

# **EXECUTIVE SUMMARY FOR OPNAVINST 5100.19E**

## **OVERALL DOCUMENT CHANGES**

- ◆ Changes NAVOSH to safety and occupational health (SOH) to align with higher level documents.
- ◆ Updates and adds references.
- ◆ Updates the responsible code at CNO to N09F vice N45.
- ◆ Emphasizes and adds reference to operational risk management (ORM). Incorporates risk management steps throughout the document.
- ◆ Per Navy Directives, removed check sheets and referenced forms made available on-line at Navy Forms on-line, <https://forms.daps.dla.mil>

## **VOLUME I, SOH AND MAJOR HAZARD-SPECIFIC PROGRAMS**

### **Chapter A1, Introduction**

- ◆ Provides a definition of when this instruction is applicable. It clarifies that the instruction is applicable while underway and pierside, but that other instructions and requirements (including OPNAVINST 5100.23G) may have precedence during availabilities (e.g., energy control, gas free engineering, hazardous materials, etc.)
- ◆ Updates and adds references to discuss additional SOH elements including traffic safety, recreational and off-duty safety, explosives safety, and aviation safety.
- ◆ Clarifies precedence for safety standards within the Navy organization and identifies that if a standard is not provided, then a standard from a nationally recognized consensus standard may be cited.

### **Chapter A2, SOH Program Organization and Responsibilities**

- ◆ Identifies Assistant Secretary of the Navy (Installations and Environment) (ASN (I&E)) as the designated SOH official for the Navy.
- ◆ Identifies the CNO (with the Commandant of the Marine Corps, for matters of mutual concern) as the responsible party for implementation and management of the SOH program. Requires the CNO to issue policy and standards, ensure the fleet commanders maintain a professional SOH staff, establish appropriate planning, programming, staffing and budgeting for the SOH program, conduct research to preclude occupational hazards, develop SOH program evaluation criteria, provide occupational-related medical support, develop prompt investigations of reports of unsafe/unhealthful working conditions, ensure continual training on SOH and risk management, and adopt, review and develop proposed alternate SOH standards.
- ◆ Assigns CNO N09F as the responsible party for developing program policy and guidance and issuing standards. CNO N09F is further identified as being additionally designated as Commander, Naval Safety Center.
- ◆ Requires COMUSFLTFORCOM, COMPACFLT, COMSC, and COMSPECWARCOM to maintain a qualified staff of SOH professionals to

ensure their subordinate commanders, commanding officers, and officers-in-charge maintain an aggressive SOH program, including assigning SOH program responsibility as a primary duty billet, establishing target performance measures, ensuring timely safety investigations, and coordinating with CNIC, SYSCOMs, and local host activities for traffic, recreational and off-duty, and hazardous materials/waste support for local afloat units.

- ◆ Requires type commander (TYCOM) to ensure that TYCOM safety officers have attended the appropriate Afloat Safety Officer or Submarine Safety Officer course. Requires TYCOMs to maintain a file of industrial hygiene surveys for their units and ensure timely safety investigations are being conducted.
- ◆ Requires immediate superior in command (ISIC) to ensure timely safety investigations are being conducted and that ships are receiving required safety surveys and baseline and periodic industrial hygiene surveys.
- ◆ Requires ISICs to ensure oversight inspections are conducted at a minimum of once every three years including review of traffic safety, recreational/off-duty safety and ORM. Allows INSURV SOH inspections and Safety Center afloat safety surveys to meet this requirement provided the ship's CO provides a copy of the report and corrective actions within 30 days to the ISIC.
- ◆ Updates command names for specified program support areas. Identifies that NAVSAFECEN conducts safety surveys and assists in safety investigations.
- ◆ Requires commanding officers to serve as chair of the Safety Council and to ensure timely safety investigations are conducted.
- ◆ Requires COs to submit copies of the results of INSURV SOH inspections and Safety Center afloat safety surveys and corrective actions to the ISIC within 30 days.
- ◆ Requires COs to designate a WESS safety authority.
- ◆ Requires the safety officer to attend the Afloat Safety Officer or Submarine Safety Officer Course within six months of assignment, to ensure accurate recording and reporting of mishap reports, to document SOH training, to ensure timely follow-up on submitted safety hazard reports, and to coordinate with the traffic and recreational off-duty safety coordinators to include these programs in the overall SOH program.
- ◆ Requires the medical department representative to maintain a record of work-related injuries and illnesses and to coordinate medical surveillance.
- ◆ Requires the master at arms (MAA) force to enforce PPE use.
- ◆ Requires divisional safety petty officers to ensure that SOH training is documented and to complete the Naval Safety Supervisor correspondence course and Watchstation 301 of the safety programs afloat personal qualifications system (PQS) within six months of assignment. Updates the requirements for obtaining the secondary NEC 9571, naval safety technician.
- ◆ Adds embarked units as members to the Safety Council and requires maintenance of documentation that the CO has reviewed the minutes. Requires the Safety Council to establish mishap prevention goals, review compliance with ORM, and establish program improvement plans.
- ◆ Adds embarked units as members to the Enlisted Safety Committee.
- ◆ Updates and adds references.

### **Chapter A3, Inspections, Surveys, Assists, Hazard Reporting, and Medical Surveillance**

- ◆ Identifies the primary purpose of the chapter as hazard identification.
- ◆ Requires the safety officer to maintain workplace inspection results for at least two years.
- ◆ Requires the MAA force to enforce PPE use.
- ◆ Incorporates evaluation of the traffic and recreational and off-duty safety programs as elements of the INSURV material inspections and final contract trials.
- ◆ Requires an annual self-assessment of all safety programs applicable to the afloat unit. Requires the safety officer to maintain these assessments for two years and to advise the Safety Council of the results and status of corrective actions.
- ◆ Updates the elements and governing guidance for the baseline and periodic industrial hygiene surveys to follow the exposure assessment guidance from AIHA and to align with OPNAVINST 5100.23G and Industrial Hygiene Field Operations Manual. Identifies the basic elements of the survey. Updates requirements for monitoring on submarines and references the Atmosphere Control Manual for submarine exposure limits.
- ◆ Requires safety surveys every 36 months during the initial phase of the FRTP. Requires a written report from the commanding officer 30 days post survey to report status of corrective actions for significant deficiencies identified during the survey be submitted with a copy of the report to the ISIC.
- ◆ Identifies the Logistics Support Center at the Fleet Industrial Supply Centers as the location to obtain hazardous material program assist visits.
- ◆ Requires safety officers requesting a variance from a standard to submit the request in writing to CNO N09F via their chain of command.
- ◆ Updates the definitions of hazard severity and probability in the Safety Hazard Report to match the definitions in ORM.
- ◆ Updates and add references.

### **Chapter A4, Hazard Control and Deficiency Abatement**

- ◆ Identifies design and acquisition/alteration stages as being the preferred times to prevent hazards.
- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Provides guidance for minimizing hazards through proper purchasing procedures.
- ◆ Identifies planned maintenance system feedback reports as being the proper procedure for recommending or requesting substitution of material, tools, or procedures within this system.
- ◆ Clarifies the hazard abatement program procedures. Clarifies definition of correction “on the spot” and associated documentation requirements. Identifies procedures for reporting hazards that cannot be corrected on the spot by requiring that they be reported in the work-center deficiency log/job sequence number. The ship’s 3M coordinator is required to notify the safety officer of any safety entries.

- ◆ Requires the safety officer to maintain documentation of hazards and deficiencies identified during inspections or surveys and those reported by an individual. Identifies the minimum elements required in the documentation.
- ◆ Refers the safety officer to the hazard report process in WESS identified in OPNAVINST 5102.1D for submitting external hazard reports outside the command.
- ◆ Requires the safety officer to assign a risk assessment code (RAC) to each hazard which cannot be immediately corrected. The RAC is defined by combining both the hazard severity and mishap probability. Hazard severity is defined as the reasonably expected consequence. Mishap probability is the likelihood that the hazard will result in a mishap.
- ◆ Requires the CO to be notified if a RAC 1 or 2 hazard cannot be corrected immediately and to determine who will personally be responsible for approving interim control measures.
- ◆ Updates and adds references.

### **Chapter A5, Training**

- ◆ Requires the ship's training officer, safety officer, and divisional safety petty officers to be responsible for implementing the afloat safety training requirements.
- ◆ Identifies that the Afloat Safety Officer course has been imbedded in Surface Warfare Officer School's Department Head course. Graduates of this course are trained and qualified to be safety officers on ships. Identifies the Naval Safety Supervisor course (NAVEDTRA 14167) as the temporary substitute for training if the safety officer does not receive training prior to reporting.
- ◆ Updates the training requirements for divisional safety petty officers and identifies the requirements for obtaining the secondary NEC 9571, Navy safety technician.
- ◆ Identifies the Aviation Safety Specialist course as a substitute for the Safety Programs Afloat course to meet the requirement for qualification as a divisional safety petty officer.
- ◆ Adds reporting of safety hazards, including right to a timely response or appeal, and oil spill response as topics to be discussed during command indoctrination.
- ◆ Requires training completion to be documented and training accomplishment to be evaluated on an annual basis.
- ◆ Updates descriptions of publications from Naval Safety Center.
- ◆ Updates and adds references. Identifies these references as requiring safety and occupational health training for safety managers, supervisors, and workers.
- ◆ Appendix A5-A – Updates training requirements and course numbers for respective hazards based on changes to those chapters.
- ◆ Appendix A5-B – Updates the training based on current course offerings.
- ◆ Deleted appendix A5-C.

## **Chapter B1, Asbestos Management**

- ◆ Changes title and all references from asbestos control to asbestos management to reflect guidance in the public sector.
- ◆ Identifies that this chapter, including the work protocols specified in the appendices, combined with supplemental recommendations and information, including locations, provided in the industrial hygiene survey constitutes the asbestos management plan. This effectively deletes the requirement for the ship to develop a stand-alone document and provides clearer guidance on what tasks the ship is required to perform.
- ◆ Deletes the intermediate maintenance activity work protocol and all references to it (specifically, section B0109, appendix B1-D, appendix B1-G, and appendix B1-M).
- ◆ Deletes all references to Asbestos Supervisor Initial course (A-493-0069) as this applies only to shore facilities.
- ◆ Updates references.

## **Chapter B2, Heat Stress**

- ◆ Adds requirements to discuss use of the AHSS (automated heat stress system)
- ◆ Reorders introductory paragraphs and adds introductory paragraph to discuss applicability of PHEL stay time guidance.
- ◆ Identifies that heat stress areas should be included as hazards identified as part of the industrial hygiene survey.
- ◆ Clarifies that dry bulb thermometers do not require calibration.
- ◆ Clarifies that dry bulb thermometers are still required to be placed in locations even when AHSS is installed.
- ◆ Adds a note to clarify the operating temperature and humidity ranges for the WBGT meters.
- ◆ Provides additional guidance on use of the WBGT meter, including space stabilization times.
- ◆ Adds a requirement to enter any heat related illness or injury into WESS.
- ◆ Provides a location to obtain training for the AHSS.
- ◆ Updates some of the watches listed in appendix B2-A. Others could not be updated until additional monitoring is conducted to support defining appropriate PHEL curves.
- ◆ Appendix B2-C adds a discussion about the black O-ring in the model 960 WBGT meter and a section about use of the AHSS.
- ◆ Deletes appendix B2-E, Heat Stress Survey Decision Diagrams, and B2-G, NAVMED 6500/1. Renumbers appendix B2-F to B2-E, Time-Weighted Mean WBGT Values.

## **Chapter B3, Hazardous Materials**

- ◆ Major chapter rewrite to bring requirements into alignment with NAVSUP and NAVSEA guidance and technical manuals.

- ◆ Requires implementation of consolidated hazardous material reutilization and inventory management program (CHRIMP) and hazardous materials minimization centers (HAZMINCEN) aboard Navy ships.
- ◆ Adds and updates definitions for common hazardous material program items including CHRIMP, HAZMINCEN, hazardous materials, used hazardous materials, excess hazardous materials, HMIRS, SHML, SMCL, and HICSWIN.
- ◆ For surface ships, updates program responsibilities for CO, XO, department heads, supply officer, HM coordinator, HM supervisor, division officers, safety officer, AEPC, DCA, divisional supply petty officers/repair parts petty officers, work center supervisors, and all hands.
- ◆ For surface ships, identifies program elements with specific guidance provided in chapter C23.
- ◆ Clarifies the HM Coordinator course is now taught at Navy Supply Corps School.
- ◆ Adds a new section on Oil and Hazardous Substance Spill Response including responsibilities and training requirements for surface ships and submarines.
- ◆ Adds a new section requiring program evaluation with checklists included as appendices.
- ◆ Updates and adds new references.
- ◆ Appendix B3-A includes references to applicable spill kits for oil or hazardous substance spills.
- ◆ Appendix B3-C, HMC&M Surface Ship Program Checklist, and appendix B3-D, HMC&M Submarine Program Checklist, are added as evaluation tools.

#### **Chapter B4, Hearing Conservation**

- ◆ Renames this as the hearing conservation program, in accordance with BUMED guidance.
- ◆ Requires all permanent threshold shifts to be reported in accordance with OPNAVINST 5102.1D. Defines work-related significant threshold shift for entry into WESS as an occupational injury.
- ◆ Discusses DOEHS-HC.
- ◆ Clarifies that noise surveys conducted by ship builder are not acceptable substitutes for a noise survey and exposure assessment.
- ◆ Clarifies noise hazardous equipment and location labeling requirements.
- ◆ Requires personnel assigned to work noise hazardous areas to be enrolled in the hearing conservation program and to receive annual audiograms, beginning within a year of being assigned to work in the environment.
- ◆ Updates and adds references.
- ◆ Appendix B4-A - Clarifies the purpose of re-established baseline audiograms.
- ◆ Appendix B4-C - Identifies references for airborne noise criteria used in the design of Navy ships and submarines. Updates current noise category compartment listing.

#### **Chapter B5, Sight Conservation**

- ◆ Adds a requirement for an annual program evaluation and provides a checklist in the appendix.

- ◆ Identifies that some operations may require ballistic eye protection and these are covered by ANSI Z87+ labels.
- ◆ Added a requirement for the baseline industrial hygiene survey to identify all eyewash and deluge shower requirements and specific eye protection requirements for each area or process.
- ◆ Allows for painting similar to tape as deck markings around eye hazardous areas. Recommends avoiding placing the deck markings at the entrance of a shop or space if only selected equipment is eye hazardous.
- ◆ Identifies that eye hazard signs and labels are not required on individual pieces of equipment but shall be posted above the hazard. Recommends avoiding placing the eye hazard sign at the entrance of a shop or space if only selected equipment is eye hazardous.
- ◆ Identifies that the safety officer and MDR may determine if prescription safety glasses are required. This should be based on the amount of time the individual spends during the normal course of the day in eye hazardous work.
- ◆ Changes section B0508 to include deluge showers. Discusses the functions and recommended types of operations requiring eyewashes and deluge showers.
- ◆ Provides additional requirements for eyewash units including height, protection of nozzles from airborne contaminants, same level as hazard, temperature of water, equidistant meeting of water from nozzles, clear marking of locations with signs, and maintenance by PMS.
- ◆ Identifies locations for eyewash units and updates locations for combination eyewash/shower units.
- ◆ Requires portable eyewash units to meet the same criteria for function and installation as plumbed units. Identifies the use of bacteriostatic solutions or powders as optional.
- ◆ Adds a requirement to add training on what to do when an individual gets a particle or liquid in the eye or uses eyewash station.
- ◆ Updates references.

### **Chapter B6, Respiratory Protection**

- ◆ Clarifies that this chapter does not pertain to respiratory protection used during a chemical, biological, radiological, nuclear or high-yield explosive event.
- ◆ Requires the respiratory protection manager to attend the appropriate program management course within three months of assuming the position.
- ◆ Identifies that the baseline and periodic industrial hygiene surveys contain recommendations for respiratory protection.
- ◆ Deletes the requirement for maintaining two types of respirators, but keeps a requirement to have sufficient numbers of models and sizes to fit test users.
- ◆ Requires an annual program evaluation.
- ◆ Requires medical department representative to ensure that personnel who are issued respirators have a current preventive health assessment (PHA) and do not have any deployment limiting conditions. Members who have the current PHA and no limitations are qualified to wear any type of respiratory protection. When

individual medical readiness is not known, the respiratory user examination in the Medical Matrix (#716) should be performed.

- ◆ Updates the program requirements to include appointment and training of the program manager, written standard operating procedures, medical qualification based on the PHA, and the annual evaluation of the program.
- ◆ Provides link to Navy respiratory SOP's and instruction form.
- ◆ Updates the discussion of particulate filtering respirators to reflect the NIOSH certification classes of N, P, R and levels of efficiency of 95%, 99%, and 99.97%.
- ◆ Recommends that demand respirators not be worn.
- ◆ Identifies that pressure demand respirators have higher assigned protection factors than continuous flow respirators.
- ◆ Clarifies that this chapter does not apply to the supplemental emergency escape device (SEED).
- ◆ Clarifies that NIOSH is now the sole respirator certification agency unless a respirator is also being tested for mine rescue. Provides guidance that both NIOSH and NIOSH/MSHA certified respirators are approved for use.
- ◆ Provides a definition of assigned protection factor, maximum use concentrations, and hazard ratio.
- ◆ Allows wearing of contact lens with respiratory protection in contaminated atmospheres.
- ◆ Identifies that fit testing and medical certification for Self-Contained Breathing Apparatus (SCBA) use for firefighting and other shipboard emergencies is not required as these are military unique operations.
- ◆ Clarifies the minimum requirements for documentation of fit testing results.
- ◆ Requires personnel wearing full face, negative pressure, air-purifying respirators in atmospheres up to their assigned protection factor of 50 to have a quantitative fit test and achieve a fit factor of 500.
- ◆ Requires inspection records of emergency respirators to be maintained for the life of the respirator.
- ◆ Identifies respirators for use in immediately dangerous to life and health (IDLH) atmosphere as pressure demand respirators.
- ◆ Requires use of an SCBA with a minimum service life of 30 minutes to be used as an escape device for an airline equipped with a 15 minute bottle escape device in IDLH atmospheres if the 15 minute bottle is not sufficient for escape.
- ◆ Clarifies that breathing air quality testing frequency requirements do not apply to diving air or ambient air breathing apparatus (AABA).
- ◆ Requires carbon monoxide alarms or high temperature cut-off switches to be installed on all breathing air sources for ships.
- ◆ Updates the submarine respiratory protection program requirements to place the responsibility for program management at the naval submarine support command or squadron level, vice with the individual submarine.
- ◆ References minimum requirements for submarine SCBAs.
- ◆ Clarifies requirements for carbon monoxide high temperature alarms.
- ◆ Updates and adds references.
- ◆ Appendix B6-A – Incorporates a program evaluation checklist.



- ◆ Appendix B6-B – Updates and replaces photographs of respirator types.
- ◆ Appendix B6-C – Updates qualitative fit testing procedures to include all requirements from OSHA respirator standard.
- ◆ Appendix B6-C – Provides guidance and procedures for odor threshold screen testing when conducting an isoamyl acetate fit test.

#### **Chapter B7, Electrical Safety**

- ◆ Requires division officers to ensure that applicable PMS is conducted on all portable electrical equipment.
- ◆ Prohibits all hands from altering the ship's electrical system.
- ◆ Prohibits the use of electrical safety gloves for anything other than electrical work.
- ◆ Updates and adds references.

#### **Chapter B8, Gas Free Engineering**

- ◆ Updates and adds references to provide additional guidance during pierside maintenance operations.

#### **Chapter B9, Radiation Safety**

- ◆ Chapter has been completely rewritten and updated with latest policy and references.

#### **Chapter B10, Lead Control**

- ◆ Adds a reference to the Medical Surveillance Procedures Manual and Medical Matrix and examination #161 as the lead medical surveillance examination and forms.
- ◆ Identifies that inclusion in the medical surveillance program is based solely on the results of measured airborne concentrations and does not take into consideration the use of respiratory protection. Therefore, it does not indicate that an individual is overexposed.

#### **Chapter B11, Tag-Out**

- ◆ Deletes Tag-Out subsections, as this is included in the reference.
- ◆ Updates reference.

#### **Chapter B12, Personal Protective Equipment**

- ◆ Identifies the baseline and periodic industrial hygiene surveys, the HMUG, MRC and NSTM as sources for PPE recommendations.
- ◆ Adds a requirement for an annual program evaluation and provides a checklist in the appendix.
- ◆ Adds a requirement for division officers to budget for, procure, and stock PPE.
- ◆ Adds a requirement for the MDR to assist in obtaining and providing medically fitted PPE.
- ◆ Head Protection - Prohibits metal hard hats from shipboard use. Prohibits the wearing of hard hats if the internal suspension harness is broken or missing.

Allows the use of cold weather protection under hard hats if it does not interfere with the fit.

- ◆ Foot Protection - Prohibits the wearing of shoes manufactured of synthetic material unless immediately departing or returning to the ship. Requires the ship to provide standard stock safety shoes as organizational clothing when safety shoes exhibit such wear as to no longer afford protection.
- ◆ Hand Protection – Requires wearing Kevlar or boning gloves when handling knives in food service situations. Prohibits wearing of gloves when handling lines. Requires deck personnel to be provided with leather gloves when handling sharp objects.
- ◆ Safety Clothing - Requires wearing of fire retardant coveralls in all fossil fueled machinery spaces.
- ◆ Personal Fall Protection Equipment – Requires PMS to be conducted on all harnesses and lanyards prior to each use. Identifies the safety harness as a full body harness vice a parachute type safety harness. Requires a fresh water rinse of all harnesses and lanyards exposed to salt water prior to storage.
- ◆ Updates stock numbers and types of PPE recommended for shipboard use.

#### **Chapter B13, Ergonomics (RESERVED)**

#### **Chapter B14, Fall Protection (RESERVED)**

### **VOLUME II, SURFACE SHIP SAFETY STANDARDS**

#### **Chapter C1, Basic Safety**

- ◆ Reordered bullets to group like topics together.
- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Acknowledges that the basic safety standards had been developed from NAVSEA, OSHA, ANSI, USCG, Safety of Life at Sea (SOLAS) and previous OPNAV directives.
- ◆ Adds requirements for knowing egress routes, location and operation of safety equipment, and location of ventilation controllers.
- ◆ Prohibits the use of personal earphones throughout the ship, except for in berthing spaces, in recreation/study areas, or in other authorized ship spaces.
- ◆ Adds guidance to stop a shipmate from unsafe operations and requires leaving a worksite in a safe condition.
- ◆ Requires complying with hazardous materials guidance.
- ◆ Requires OBA/SCBA, EEBD, and egress training as soon as possible but within 72 hours of reporting aboard ship and every six months thereafter.
- ◆ Suggests using rewards and incentive programs for safety compliance.
- ◆ Adds new section with requirements for Workshop Deck Markings including: eye hazardous areas, operator work areas, and safe passage or caution areas.

### **Chapter C2, Dry Cargo Operations/Stores Handling**

- ◆ Changes title of chapter and document to include “and stores” when referring to dry cargo operations. Identifies stores working parties as sources of numerous injuries and identified the need for training and protective equipment.
- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Adds new section, C0202, Precautions – Working Parties Moving Stores. Requires a clear path to be identified for the route, requires gloves if handling wire rope or banded material, steel-toed shoes, requires sufficient personnel for the evolution to allow passing of material, requires arranging personnel to minimize twisting and turning, requires reviewing spill procedures if handling hazardous materials, requires review of safe handling techniques prior to each evolution, and ensures that slides are in place at inclined ladders.
- ◆ Updates and adds references.

### **Chapter C3, Underway Replenishment**

- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Updated and added references.

### **Chapter C4, Small Boats**

- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Adds a requirement to notify the OOD of fuel spills into navigable waters. Prohibits the rinsing, bailing or discharging of anything from the small boat without the permission of the OOD.
- ◆ Adds a requirement to wear non-vented safety goggles when conducting fueling operations.
- ◆ Requires commanding officers to ensure that husbandry agents and contractors always provide contract liberty boats that are manned with a minimum of one operator and two line-handlers, operated safely, and secured to the pier or landing with a minimum of two lines while embarking/debarking passengers.
- ◆ Adds a requirement for the commanding officers representative conducting contract boat inspections to inspect the anchor, anchor chain, and mooring lines for adequacy of size for the vessel. Requires verification that the operator understands the requirement for being secured with two mooring lines prior to embarking/debarking passengers.
- ◆ Requires boat officers to ensure that the boat is secured with two mooring lines prior to embarking/debarking passengers.
- ◆ Adds specific precautions for fueling in shipboard storage locations in light of new ship designs and special precautions for MOGAS.
- ◆ Updates and adds references.

### **Chapter C5, Wire and Fiber Rope**

- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Adds requirement for wearing steel-toed safety shoes and prohibits wearing cell phones and pagers during line handling evolutions.

- ◆ Adds section C0506, Cable Cleaner/Lubricator, to provide guidance when using the pollution prevention equipment for this purpose. Prohibits operation of the equipment above designated operating pressures and requires the release of system pressure prior to service or disassembly. Requires inspection of the hoses and connections/fittings, verification of chain and sling weight test and rating to withstand initial pull of 600 pounds, and ensure all shackles and fittings are tightened prior to operation. Requires ensuring personnel are clear of the exit end of the lubrication collar and are wearing steel-toed safety shoes, and eye and hand protection. Prohibits operation of the equipment unless the airline lubricator has oil in it. Requires disposal of greasy rags in accordance with hazardous materials guidance.
- ◆ Updates and adds references.

### **Chapter C6, Ground Tackle and Towing**

- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Requires keeping decks clear of obstructions that may impede quick escape.
- ◆ Requires personnel responsible for hanging over the side to hose down anchors after hoisting to wear safety harnesses.
- ◆ Adds section C0306, Towing Precautions, to incorporate requirements for officers and crew involved in towing operations to be trained, equipped and disciplined to react to unusual and non-routine operations. Incorporates the use of operational risk management and references the Navy Towing Manual as primary reference for these operations.
- ◆ Updates and adds references.

### **Chapter C7, Helicopter Operations**

- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Adds requirement for wearing of cranials, double-hearing protection, and wind/sun goggles.
- ◆ Adds requirement to follow proper hazards of electromagnetic radiation to ordnance (HERO) precautions.
- ◆ Adds prohibition for flight operations and motor gasoline (MOGAS) fueling operations to be conducted within close proximity.
- ◆ Updates and adds references.

### **Chapter C8, Working Over the Side and Aloft; Dry Dock Safety**

- ◆ Recommends assigning a safety observer who is only responsible for safety and knowledgeable in the proper performance of the evolution.
- ◆ Identifies the safety harness as a full body harness vice a parachute type safety harness.
- ◆ For working aloft, requires wearing a full body harness with safety lanyard and climber safety device when climber safety rail is installed. Requires wearing a full body harness and double safety lanyard configuration if no climber safety rail is installed.
- ◆ Adds section C0807 to discuss Procedures for Working in Vertical Trunks.

- ◆ Adds section D0406 to discuss Contract Liberty Boat Safety.
- ◆ Appendices C8-A and C8-B - Updates checklists for working aloft and over the side to incorporate requiring an operational risk management assessment and brief prior to every evolution. Adds appendix C8-C, a checklist for working in a trunk.
- ◆ Updates and adds references.

### **Chapter C9, Electrical and Electronic Safety and Tag-Out Precautions**

- ◆ Specifies electrical safety gloves vice rubber gloves.
- ◆ Requires PMS to be conducted on electrical safety gloves prior to use and prohibits their use for any purpose other than electrical work.
- ◆ Prohibits allowing cords to run through hatches, chemicals, scuttles, or watertight doors, or over sharp objects or hot surfaces.
- ◆ Prohibits rewiring of bunk lights or fans or using bunk light wiring to install receptacles or other electrical equipment.
- ◆ Prohibits the use of personal, non-government owned or contractor electrical equipment without commanding officer's permission.
- ◆ Requires wearing skin and eye protection when changing out battle lantern batteries.
- ◆ Adds precautions for gasoline hazard areas to reflect new ship designs and concerns associated with MOGAS.
- ◆ Changes section C0904 to Wet Cell Batteries.
- ◆ Updates requirements for maintenance of lead-acid batteries including PPE requirements and storage and disposal of battery acid in accordance with guidance.
- ◆ Changes section C0905 to Lithium and Mercury Batteries.
- ◆ Changes section C0906 to Electrical Fires.
- ◆ Prohibits overfusing.
- ◆ Changes section C0907 to First Aid Procedures for Electrical Shock.
- ◆ Changes section C0908 to Electronic Precautions.
- ◆ Adds section C0909 on Electrically and Electronically Safe Work Benches. Requires benches used for working on energized equipment to be insulated on the top working surface and below. Requires all exposed and adjacent metal to be insulated. Requires work benches to be grounded and have grounding leads. Requires the ground in front of benches to be covered in electrical grade matting. Requires a quick disconnect push-button switch to be installed and interlocking of all benches in a space to the quick disconnect button switch. Requires labeling of a bench that it is electrically safe. Requires signs on the rescue of personnel from energized benches and CPR to be posted adjacent to all benches.
- ◆ Adds section C0910 on Tag-Out.
- ◆ Updates and adds references.

### **Chapter C10, Shipboard Fuels**

- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Prohibits wearing cell phones and pagers when working in MOGAS tanks.
- ◆ Requires reporting of spills.

- ◆ Requires daily emptying of oily rags and wastes in accordance with local guidance.
- ◆ Requires removal of fuel-soaked clothing and cleaning of skin if exposed. Adds a skin reaction as a condition for seeking medical attention from fuel exposures.
- ◆ Requires use of eye protection when handling fuels.
- ◆ Adds definition of gasoline hazard areas and flammable liquids to cover MOGAS.
- ◆ Adds specific safety precautions for MOGAS.
- ◆ Updates and adds references.

### **Chapter C11, Welding, Cutting, Brazing, and Hot Work**

- ◆ Specifies two classes of hot work.

### **Chapter C12, Shipboard Aircraft Safety**

- ◆ Requires stowage of combustible rags in covered, correctly labeled metal containers. Requires daily emptying of the containers in accordance with local hazardous materials guidance.
- ◆ Requires storage of combustibles in approved flammable storage lockers.
- ◆ Adds requirement to follow approved HERO control procedures.
- ◆ Updates and adds references.

### **Chapter C13, Machinery**

- ◆ Requires knowledge of operation and adjustments prior to being qualified and assigned to operate machinery. Prohibits unqualified personnel from operating machinery except under the supervision of qualified personnel or under direct assignment by a competent authority and then only in emergencies when no qualified operator is present.
- ◆ Prohibits wearing of rings, watches, cell phones, and pagers when operating machinery.
- ◆ Requires engineroom and fireroom personnel to wear fire retardant coveralls with sleeves rolled down during watch or maintenance in spaces with steam circulating in the piping. On nuclear propulsion aircraft carriers, requires engineering and reactor department personnel to wear long sleeve Navy uniform shirts or fire retardant coveralls with sleeves rolled down during watch or maintenance in spaces with steam circulating in the piping or when a diesel engine is in operation.
- ◆ Requires wearing of proper PPE.
- ◆ Requires use of incandescent lights used for machinery with rotating shafts or chucks to avoid the stroboscopic effect from fluorescent lights.
- ◆ Requires all warning signs and placards to be posted.
- ◆ Requires wearing and using the proper PPE when operating portable power tools.
- ◆ Recommends installing fixtures to secure for sea and securing all bar and sheet metal stock and not handling or moving while underway.
- ◆ Requires sawdust collectors to be attached prior to use.
- ◆ Requires maintenance and filter change-out for spray paint and flame spray booths. Recommends consulting with the respiratory protection manager to see if respirators are required.

- ◆ Requires guards for drill presses.
- ◆ Requires local exhaust ventilation and posted safety precautions for parts washers and pollution prevention equipment.

#### **Chapter C14, Ordnance**

- ◆ Changes precautionary radius for dealing with ordnance during thunderstorms or high winds from 10 miles to five miles.
- ◆ Adds requirement to follow approved HERO control procedures.
- ◆ Updates and adds references.

#### **Chapter C15, Marine Sanitation Devices (Sewage Systems)**

- ◆ Adds discussion of MSD certification requirements.
- ◆ Requires body and eye protection while connecting or disconnecting sewage hoses.
- ◆ Requires personnel handling sewage hoses or working in marine sanitation device spaces to wash hands with hot water and soap.
- ◆ Requires removable drip pans to be installed beneath transfer pumps, diverter valves, and comminutors.
- ◆ Requires a final wash down with detergent, providone/iodine and water solution in the event of spill or leak.
- ◆ Establishes gas free engineering procedures for MSD systems. Prohibits opening a tank or creating an opening on a tank unless inspected or certified as safe for entry by a gas free engineer or marine chemist and requires recertification every four hours. Prohibits smoking, open flames, ordinary or sparking electrical devices near or in tanks. Requires use of respiratory protection prior to opening any tanks. Requires use of continuous net exhaust ventilation after opening the tank. Prohibits hot work and welding inside or outside the tank unless certified by the gas free engineer as safe for hot work.
- ◆ Requires all hydrogen sulfide alarms and ventilation low flow indicators are properly maintained and operable at all times.
- ◆ Adds new section C1506 to discuss Graywater Collection and Transfer Systems and Graywater Holding Tanks.
- ◆ Adds new section C1507 to discuss Discharge Requirements and Additional Guidance and Information.
- ◆ Updates and adds references.

#### **Chapter C16, Heavy Weather**

- ◆ Adds requirement to conduct ORM assessment prior to attempting to secure equipment which may have broken loose.
- ◆ Provides additional guidance for operations that are not recommended during heavy weather, for consideration of physical condition (i.e., sea sickness) prior to assigning duties, for proper outfitting with cold weather gear for snow and ice removal, and for securing working aloft during thunderstorms and lightning.

### **Chapter C17, Abandoning Ship**

- ◆ Clarifies type of hard hats prohibited when going over the side.
- ◆ Updates the reference for lifejackets to be worn.
- ◆ Provides additional guidance on proper body position for abandoning ship.
- ◆ References the ship's abandon ship bill as being the specific document with additional precautions/procedures.

### **Chapter C18, Painting and Preservation**

- ◆ Updates PPE requirements, including recommending consulting the respiratory protection manager for guidance on respirator use.
- ◆ Clarifies that ships shall not perform routine paint removal for cosmetic reasons or due to excessive coating thickness.
- ◆ Provides additional guidance for debris and dust management.
- ◆ Provides PPE and supplemental operational guidance for painting pollution prevention equipment.

### **Chapter C19, Food Service and Trash and Garbage Disposal Equipment**

- ◆ Incorporates a reference to the Manual of Preventive Medicine for additional precautions for food service personnel.
- ◆ Provides general precautions for food preparation.
- ◆ Provides general and specific precautions for food service equipment including deep fat fryer, dough mixing machine, food mixing machine, vegetable cutting and slicing machine, meat slicing machine, steam kettle, electric griddle, coffee urn, ranges and ovens, proofer, dishwashing machine, steam table, Gaylord exhaust hoods, meat chopping machine, meat tenderizing machine, and potato peeler.
- ◆ Provides general and specific precautions for trash and garbage disposal equipment including garbage grinder, trash compactor, plastic waste processor, incinerator, pulper, and solid waste shredder.

### **Chapter C20, Laundries and Photography Labs and Darkrooms**

- ◆ Requires ships to provide a copy of the precautions to all personnel assigned to work in the laundry prior to beginning their assignment.
- ◆ Requires an eyewash station to be installed in the laundry.
- ◆ Prohibits the disabling of any two-hand safety switches on any presses.
- ◆ Requires ventilation and spot coolers and automatic detergent dispensing systems to be operational.
- ◆ Provides specific precautions for washer extractor, tumbler dryer, and self-service laundries.
- ◆ Requires an eyewash station to be installed in the chemical mixing area if corrosive chemical hazards exist and requires hazardous materials to be stored and disposed of in accordance with guidance from the HAZMINCEN.

### **Chapter C21, Medical and Dental Facilities**

- ◆ Updates references to include the Afloat Medical Waste Management Guide.



## **Chapter C22, CO2 Fixed Flooding System Safety Precautions and Procedures**

- ◆ No changes.

## **Chapter C23, Hazardous Material Control and Management Standards**

- ◆ Incorporates requisitioning and receiving as additional elements of the program and provides guidance for these elements.
- ◆ Major chapter rewrite to bring requirements into alignment with NAVSUP and NAVSEA guidance and technical manuals.
- ◆ Requires implementation of consolidated hazardous material reutilization and inventory management program (CHRIMP) and hazardous materials minimization centers (HAZMINCEN) aboard Navy ships.
- ◆ Identifies the nine program elements and provides guidance for each element.
- ◆ Identifies the SHML feedback report as the primary means for adding a material as a requirement. Further specifies that the T-SHML is developed for each type of ship and provides specific guidance as to the authorized material for each ship type.
- ◆ Adds obsolete as a material use classification.
- ◆ Clarifies that container labeling is required at all times.
- ◆ Provides general storage requirements and specifics for categories of material including flammable, toxic, corrosive, oxidizers, and aerosols. Refers to the compatibility and segregation items provided in appendix C23-A.
- ◆ Provides procedures for controlling issue/re-issue and return of hazmat.
- ◆ Incorporates guidance for consolidation and off-load of excess materials.
- ◆ Adds additional general use and handling precautions including using the HMUG and MSDS for specific guidance and use of proper PPE.
- ◆ Adds discussions of PCBs and compressed gases to the specialty materials.
- ◆ Updates and adds references.
- ◆ Appendix C23-A provides an update to the hazardous material storage segregation matrix. Adds definitions of flammable and combustible liquids.
- ◆ Appendix C23-B provides a checklist for program evaluation.

## **VOLUME III, SUBMARINE SAFETY STANDARDS**

### **Chapter D1, Basic Safety**

- ◆ Reordered bullets to group like topics together.
- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Acknowledges that the basic safety standards had been developed from NAVSEA, OSHA, ANSI, USCG, Safety of Life at Sea (SOLAS) and previous OPNAV directives.
- ◆ Adds requirements for knowing egress routes, location and operation of safety equipment, and location of ventilation controllers.
- ◆ Prohibits the use of personal earphones throughout the ship, except for in berthing spaces, in recreation/study areas, or in other authorized ship spaces.

- ◆ Adds guidance to stop a shipmate from unsafe operations and requires leaving a worksite in a safe condition.
- ◆ Requires complying with hazardous materials guidance.
- ◆ Requires EAB and safety training within 72 hours of reporting aboard ship.
- ◆ Suggests using rewards and incentive programs for safety compliance.
- ◆ Adds section D0105, Safety Color Code and Signs for Marking Physical Hazards, such as eye hazardous areas, operator work areas, and safe passage or caution areas.

### **Chapter D2, Dry Cargo Operations/Stores Handling/Rigging**

- ◆ Incorporates dry cargo operations with stores handling.
- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Adds section D0202, Precautions - Working Parties Moving Stores. This section requires PPE, a clear path for moving the stores, arrangement of personnel to minimize twisting and turning, and review of proper lifting techniques prior to each handling evolution.
- ◆ Requires review of hazardous materials precautions prior to moving hazardous material stores.

### **Chapter D3, Wire and Fiber Rope**

- ◆ Emphasizes and adds reference to operational risk management.
- ◆ Adds requirement for wearing steel-toed safety shoes and prohibits wearing cell phones and pagers during line-handling evolutions.
- ◆ Adds discussion of the fiber/wire combination rope known as “spring lay” rope.
- ◆ Adds section D0305, Natural Lines, which provides specific precautions for this type of line.
- ◆ Updates and adds references.

### **Chapter D4, Working Over the Side, Topside or Aloft; Drydock Safety; Contract Liberty Boat Safety**

- ◆ Clarifies that aloft does not include the bridge or bridge trunk.
- ◆ Recommends assigning a safety observer who is only responsible for safety and knowledgeable in the proper performance of the evolution.
- ◆ Identifies the safety harness as a full body harness vice a parachute type safety harness.
- ◆ Requires compliance with the caution plates attached inside and outside the gates of the man basket.
- ◆ For working aloft, requires wearing a full body harness with safety lanyard and climber safety device when climber safety rail is installed. Requires wearing a full body harness and double safety lanyard configuration if no climber safety rail is installed.
- ◆ Identifies that a safety harness is not required on scaffolding with guard rails installed.
- ◆ Updates checklists for working aloft and over the side to incorporate requiring an operational risk management assessment and brief prior to every evolution.

- ◆ Updates and adds references.
- ◆ Appendix D4-A – Replaces the checklist with the new checklist developed by the Fall Protection Working Group.

### **Chapter D5, Electrical and Electronic Safety and Tag-Out Precautions**

- ◆ Specifies electrical safety gloves vice rubber gloves.
- ◆ Requires PMS to be conducted on electrical safety gloves prior to use and prohibits their use for any purpose other than electrical work.
- ◆ Prohibits allowing cords to run through hatches, chemicals, scuttles, or watertight doors, or over sharp objects or hot surfaces.
- ◆ Prohibits rewiring of bunk lights or fans or using bunk light wiring to install receptacles or other electrical equipment.
- ◆ Prohibits the use of personal, non-government owned or contractor electrical equipment without commanding officer's permission.
- ◆ Requires wearing skin and eye protection when changing out battle lantern batteries.
- ◆ Prohibits overfusing.
- ◆ Updates section D0504 to cover Submarine Valve Regulated Lead Acid Batteries.
- ◆ Adds section D0508 on Tag-Out.
- ◆ Updates and adds references.

### **Chapter D6, Shipboard Fuels**

- ◆ Requires an ORM assessment prior to refueling operations.
- ◆ Requires a back-up/stand-by person for tank entry to also be equipped with the proper emergency breathing apparatus.
- ◆ Clarifies first aid procedures for fuel exposures and recommends respiratory protection for potential inhalation exposures.
- ◆ Updates and adds references.

### **Chapter D7, Welding, Cutting, and Brazing**

- ◆ Specifies two classes of hot work.
- ◆ Specifies appropriate PPE, including respiratory protection. Additionally requires the use of a welding curtain to protect passers-by from UV radiation.
- ◆ Requires electrical equipment exposed to hot work to be de-energized.
- ◆ Updates and adds references.

### **Chapter D8, Machinery**

- ◆ Prohibits wearing of rings, watches, cell phones, and pagers when operating machinery.
- ◆ Requires wearing of proper PPE. In nuclear propulsion spaces in submarines, engineering department personnel shall wear long sleeve Navy uniform shirts or fire retardant coveralls with sleeves rolled down during watch or maintenance in spaces with steam circulating in the piping or when a diesel engine is in operation.
- ◆

- ◆ Requires use of incandescent lights used for machinery with rotating shafts or chucks to avoid the stroboscopic effect from fluorescent lights.
- ◆ Requires all warning signs and placards to be posted.
- ◆ Recommends installing fixtures to secure for sea and securing all bar and sheet metal stock and not handling or moving while underway.

#### **Chapter D9, Sanitation Systems**

- ◆ Requires continuous net exhaust ventilation after opening tanks.
- ◆ Adds warnings for gas-free requirements.
- ◆ Adds PPE requirements for working with sanitation systems.
- ◆ Adds section D0905 to discuss Discharge Requirements and Additional Guidance and Information.
- ◆ Updates and adds references.

#### **Chapter D10, Heavy Weather**

- ◆ Clarifies requirements for wearing of topside shoes and life jackets when standing watch on submarine vice on the pier.
- ◆ Clarifies that a high sea state is sea state three or higher.

#### **Chapter D11, Abandoning Ship**

- ◆ Requires donning of submarine escape immersion equipment (SEIE) suits (if submarine has been outfitted with them) prior to abandoning ship.
- ◆ Clarifies type of life jacket to wear and body position during abandoning ship.
- ◆ Adds references to abandon ship procedures and identifies these as the primary resource.

#### **Chapter D12, Painting and Preservation**

- ◆ Reorders sections to discuss paint removal prior to surface preparation and painting.
- ◆ Includes reference to the submarine material control list (SMCL) for additional precautions related to atmosphere control.
- ◆ Updates and adds references.

#### **Chapter D13, Food Preparation and Serving Facilities**

- ◆ Requires only authorized personnel make repairs and service to the equipment.
- ◆ Prohibits wearing of rings, watches, cell phones, and pagers when operating machinery.
- ◆ Adds general precautions for safe operation of equipment including requiring guards, proper training for operators, and power switches are functional.
- ◆ Clarifies stock number for disinfectant/detergent approved for submarines.
- ◆ Identifies that garbage grinder precautions are now applicable to all submarines.
- ◆ Updates and adds references.

#### **Chapter D14, Laundry Machines**

- ◆ Requires PPE according to the MSDS and an emergency eyewash station in the laundry space.
- ◆ Requires ventilation and spot coolers to be operational.
- ◆ Deletes section D1403, Safety Precautions for Photographic Darkrooms.
- ◆ Updates and adds references.

#### **Chapter D15, Submarine Hazardous Material Control and Management Standards**

- ◆ Provides a discussion of submarine hazardous material inventory and management system (SHIMS).
- ◆ Clarifies that prohibited items shall not be brought aboard submarines.
- ◆ Updates the HM and submarine materials classification and review process.
- ◆ Updates mailing addresses and codes for SMCL feedback reports.
- ◆ Clarifies that restricted material must have XO's permission to remain aboard during underway periods.
- ◆ Clarifies that the supply officer is responsible for off-loading material in accordance with local guidance.
- ◆ Adds additional precautions for use of toxic cleaning solvents including requiring ventilation and PPE.
- ◆ Provides additional guidance on hazards associated with aerosol cans.
- ◆ Updates and adds references.
- ◆ Appendix D15-A - Updates mailing addresses and codes for SMCL feedback reports.
- ◆ Appendix D15-B – Updates notes and removes columns in table.