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| **NAV 19 – MOORING / ANCHORING OPERATIONS AUDIT** | **VESSEL:** | **DATE:** |
| Visiting Superintendents are to use this form as part of the internal audit regime.  Supplementary questions may be added by the Master or Superintendent as necessary. | | |

**Documentary and General (If not applicable to vessel, enter N/A)**

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| **No** | **Confirm documentary records** | **Yes/No** | **Comment** |
| 1 | Is the vessel provided with the latest editions of all reference publications related to safe mooring operations appropriate to type of vessel (SAF08)? |  |  |
| 2 | Is an up to date file maintained of all mooring equipment certificates (wire ropes, synthetic lines, links and tails)? Each mooring component is identified / tagged to a certificate.  Is the following information available for all mooring components –   * Record of deployed location, to which specific winch is the component fitted? * Date the component (rope / wire / link) was put in service? * Date of end for ending? |  | Pertinent dates included in the Shipsure Certificates Module?  Verify from on board records that winch-mounted synthetic lines are end-for-ended every two years unless inspection dictates a shorter period and that wire ropes have been end-for-ended at each routine dry-docking.  Ropes without certificates are not used? |
| 3 | Are all mooring ropes, wires and links on-board, including spare ones, are inspected and recorded in OP145 “Mooring Equipment Condition, Maintenance and Usage Record” |  | Confirm that the mooring ropes are inspected thoroughly at least once every three months for condition and any damage – does the condition at audit match the inspection record condition? |
| 4 | Mooring / anchoring equipment surveys and inspections are conducted and recorded in the deck log book? Survey to include the minimum following items:   * must include a visual examination of the emergency towline (if fitted), the anchor releasing mechanism and the mooring lines. * all winches are to be tested and where applicable oil levels checked. * are pedestal fairleads, roller fairleads and other rollers well-greased, free to turn and are bitts free of grooving in good condition? |  | All mooring / anchoring equipment and components in good order |
| 5 | A risk assessment is in place for all mooring, towing and escort tug / pull back operations to ensure that risk to personnel involved is reduced as far as practicable? |  | Loose mooring rope MBL (Minimum Breaking Load) less that mooring fitting SWL |
| 6 | A risk assessment is in place to ensure mooring equipment protection from failure (integrity and redundancy)? |  |  |
| 7 | Is a risk assessment in place for winch brake testing? |  |  |
| 8 | Has the pre-arrival meeting been held inclusive of routine risk assessment and training sessions involving all mooring personnel to ensure that mooring arrangements are operated to ensure the safety of vessel personnel? |  | Mooring arrangements discussed and understood by all officers and crew involved? |

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| 9 | Ship-specific emergency towing procedure manual provided at the three required locations? |  |  |

**Planned Maintenance (If not applicable to vessel, enter N/A)**

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| **No** | **Confirm maintenance records** | **Yes/No** | **Comment** |
| 10 | Confirm PMS includes at least the following checks / routines?  - Mooring winches, windlasses and controls  - Mooring fairleads, rollers and pedestal  fairleads (deadmen)  - Mooring bitts  - Winch brake testing  - Winch brake linings  - Mooring component inspection and maintenance |  | Entries in Shipsure PMS to reflect proper maintenance. |
| 11 | Following checks are part of the routine inspections and same recorded? :   * visual inspections of all equipment, winches / power packs free from leakages? * greasing of grease nipples on moving machinery and of rollers on fairleads and pedestal fairleads. * Open gearing and clutches should be suitably greased with an appropriate dressing. * Clutches should operate smoothly and pins for securing the clutches should be attached to the clutch control levers ready for use. * Winch control levers must be marked with the direction of operation for both paying out and heaving in. * Drum ends should be kept free from damage, rust and paint, and machinery bed plates should be periodically inspected for deterioration or damage. * Brakes should be closely examined to ensure all linkages are working correctly, brake band material thickness is adequate and the condition of the brake lining is satisfactory * Winch brakes shall be re-tested after any repair / renewal or maintenance work |  | All mooring machinery free from hydraulic oil, lubricant or steam leakages.  Ensure the following checks are included in Shipsure PMS |
| 12 | Are the wire ropes lubricated using a recognised wire rope lubricant? Lubricant must be EPA approved EAL, if trading to US. |  | On no account are homemade lubricants to be used as these can lead to pollution claims against the vessel. |
| 13 | Do all wires and ropes stowed on drums have canvas covers available for use at all times?  Are rope storage requirements adequate ? |  | Canvas covers to be used when the vessel is at sea to protect ropes from the effects of weather, sea and sunlight. |

**Winch Brake Testing**

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| **No** | **Confirm maintenance /test records as applicable** | **Yes/No** | **Comment** |
| 14 | Are the winch brakes set to render at 60% of the minimum breaking load (MBL) of the rope or the winch design capacity, whichever is the lesser? |  | New equipment is normally designed at 80% MBL but has the capability to be adjusted down to 60%. |
| 15 | Has winch brake testing been executed as required by the VMS? i.e.   * each winch brake must be tested individually and tests carried out prior to the ship’s delivery (new builds) * subsequent tests carried out annually. * For existing vessels entering management, the first BHC test must be carried out within the first 30 days of management. * winch brake testing is recorded in the vessel’s Planned Maintenance System * winch brakes tested after installation or repair work carried out on equipment * upon any evidence of premature brake slippage or related malfunction |  | Is brake testing date and holding capacity stenciled on each winch, if a torque wrench used to set the brake is the wrench setting marked on each individual winch? |

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| 16 | Brake testing is only carried out under the supervision of a senior officer? |  |  |
| 17 | For vessels without split drums / undivided winches, the number of layers of rope to achieve the rated BHC(Brake Holding Capacity ) , is understood and clearly marked on the winch? |  |  |
| 18 | Where torque wrenches are not used each winch has a fixed indicator to clearly indicate the brake setting to be applied in service?  (indicator positioning determined during testing) |  | Indication method does not restrict brake torqueing? At no time during normal operation should the torque, as determined by the brake holding test, be exceeded |
| 19 | Have all winch drums been clearly marked to show the proper direction of reeling? Are ropes correctly reeled? |  | Brake bands are designed for the wire pulling directly against the fixed end of the brake strap |

**Mooring Renewal Criteria / Spares**

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| **No** | **Confirm maintenance /test records as applicable** | **Yes/No** | **Comment** |
| 20 | Have mooring components been renewed as specified within OP145? |  | Fibre ropes - renewal after 5 years of continuous use  Mooring wires – a renewal program is to be commenced when wires are 5 years old, unless condition on close inspection allows longer or shorter service. |
| 21 | Are mooring ropes free from short splices? |  |  |
| 22 | Are required spare mooring components provided? |  | Vessels that use synthetic mooring ropes as their primary mooring system shall carry at least two spare new (unused) mooring ropes. |

**Mooring Plan**

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| **No** | **Confirm** | **Yes/No** | **Comment** |
| 23 | For the port the audit is conducted has a mooring plan been made and discussed with all key personnel involved? |  | Have all sources of information been considered?  Do all involved personnel fully understand the plan? |

**Emergency Preparedness / Equipment Failure**

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| **No** | **Confirm** | **Yes/No** | **Comment** |
| 24 | is the Master aware he has absolute authority to take whatever action he considers necessary for the safety of life, the ship, passengers and environment and the procedures for contacting the management office in the event of an emergency? |  | Are the requirements for senior staff to be on board in port understood and complied with?  Is there sufficient crew on board at all times to ensure safe and efficient operations / emergency response?  The Master is familiar with his authority to stop any port interface operations and call for tug assistance if there is a danger of losing control of the vessel’s moorings? |
| 25 | In extreme tidal situations, has consideration been given to stopping port interface operations so that personnel can concentrate on the mooring operation at the change of tide? |  |  |

**Mooring management while the vessel is alongside**

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| **No** | **Confirm** | **Yes/No** | **Comment** |
| 26 | Are regular rounds being carried out and moorings tended as required? |  |  |
| 27 | Are the crew aware that moorings are to be tightened or slackened in such a way that ensures the ship does not move position or comes off the fenders or quayside? |  | Adjustment must also ensure that severe loads are not placed on individual lines.  Al lines are equally loaded? |
| 28 | Winches are not left in gear? |  | Need for this is a direct indication of failure of the winch breaks. |

**Operational Procedures**

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| **No** | **Confirm** | **Yes/No** | **Comment** |
| 29 | Are pre-mooring toolbox talks held to discuss the mooring operation and identify the hazards existing for the proposed mooring configuration? |  | Risk assessments are reviewed?  Randomly determine that mooring team members are aware of the dangers involved.  Team behavior observed to confirm that the awareness, skill and proficiency level is satisfactory. |
| 30 | Are warning signs posted alerting personnel that they are entering a mooring hazard area where caution is necessary due to dangers associated with mooring equipment? |  |  |
| 31 | Has a responsible and experienced officer been designated as leader of each mooring / unmooring party? |  | Effectiveness of leadership and entire team performance evaluated over the entire operation.  Are sufficient personnel utilized at each mooring station to carry out the operation safely?  Are shore personnel (if involved) instructed in safe mooring procedures? |
| 32 | Does the mooring party leader have direct contact with the bridge? |  | Walky Talky, Talk Back System or other means of communication. |
| 33 | Are company PPE requirements complied with? |  |  |
| 34 | Are all mooring personnel standing clear of lines under load and clear of any coils or loops? |  |  |
| 35 | Does the winch operator have clear view of the operational area? |  | Is the operator trained / competent to operate the equipment? |
| 36 | Are winches allowed to be running unattended? |  | Lever locking in running condition not permitted. |
| 37 | Are the mooring areas properly illuminated at all times? |  |  |
| 38 | Are mooring areas free from obstructions, slippery surfaces and any unnecessary stores? |  |  |
| 39 | Do all synthetic ropes have two round turns prior figure of eighting? |  |  |
| 40 | Do working areas around mooring winches, bitts and rollers have a clearly defined non-slip surface? |  | All non-slip surfaces in good condition |
| 41 | Do the mooring parties make a visual assessment of the shore fendering arrangements and report the condition, to the bridge team? |  | The condition of the fenders is to be recorded in the Bell Book. |
| 42 | Does the fendering, or lack thereof present a risk to the integrity of the vessel’s hull? |  | If relevant at the port of audit |
| 43 | Ropes and wires are not used on the same leads or bollards and they do not cross in contact with each other? |  |  |
| 44 | Is the mooring pattern symmetrical with good efficient leads to provide a balanced mooring? |  |  |
| 45 | Are all lines in the same service of the same material? |  | Ropes used on the same lead exhibit the same properties and have the same deployed length |
| 46 | Are inexperienced personnel being carefully supervised (Junior Officers, Ratings and Cadets) ? |  | Have inexperienced personnel been additionally briefed?  Additional **training needs** are identified during the audit. |
| 47 | If the vessel using HMPE lines, are rope tails fitted of a material which compensates for the low HMPE elongation properties?  Peak dynamic loading of HMPE ropes is avoided? |  | The tails shall be only as long as required to reduce peak dynamic loading |

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| 48 | When made fast manually to bitts, the MBL of mooring ropes does not exceed the SWL of the mooring fittings utilized? |  |  |
| 49 | Confirm that all deck mooring equipment is permanently marked with its design SWL and all officers aware of the limitations imposed? |  | Mooring equipment bead welded with SWL? |

**Anchoring**

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| **No** | **Confirm** | **Yes/No** | **Comment** |
| 50 | Is anchoring equipment in good condition?  Is anchor equipment (inc. stoppers) free of modifications when checked against original drawings? |  | Windlass brake linings, cable lifter, stoppers, anchor D shackles, Kenter shackles studs in good order.  Are cables checked for deformities during heaving? |
| 51 | Are risk assessments in place for -   * routine anchoring * anchoring in deep water * remaining at anchor in adverse weather (if applicable) |  | Are pre-operation toolbox talks held?  The maximum water depth for routine anchoring is known?  Vessels are authorized to anchor in deeper waters only after a risk assessment has been carried out and approved by the office  A risk assessment is to be conducted / action plan available if the Master deems it necessary to remain at anchor in adverse weather? |
| 52 | All anchoring operations are planned and briefed to the OOW / anchoring officer?  An experienced Officer is put in charge on the forecastle during anchor operations?  Are confined anchorage procedures implemented?  Contingency and port specific requirements are considered?  Plans are made prior weighing anchor?  Procedures for main engine maintenance at anchor are followed? |  | The plan considers –  Method of anchoring, amount of chain walked out under power and total scope of cable.  Prevailing /forecast weather conditions during anchored period.  Anchor position and availability of designated alternatives. Proximity of shoal waters.  Holding ground.  Depth of water and draft of the ship.  Local currents.  Traffic situation and proximity of other vessels.  Engine / thruster use and readiness at anchor.  Unless considered essential, do not undertake maintenance work which immobilises the main propulsion system when the ship is at anchor. |
| 53 | Are all personnel familiar with –   * the maker’s instructions regarding operation of the windlass. * the capabilities and limitations of the equipment |  |  |
| 54 | Anchors are secured in accordance with procedures?  If anchors are not deployed at the berth chain stopper engaged and cables un-lashed? |  | Chain stopper engaged while at anchor/ at sea, locking pin in good order?  Anchor securing is checked daily at sea when safe to do and a log book entry made?  Are lashings utiised on all available lashing points, are lashings less than two years old and have appropriate certification?  Doubled up lashing wires are not used? |
| 55 | Are officers familiar with emergency anchoring processes? |  |  |
| 56 | Anchor watches are maintained and change of watch executed in accordance with procedures? These are enhanced in confined anchorages requiring increased situational awareness? |  | An action plan is available in the case of vessels swinging in different directions? |
| 57 | Required supervision / leadership evident throughout anchoring operations?  Required PPE utilized during anchoring? |  | Personnel are aware of all the hazards of the operation and safe working practices applied? |

Master’s / Superintendent’s Signature Date

Date defects entered into ShipSure