SAFETY IN UNLOADING/LOADING TANKERS

Safety in Hydrocarbon Sector
Drilling to Dispensing

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Veemar Shipping
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Tanker Explosion

Dalian Port Fire
VIZAG FIRE DURING DISCHARGE OF LPG TANKER

View of Vishakapatnam harbour -
http://www.knowindia.net/infraindia4.html
AGENDA

• VIZAG FIRE DURING DISCHARGE OF LPG TANKER
• TYPICAL OPERATIONS – TERMINAL
• TYPICAL OPERATIONS – TANKERS
• INTEGRATED TANKER-TERMINAL OPERATIONS
• ISSUES AT SHORE TERMINALS
• EXCERPT FROM INSPECTION CHECKLIST
• WHY IS FOCUS ON SAFETY INSPECTION CRITICAL?
• RECOMMENDATIONS
• CONCLUSION
INTEGRATED TERMINAL-TANKER OPERATIONS

• As oil cargo flows from ship/tanker to shore/terminal through hose and mechanical loading arms, the entire operation is integrated – i.e. any incident on ship/tanker can cause an incident on shore/terminal and vice versa

• Comparison with Mother-Infant relationship

• Safety of cargo operations is the responsibility of each and every one involved in these operations (tanker and terminal are mutually responsible for each other)
WHY IS FOCUS ON SAFETY INSPECTION CRITICAL?

- POTENTIAL LOSS OF HUMAN LIFE
- FACILITY DAMAGE (PROPERTY AND EQUIPMENT LOSS)
- ENVIRONMENTAL IMPACT
- REGULATORY FINES
- DOWNTIME OF FACILITY
- RE-BUILD COST
- RESPONSE COST
- REPUTATION IMPACT
TYPICAL OPERATIONS – TANKER

• Ships/Tankers are operated as per international standard
• Manned by formally trained, qualified and experienced crew
• Ships have to comply with various national/international statutory requirements – SOLAS, MARPOL, IMDG Code within IMO (intergovernment body)
• Frequent vetting inspection by charterers
• TMSA (Tanker management & self assessment) implementation by ship owners under ISM code
• Classification societies involvement
• Failure to maintain ship can result in loss of earning to ship-owner
• Pollution resulting penal action imprisonment, fines, and loss of certificate
TYPICAL OPERATIONS – TERMINAL

• Pre berthing preparation
• Safe mooring of tanker
• Compliance with tanker terminal procedures (consistent with International Standards)
• Adherence to Inspection Checklist and record keeping for future reference
• Pre-cargo operation conference between Tanker & shore
• Proper clarity on emergency and shut down procedures
• Clear demarcation of responsibilities between Tanker & Shore
• Determine clear ship-shore communication
• Continuous monitoring cargo operation parameters
• On completion of cargo operation post discharge documentation
• Prepare for safe departure of tanker
• Secure terminal for next operations

Areas for concern in current operations
<table>
<thead>
<tr>
<th>GENERAL</th>
<th>SHIP</th>
<th>TERMINAL</th>
<th>CODE</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
<td>1 Is the ship securely moored?</td>
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<td>2 Are emergency towing wires correctly positioned?</td>
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<td>3 Is there safe access between ship and shore?</td>
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<td>4 Is the ship ready to move under its own power?</td>
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<td>5 Is there an effective deck watch in attendance on board and adequate supervision on the terminal and on the ship?</td>
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<td>6 Is the agreed ship/shore communication system operative?</td>
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<td>7 Has the emergency signal to be used by the ship and shore been explained and understood?</td>
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<td>8 Have the procedure for cargo bunker and ballast handling been agreed?</td>
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<td>9 Have the hazards associated with toxic substances in the cargo being handled been identified and understood?</td>
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<td>10 Has the emergency shutdown procedure been agreed?</td>
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<tr>
<td>11 Are fire hoses and fire-fighting equipment on board and ashore positioned and ready for immediate use?</td>
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<tr>
<td>12 Are cargo and bunker hoses/arms in good condition, properly rigged and appropriate for the service intended?</td>
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<tr>
<td>13 Are scuppers effectively plugged and drip trays in position, both on board and ashore?</td>
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<tr>
<td>14 Are unused cargo and bunker connections properly secured with blank flanges fully bolted?</td>
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<tr>
<td>15 Is sea and overboard discharge valves, when not in use, closed and visibly secured?</td>
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<td>16 Are all cargo and bunker tank lids closed?</td>
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<td>17 Is the agreed tank venting system being used?</td>
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<td>18 Has the operation of the P/V valves and/or high velocity vents</td>
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<td>19 Are hand torches of an approved type?</td>
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<td>20 Are portable VHF/UHF transceivers of an approved type?</td>
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<td>21 Are the ship’s main radio transmitter aerials earthed and radars switched off?</td>
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<td>22 Are electric cables to portable electrical equipment disconnected from power?</td>
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<td>23 Are all external doors and ports in the accommodation closed?</td>
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<td>24 Are window-type air conditioning units disconnected?</td>
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<td>25 Are air conditioning intakes, which may permit the entry of cargo vapor closed?</td>
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<td>26 Are the requirements for use of galley appliances being observed?</td>
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ISSUES AT SHORE TERMINALS

• Qualified engineer with no formal training in tanker or jetty operation
• Job rotation compounds lack of experience about tanker operation for shore-based personnel
• No periodical update to keep up with changes in standards
• Lack of hands on fire fighting/pollution combat training
• Infrequent drills
• Infrequent inspections
• Involvement of multiple agencies
• Unloading facilities partly owned by port or by the oil companies – with no clear demarcation of responsibilities
• Port trust provides marine logistic support
RECOMMENDATIONS

- Ports & Terminals to self-assess their operations, and have independent audits, based on OCIMF standard references
- International Safety Guide for Oil Tankers & Terminals (ISGOTT) to be used as basis
- Inspections based on an industry standard Inspection Questionnaire – that is completed for each operation and kept for records
- Tankers are typically inspected twice per year and similarly, Terminals should also be vetted regularly
- Terminal Inspectors should be trained, audited & accredited
- Proper Root Cause Analysis System in place
- Well trained Emergency Response System
- Clear roles and responsibilities for all involved
CONCLUSION

• Accidents do not occur but are caused
• Motto should be to have everything ship –shape.
• Risks and challenges at sea leaves no room for complacency to a sea farer
• Society expects industry to have Zero accident
• Even though 99.999% of Oil is delivered safely, it takes only one accident to change the industry. Can we afford this 0.001%?

A STITCH IN TIME SAVES NINE!!