• Periodic audits are important safety measure!
• Beware of cold-ironing!