

OPNAV M-5100.23
5 Jun 2020



NAVY SAFETY AND OCCUPATIONAL HEALTH MANUAL

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DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, DC 20350-2000

OPNAV M-5100.23 CH-2
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05 Sep 2022

OPNAV MANUAL 5100.23 CHANGE TRANSMITTAL 2

From: Chief of Naval Operations

Subj: NAVY SAFETY AND OCCUPATIONAL HEALTH MANUAL

Encl: (1) Revised page 2 Table of Issuance and Revision-Changes
(2) Revised Foreword
(3) Revised page i of the Table of Contents
(4) Inserted pages Ai through Aiii
(5) Revised Pages A1-1 through A5-1

1. Purpose. This change is issued to revise the Safety Management System in its entirety including the Foreword.

2. Action. Replace enclosure (1) of the change transmittal behind cover page to Manual. Replace foreword with enclosure (2). Replace page i of the Table of Contents with enclosure (3) from the change transmittal and replace Section A with pages Ai through Aiii, enclosure (4), followed by pages A1-1 through A5-1 from enclosure (5) of the change transmittal.

3. Records Management.

a. Records created as a result of this change transmittal, regardless of format or media, must be maintained and dispositioned per the records disposition schedules located on the Department of the Navy (DON) Assistant for Administration, Directives and Records Management Division portal page at <https://portal.secnav.navy.mil/orgs/DUSNM/DONAA/DRM/Records-and-Information-Management/Approved%20Record%20Schedules/Forms/AllItems.aspx>.

b. For questions concerning the management of records related to this change transmittal or the records disposition schedules, please contact the local records manager or the OPNAV Records Management Program (DNS-16).


C. M. ENGDAHL
RADM USN
Special Assistant for Safety Matters

Releasability and distribution:

This change transmittal is cleared for public release and is available electronically only via DON Issuances website, <https://www.secnav.navy.mil/doni/default.aspx>.

TABLE OF ISSUANCE AND REVISION-CHANGES

OPNAV MANUAL	ISSUANCE DATE
OPNAV M-5100.23	5 JUN 2020

CHANGE-REVISION HISTORY	DATE PUBLISHED
CH-1	26 May 2021
CH-2	8 July 2022

CH-1 Change Highlights:

Replaced Chapter 13 in its entirety and authorizes the Navy Fall Protection Guide.

CH-2 Change Highlights:

Replace Section A the OPNAV Safety Management System.



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OPNAV MANUAL 5100.23 CHANGE TRANSMITTAL 1

From: Chief of Naval Operations

Subj: NAVY SAFETY AND OCCUPATIONAL HEALTH MANUAL

Encl: (1) Inserted page 2 Table of Issuance and Revision-Changes
(2) Revised page v of the Table of Contents
(3) Revised Pages B13-1 through B13-26

1. Purpose. This change is issued to add table of issuance and brief discussion of the changes, remove page v of the Table of Contents and remove Chapter 13 including all appendixes from the Manual.

2. Action. Add enclosure (1) of the change transmittal behind cover page to Manual. Replace page v of the Table of Contents with enclosure (2) from the change transmittal and replace Chapter 13 and appendixes consisting of pages B13-1 through B13-24 with enclosure (3) of the change transmittal.

3. Records Management

a. Records created as a result of this instruction, regardless of format or media, must be maintained and dispositioned per the records disposition schedules located on the Department of the Navy Assistant for Administration, Directives and Records Management Division portal page at <https://portal.secnav.navy.mil/orgs/DUSNM/DONAA/DRM/Records-and-Information-Management/Approved%20Record%20Schedules/Forms/AllItems.aspx>.

b. For questions concerning the management of records related to this instruction or the records disposition schedules, please contact the local records manager or the OPNAV Records Management Program (DNS-16).

A handwritten signature in black ink, appearing to read "F. R. Luchtmann".

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CNO FOREWORD

The principles of safe naval operations are unchanged since the days of the sail and steam: profound competence in our work, strict compliance to proven safe practices, and engaged leadership that provides critical oversight and emphasizes safety as a responsibility of every Sailor from E1 to O10. As leaders, our focus on safety and risk mitigation is a pact we make with every Sailor, every Marine, and every civilian on our team that we will do everything possible to make their workplace safe and bring them home unharmed. Safety is generated and earned through a relentless focus and mindset of all involved. Furthermore, safety is not a department, it is a responsibility borne by every Sailor, Marine, and leader. Safe operations requires continual investment in training; as well as, a culture that clearly assigns responsibility and demands accountability to deliver safe processes and mitigation of risk. Safety demands competence and procedural compliance at every level, and a deep commitment by leadership to prioritizing safety. By delivering a safety management system that underpins and keeps pace with a rapidly evolving Navy, we will benefit from greater resilience against unnecessary harm to people, damage to equipment, and loss of capability.

Safety is an all-hands commitment, from the deckplate to the highest levels of command – we all are responsible for safety, including me. The Navy is a "can do" organization, but we must guard against slipping into a "must do" at all costs where risks are not adequately recognized or reported. We do that proactively by establishing a day-to-day culture where all personnel are empowered to provide backup, small problems are actively addressed (thereby preventing larger problems from developing), processes provide defense-in-depth, and leaders communicate unabated significant risk up the chain of command.

The aim of this safety management system (SMS) is to set conditions for success, not prescribe or regulate all aspects of safety and risk across the Navy. This SMS is the concept of operations for controlling risks. As such, this SMS is not an exhaustive list of specific responsibilities, processes, orders, or routines. The specifics are designed, managed, and owned by the echelon 2 commands (and subordinates) to control specific risks in the operating context. This is a 'plug and play' SMS. It is adaptable – and therefore flexible – so that its requirements and standards are translated locally to ensure controls are in place to mitigate risks and issues and assure such controls are effective and appropriate to keep people safe and ensure the Navy remains effective at achieving successful naval outcomes across all spectrums of operations including combat operations.

Our safety management system is led by me, defined and enabled by the Naval Safety Command, and executed and owned by teams across the entire Navy. Safety is everyone's responsibility and I expect our leaders to fully embrace decisive risk management. I expect the entire team to aggressively identify and communicate risk. We must emphasize to our teams the

critical importance of self-assessment and self-correction so that we are able to identify, communicate, and control risk up and down the chain of command to ensure unnecessary risks are not accepted. Risk shall be mitigated at the appropriate level in the chain of command – risks must not blindly cascade down to the unit level.


M. M. GILDAY

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SECTION A. SAFETY MANAGEMENT SYSTEM

REFERENCES

- (a) CFR 29-1960, Basic Program Elements for Federal Health Occupational Safety and Health Programs and Related Matters
- (b) E.O. 12196, Occupational Safety and Health Standards for Federal Employees
- (c) DoDI 6055.01 of 14 October 2014 DoD Safety and Occupational Health (SOH) Program
- (d) SECNAVINST 5100.10L, Department of the Navy Safety Program
- (e) ISO 4500, International Standards Organization Occupational Health and Safety Management Systems
- (f) OPNAVINST 3500.39D, Operational Risk Management
- (g) OPNAVINST 3500.37D, Navy Lessons Learned Program

GLOSSARY

Accountable Person. The individual who is personally accountable with the authority and responsibility for the effective execution of the Safety Management System or Safety Management Plan. This individual owns the risks within their command. This responsibility cannot be delegated.

ALARA. ALARA is an acronym for "as low as (is) reasonably achievable," which means making every reasonable effort to maintain risk exposure as low as practical, consistent with the purpose for which the activity is undertaken, taking into account the state of equipment, competency of the workforce, expense of elimination or mitigation efforts and other societal and socioeconomic considerations, in relation to mission accomplishment. "Reasonable" requires the degree of risk (likelihood \times severity) of a particular activity or environment to be balanced against the costs to both avoid the risk and potential outcome of failure. The greater the risk, the more likely it is that it will be reasonable to go to very substantial expense to reduce it. If the consequences and the extent of a risk are small, the same substantial expense would be considered disproportionate to the risk and it would be unreasonable to have to incur them to address a small risk.

Available Resources. Manning, training, equipment, time and funding.

Competence. A person who is trained and qualified on all aspects of conducting their work properly. Competent persons are experienced, proficient, procedurally compliant, current, risk-aware and fit to work (general health and wellbeing). Competent persons must understand the established standards for their work.

Defense-in-Depth. A layered approach to designing and sustaining a system involving the use of successive compensatory measures that prevents accidents and mitigates the severity of smaller issues. The key is creating multiple independent and redundant layers of defense to compensate for potential human and mechanical failures or unexpected or undesired changes in conditions so that no single layer, no matter how robust, is exclusively relied upon to prevent an accident. This approach defends against latent, unrealized weaknesses in a system or mistakes made by humans working within the system (unsafe behaviors carried out by individual parties).

Issue. An issue is an event or situation that has occurred or will definitely happen, which is certain or likely to affect a safe task or mission outcome.

Operate Safely. The CO, unit leadership team and operators all have a duty to Operate Safely by preserving the Safe to Operate conditions. Operate Safely is executing the mission within the designed safety envelope, while controlling unforeseen anomalies as they arise. The safety envelope is normally maintained by operating within established procedures. When unplanned or unforeseen safety risks manifest outside of the approved Safety Case and the military benefit (operationally defined objective) of taking the risk outweighs the cost of the risk exposure, then commands should apply the principles of operational risk management to control risk.

Risk. Chance of adverse outcome such as failed or degraded mission, injury, illness or loss. Risk level is expressed in terms of hazard probability and severity.

Risk Assessment. A structured process to identify and assess hazards. An expression of potential harm, described in terms of severity, probability and exposure to hazards.

Risk Control. An activity or measure that is expected to reduce the likelihood of a risk event occurring.

Risk Control System. Risk control system is a collective term encompassing the risk identification and assessment, the management of risk, response to emergent threats and issues, measures to preserve established risk controls including record keeping and the continual self-assessment and correction. All of these efforts enable a resilient system.

Risk Register. A repository for capturing and recording risks and associated information. Accountable Persons should document risks and issues in a risk register, using a consistent template to enable oversight, decision making and risk communication up and down the chain of command.

Safe to Operate. The as-designed safety for places, property/materiel, people and processes/procedures. It is the defining design, policy, engineering, resourcing, and expectation management that sets the safety risk envelope for the hazardous activity or activities for a given operating environment. Original Equipment Manufacturers, Systems Commands, Program Offices, and upper echelon commands are primarily responsible for the Safe to Operate criteria.

Safety Management Plan. Policy framework for implementing the safety management system to achieve the desired outcomes of the safety management system. Safety management plans are the documents that implement the desired outcomes of the safety management system. Safety management plans define and communicate performance expectations and may include additional guidance on risk accountability and communication expectations. Note safety management plans include most policies, procedures and guidance documents that guide operations across the full spectrum of activities including combat actions.

Safety Management System. A formal, top-down or bottom-up, organization-wide approach to managing safety risk and assuring the effectiveness of risk controls. Safety management systems often involve a systems of systems approach that inculcates procedures and policies throughout the organization working together to achieve the safety management system desired outcomes.

CHAPTER 1

INTRODUCTION

A0101. Purpose and Aim. Establish a framework for a unified and resilient safety management across the Navy, predicated on a risk control system that delivers decisive management of risks and issues to ensure operational excellence through continuous improvement. The aim is an effective Safety Management System (SMS) that avoids unnecessary harm to people or damage to equipment across the entire scope of Navy activities. Avoiding unnecessary loss is paramount to maintaining the readiness of our force and preserving our nation's assets.

A0102. Legal Requirement. References (a) and (b) establish the requirement for the Department of Defense (DoD) to comply with workplace and worker safety rules except for rare exceptions regarding military unique operations. References (c) and (d) establish DoD and Department of the Navy (DON) policy for compliance with references (a) and (b) respectively. Section B of this manual establishes the requirements for Navy to comply with references (a) through (d). Based on their unique nuclear and radiological authorities, the Director, Naval Nuclear Propulsion (OPNAV N00N) and the Director, Naval Nuclear Weapons Program (OPNAV N00NW) will solely determine how to and the extent of implementation of SMS under their authority.

A0103. Applicability. This SMS is applicable to the entire Navy, comprised of Sailors, civilians, contracted employees and industry partners. These principles apply to all Navy activities in air, land, sea and space -- at all times and in all operating environments. Deliberately, this SMS is not overly prescriptive; to make it so would lead to limited applicability and freedom to individual command chains to apply safety management in the context of their operations. The principles of this document apply across the entire spectrum of operations regardless of the operational or administrative chain of command.

A0104. Desired Outcomes. Chapters 2 through 4 describe the organization and arrangements for unified and resilient SMS that applies a formal, top-down and bottom-up approach to ensure and assure we are Safe-to-Operate and Operating Safely. There are four desired outcomes: Safe Place, Safe People, Safe Property/Materiel and Safe Processes/Procedures (the 4Ps).

a. Outcome 1: **Safe Place.** Safe workplace or working environment from a benign office environment through high-risk operational environments. Ensure safe entry, safe working and safe egress, including in an emergency. Ensure emergency protocols and systems are operable and tested regularly.

b. Outcome 2: **Safe People.** People and their supervisors are trained and qualified on all aspects of conducting their work properly and who are experienced, proficient, current, procedurally compliant, risk-aware and fit to work (general health and wellbeing). This outcome includes working safely, regardless of role, level or position in the Navy.

c. Outcome 3: **Safe Property/Materiel.** Proper and available tools, equipment, machinery, infrastructure and whole equipment systems that are Safe-to-Operate and Operated Safely.

d. Outcome 4: **Safe Processes/Procedures.** Proper and accessible standard operating procedures, emergency procedures, safety procedures, maintenance standards, etc.

CHAPTER 2

RESPONSIBILITIES AND ACCOUNTABILITY

Responsibilities. Below are the key responsibilities and requirements of this manual. All other sections of this manual are provided to teach and guide the execution of actions required to fulfill responsibilities delineated. Echelon 2 commanders and their subordinate commands **must** use the SMS framework in Figure 2-1 to design and execute an effective safety system within their command to deliver the 4Ps described in Chapter 1. Echelon 2 commanders are responsible for executing an effective echelon 2 SMS based upon reference (e) Plan, Do, Check, Act (PDCA) principles as an acceptable means of compliance with this instruction.

Accountability. For unity of effort, risk accountability and authority for overall SMS oversight, the echelon commander is the designated Accountable Person (AP) personally accountable to the CNO through the chain of command for effective execution of the SMS or Safety Management Plan (SMP).

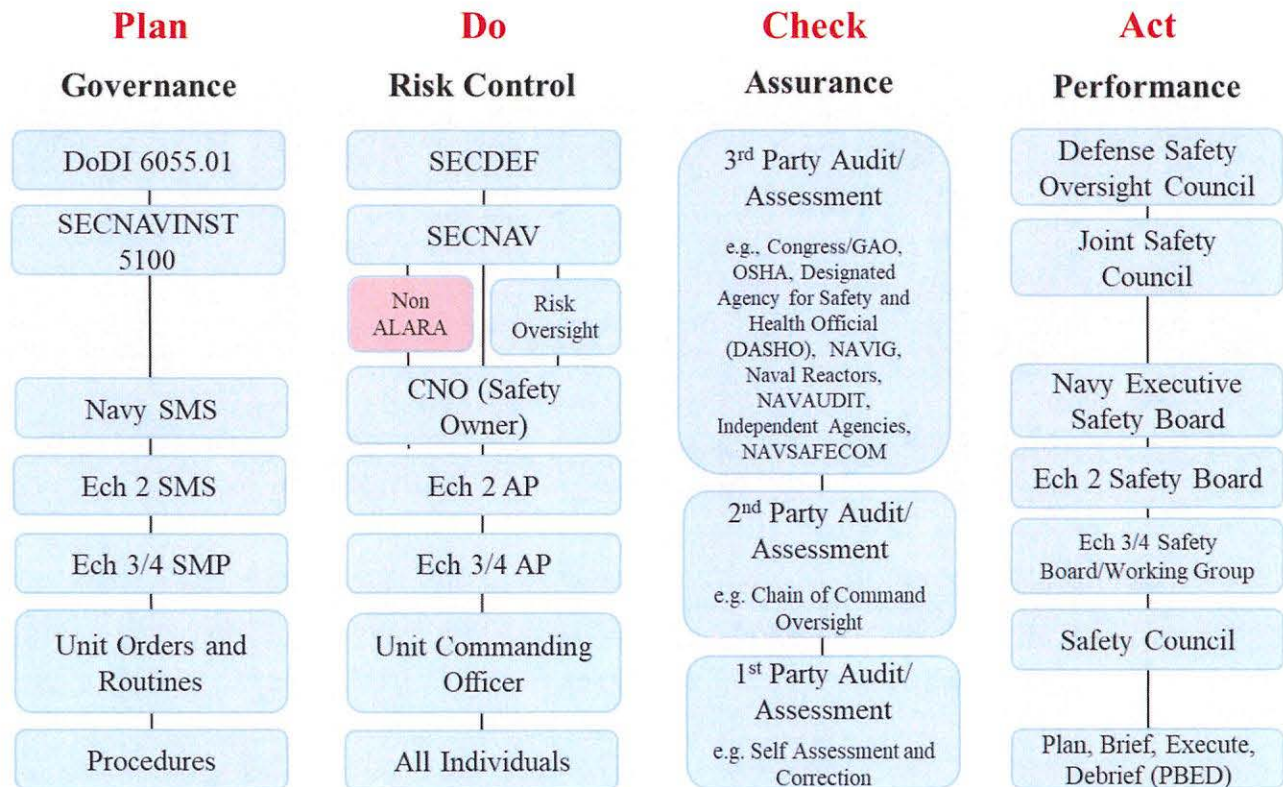


Figure 2-1. Overview of SMS Responsibility Structure based on the ISO 45001 Principles.

A0201. Chief of Naval Operations (CNO)

- a. Most senior accountable person for the Navy and therefore ultimately responsible and accountable for a Navy that is Safe-to-Operate (across the 4Ps) and Operates Safely (execution of hazardous activities).

- b. Ultimate decision maker on the time, cost and other resourcing factors (people, training, equipment and mission) needed to reduce risk or mitigate risk to As Low As Reasonably Achievable (ALARA) throughout the Navy.
- c. Ultimate ownership and accountability for risk throughout the Chain of Command via the SMS.
- d. Where resources within the Navy to mitigate an unacceptable risk to ALARA are exhausted, the CNO **must** raise the risk and proposed solution outside of CNO control to higher command or authority.

A0202. Echelon 2 and other Headquarters Commander as the Accountable Person

- a. Accountable Person for the echelon 2 or other headquarters' activity and therefore ultimately responsible and accountable for Safe-to-Operate (across the 4Ps) and Operates Safely (execution of hazardous activities).
- b. Produce echelon 2 SMS directives that specify risk communication thresholds and guidelines for SMS implementation throughout their command, unit or activity and lower echelons based on the principles and requirements contained in this manual.
- c. Ensure their SMS provides a resilient, defense-in-depth based system that:
 - (1) Inculcates continuous learning;
 - (2) Identifies and corrects problems while they are small before growing into deeper, more systemic issues;
 - (3) Clearly indicates risk ownership;
 - (4) Elevates risks if unacceptable;
 - (5) Formally communicates hazards and near misses;
 - (6) And establishes accountability at the appropriate level.
- d. Assess the effectiveness of the SMS throughout the command including lower echelons.
- e. Ensure all leaders and managers understand the responsibility for the proper training of their people, identifying and fixing problems under their control, communicating and taking account for unmitigated risk at the appropriate level in the chain of command.
- f. Identify and address potential risks to readiness and operations by collecting and analyzing organizational-wide mishap, near-miss, hazard, exercise, operational and related data.
- g. Openly communicate risks and uncorrected hazards up and down the chain of command.

h. Where available resources prevent mitigating a risk to ALARA, commanders **must** raise the risk to higher command or authority's AP.

A0203. Echelon 3 and 4 Commander as the Accountable Person

a. Accountable Person for their activity and therefore ultimately responsible and accountable for Safe-to-Operate (across the 4Ps) and Operates Safely (execution of hazardous activities).

b. Produce a complementary SMS or SMP to meet the echelon 2 SMS requirements.

c. Assess the effectiveness of the SMS and SMP throughout the command, unit or activity including lower echelons.

d. Ensure the organization is properly resourced to execute unit level safety programs.

e. Where available resources prevent mitigating a risk to ALARA, commanders **must** raise the risk to higher command or authority's AP.

A0204. Commanding Officers and Officers in Charge (Unit Level)

a. Accountable Person for the Command activity and therefore ultimately responsible and accountable for Safe-to-Operate (across the 4Ps) and Operates Safely (execution of hazardous activities).

b. Perform unit level auditing to measure how well the requirements and controls of higher authority echelon 3 SMS or SMP are being maintained.

c. Ensure risk controls are in place and effective to prevent unnecessary harm or loss.

d. Where available resources prevent mitigating a risk to ALARA, Commanding Officers and Officers in Charge **must** raise the risk to higher command authority's AP.

A0205. Personal Accountability

a. All individuals and teams have a personal responsibility to work safely, according to established standards and authorized regulations, instructions, orders, routines, procedures and processes.

b. Individuals and teams are to take reasonable care of themselves and others that are affected by their actions.

c. All Navy personnel are accountable for their deliberate risk taking.

d. All Navy personnel are accountable for risk communication and **must** raise all known, discovered or perceived risks and issues to their immediate supervisor or chain of command.

A0206. Office of the Chief of Naval Operations, Special Assistant for Safety Matters (CNO (N09F)/Commander, Naval Safety Command (NAVSAFECOM)

- a. Serve as the principal advisor to the CNO and Assistant Secretary of the Navy (Energy, Installations and Environment) Safety on policy and administration of the Navy SMS Program, including policy guidance, accountability and assurance.
- b. Act as the echelon 1 SMS Authority. Establish a standardized echelon 1 SMS framework that provides an acceptable means of compliance with the 4Ps.
- c. Continually assess the Navy's risk control system and overall safety performance of the Navy and report to the CNO.
- d. Assure proper and effective accountability of safety management across the Navy.
- e. Conduct data collection and independent analysis to assess the effectiveness of the Navy SMS.
- f. Compel corrective action by activity owners of unsafe practices and, when warranted, suspend those activities until corrected.
- g. Compel the inclusion of Navy SMS requirements in all training courses, personnel qualification standards, job qualification requirements, events and evolutions across the Navy.
- h. Advocate for the inclusion of Navy SMS principles throughout the Planning, Programming, Budgeting and Execution activities.

A0207. Safety Officers and Safety Professionals

- a. Designated Safety Officers and assigned Safety Professionals in each command are responsible for supporting AP's to execute an effective SMS or SMP (as applicable). These safety personnel must be and remain independent of those responsible for safely executing work to provide another layer of defense-in-depth to the AP.
- b. Provide advice to other leaders, supervisors and individuals on safety-related matters.
- c. Ensure generic and specific Risk Assessments (RA) are completed and formally recorded in accordance with reference (f) for hazardous activities in the command.
- d. Provide advice and guidance to the command on carrying out dynamic RAs, as required.
- e. Nominated Safety Officers in each command maintain a Risk Registry (or other formal mechanism) of risks and issues impacting the 4Ps and overall execution of an effective SMS.

CHAPTER 3

RISK CONTROL SYSTEM

This chapter sets out basic philosophy and concepts for a systems approach to controlling risks to protect people and materiel from unnecessary harm. This instruction does not advocate for a particular SMS structure (e.g., the Federal Aviation Administration's 4-pillar SMS model), but rather presents principles for echelon 2 leaders to create their own SMS that is tailored for their operations. Reference (e) is a recognized international standard employed by High Reliability Organizations and provides additional information for developing an effective SMS.

A0301. Risk Leadership and Accountability

- a. All aspects of effective safety management are predicated on properly informed leadership and supervision at all levels throughout the Navy.
- b. Leaders and supervisors must be confident and competent to ensure proper standards are being executed in the conduct of work. Leaders and supervisors must also be confident and competent to make properly informed risk-based decisions, not be risk averse and not be risk blind due to lack of knowledge or training.
- c. All individuals have an inherent responsibility to work safely to protect themselves and others affected by their actions. Critically, this means that individuals must ensure that they are competent to carry out the work tasked of them and they must follow established procedures and processes. Individuals are empowered to question established procedures and processes if they cannot be properly or safely executed.

A0302. Resilience: A Systems Approach to Risk

- a. Resilience is the ability of a system to adjust so that it can sustain normal functioning in the face of disturbances; in other words, 'bounce-back from' or 'absorb' disturbances. Risk resilience is a systems view of risk controls that protects people and materiel and also effectively prevents or de-escalates issues leading to increased severity of harm (e.g., effective emergency response, correcting smaller issues through self-assessing, self-correcting). No one goes to work intending to cause a mishap, yet error is a normal by-product of human performance especially in demanding, repetitive, dynamic and complex operating environments associated with naval and industrial activities. Mishap analysis invariably reveals complex paths of system failures linked to organizational factors, competence of personnel and local conditions that promote unsafe behaviors in our various operating environments. System failures occur when risk controls are absent, disregarded, ineffective or fail to account for the inevitability of human error. The mishap therefore, often comes as a complete surprise, as the organization is not likely aware of its actual cumulative risk level. The lack of resilience is borne out in mishap investigations that invariably reveal weaknesses in the organization's ability to identify, assess or control risks. The findings from an investigation often come as no surprise (we knew or should have known the problems).
- b. Situational Awareness (SA) is the conscious recognition and ability to respond correctly to all factors that may degrade successful outcomes in an operating environment. The inescapable presence of multiple inter-related networks of latent and active safety failures, found in complicated workplaces or

complex military operations, results in near impossibility to maintain sufficient risk SA. Sometimes our personnel are inadvertently oblivious to an unsafe condition with only luck separating success from failure. To claim we are safe, in absolute terms, is therefore challenging. We merely aspire to resiliency by working coherently and consistently across the whole safety enterprise to remove or reduce the likelihood of safety issues occurring and have the preparedness and resources to respond decisively when they occur. This effort requires a resilient network of system controls that work in concert to protect people and the mission from recognized and unrecognized risks. These system controls include the 4Ps – safe places, people, property/materiel and processes/procedures.

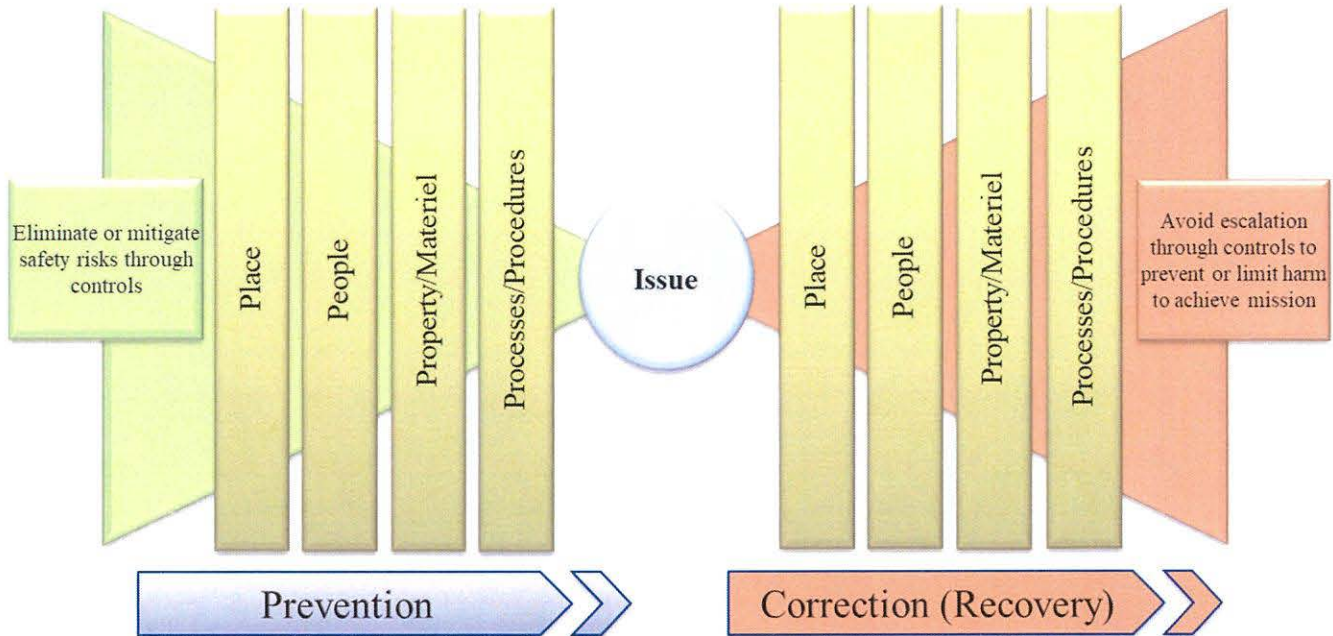


Figure 3-1. Resilience Model

c. The resilience model in Figure 3-1 is a simple method of organizing and understanding system safety performance in terms of risks controls. Figure 3-1 is an end-to-end pictorial representation of the safety system for an activity or group of activities. The left side of safety resilience highlights the process of preventing or reducing safety risks to an acceptable level or ALARA. This reduction/prevention is achieved through mitigation controls, but it supports the desired outcomes (4Ps). These generalized controls are designed to prevent or reduce the likelihood of an incident or capture errors when they inevitably occur. No control should be a single-point of failure, thus the diagram is drawn purposely to depict controls working together as multiple barriers to uncontrolled risk (defense-in-depth), in isolation or as an unintended network of risks, to prevent them from transitioning to a safety issue.

Example: On the left side of the model, many different types of controls are expected to prevent or reduce the likelihood of a fire occurring (e.g., storage of combustible materials, fire watches, operable fire suppression and hot work controls). No system of controls is infallible, so the right side of safety resilience is the ‘insurance policy’ that should detect and respond effectively to the fire, ensuring the safety issue does not escalate to cause harm to people or the mission. Typical controls to limit the spread or damage caused by fire include: fire detection systems, fire suppression, ventilation, dewatering, rescue teams or ready firefighting teams, as well as effective supervision and leadership. If all aspects function

as intended and further harm is avoided, then the system is resilient. Thus, safety resilience describes a whole system view of identifying and controlling risks, while also having the resources in place to recover successfully from emergent safety issues, thereby avoiding further harm to people, equipment, readiness and the overall mission.

d. A resilient system is 'Safe to Operate' and 'Operating Safely'. A resilient system also offers additional benefits in terms of reduced equipment damage and financial gains, as well as intangible socio-political effects and non-technical attributes, such as improved job satisfaction and wellbeing. Resilience thinking is a systems approach (not a human error approach) to protecting complex environments (e.g., a ship, submarine, air system, etc.). Resilience provides a formal method of organizing leading and lagging indicators to judge the level of assurance and overall safety performance from prevention [of issues] through to correction [to avoid additional harm]. For example, a safe system of work and training in a ship should prevent or reduce the likelihood of incorrectly torqued engine mounting bolts. If system induced human error occurs, resulting in incorrectly torqued bolts, this generates an unsafe condition. If undetected during the maintenance procedure, subsequent vibration in the power turbine becomes a safety issue with the potential to cause damage or fire. A whole system view of safety resilience recognizes the need to ensure further mitigation reduces escalation in harm to people, extended equipment damage, readiness or mission failure. Resilience thinking also captures the need for vibration detection systems, alarms, fire suppression and emergency training and effective human supervision of the emergent safety issue.

e. Good safety leadership and management are regarded as integral parts of generating and maintaining global warfighting effectiveness and lethality. A healthy culture exhibits a focus on continual checks and feedback at all levels. Teams or individuals feel ownership for safety and take responsibility for themselves and others. People do not accept low standards. They believe meaningful improvement can only be achieved as a group and that preventing unnecessary harm to people, equipment and the environment is an attainable vision. They feel confident to report their concerns and the supervisory chain will act. They instinctively work hard to avoid safety failures but always remain ready to respond effectively should things go wrong to limit any potential harm. Training and education have embedded a self-sustaining, healthy attitude towards safety that requires only occasional direction from senior management. Informed risk-based safety behavior is intuitive and proportionate to the safety threat.

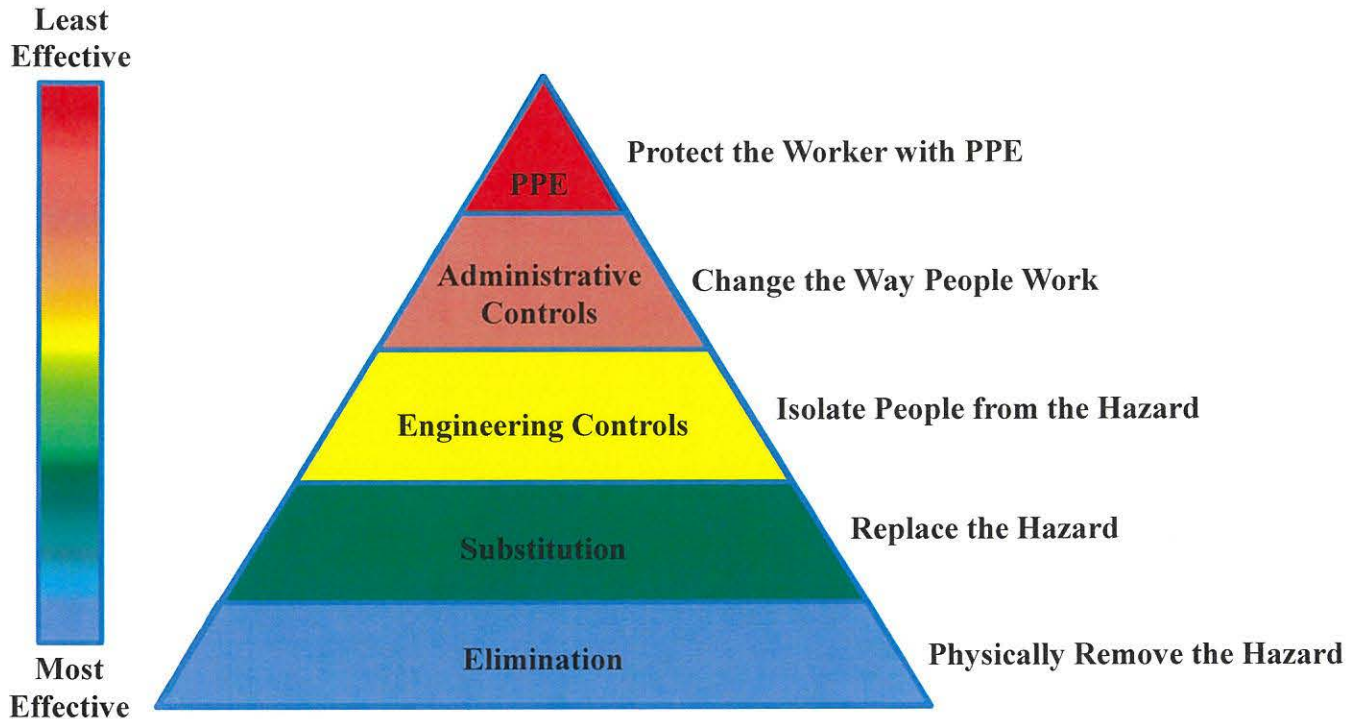


Figure 3-2. Hierarchy of Hazard Control

f. The strategic level pillars or barriers shown in Figure 3-1 are derived from analyses of mishaps that invariably revealed the same ‘usual suspects’ of human factors across all mishaps and the basic need to ensure a safe place, people, property (equipment) and processes/procedures exist. As the risk system is the same to control risk and recover from issues, the pillars are the same for both sides of the safety resilience concept. Each pillar is equally important in which you should follow the traditional hierarchy of hazard control to control specific risks (Figure 3-2). The sequence of the pillars is not critical. Of note, Figure 3-1 is drawn for clarity of the concept, but we must recognize the diagram belies the complexity of all potential hazards in the operating system and infinite ways their associated risk can network to create a path to harm.

g. In addition to assurance activity, resilience is determined through reporting, analysis and capitalizing on safety information. This information is gained from mishaps (lagging indicators) but more importantly, everyday hazard observations, near misses and safety successes (leading indicators). **Data cannot predict the next mishap, but it can infer the level of resilience to risk.** To determine whether sufficient resilience exists within the safety system, the efficacy of risk controls in each pillar shown in Figure 3-1 should be regularly measured and assessed.

h. Pillars defined

(1) **Safe Property/Materiel** (Echelon 1 through 3). The high-level management of safety includes resourcing to ensure compliance with Federal Law, DoD and DON policy. Organizational factors also include, deciding on the mission, structure of the organization, provision, allocation of resources and risk appetite. In summary, this category encompasses all factors needed for a safe workplace (applicable to the entire spectrum of workplaces from a benign office environment through frontline warfighting in a ship, submarine or other forward deployed operating base).

(2) **Safe People** (Echelon 3 through Unit level). The absolute safety-critical need for individuals and teams to behave safely. To facilitate this, the organization must ensure enough appropriately trained personnel are qualified, experienced and current for the tasks required of them; that they are also physically, psychologically and mentally prepared (akin to warrior toughness program); and human limitations are accounted for (anthropometric reach, vision, hearing, etc.).

(a) Organizational drift or becoming blind to risk (and issues) is the most significant causal factor found in mishaps. Leaders, supervisors, managers, teams and individuals must remain responsive to risks and issues in the workplace and empowered to raise concerns without fear of retribution or dismissal by their chain of command.

(b) The organization provides competent personnel while local commanders, leaders and supervisors must preserve competence in their personnel (this includes welfare support). Degraded competency will directly impact safety performance since competence is vital to countering the effects of other absent or ineffective controls (e.g., ineffective procedures, lack of supervision, unplanned or novel situations, etc.). A lack of competence (from the designer or decider through the operator) is the highest risk factor leading to mishaps. Competence is therefore characteristic of professionalism and is especially important where safety processes (controls) are exhausted through exceptional conditions. Control exhaustion can include occasions where personnel are exposed to unplanned and unexpected hazards, which may necessitate novel and spontaneous solutions to achieve and maximize operational benefit.

(c) Leadership must specify the competency requirements for persons in hazardous activities. Personnel must be suitably qualified, proficient (current) and experienced based on the required task for declared competency. Mishap analysis and surveys often reveal people were employed in positions, which they were not qualified, proficient or suitably experienced. This human competency gap erodes the safety margin, which also occurs when people deviate or drift from a standard as they become desensitized or blind to danger. This behavior is not complacency; it is simply a natural human response to risk.

(d) The final component of competence relates to non-technical skills, which are also key to ensuring people can act safely in the workplace. These include, but are not limited to: physical/mental limitations (i.e., decision-making, leadership, anthropometric reach, cognitive ability, vision, strength, etc.); physiological conditions (i.e., extremes of weather, heat stress, vibration, noise, ship roll, physical fatigue, etc.); and psychological conditions (i.e., managing perceived stress, fear, mental fatigue, etc.).

(3) **Safe Place** (Echelon 3 through Unit Level). Safe place refers to the condition of the physical operating (and operational) environment. A safe place is a workplace that is free from unnecessary hazards. The chain of command (Echelon 2 through Unit-Level) must ensure a safe place, equipment and practices are in place and effective to control risks in the workplace, which includes working in warfighting and crisis conditions. The workplace should also be populated with a sufficient number of competent personnel to maintain designed workplace safety. Commands need to evaluate the entire system to ensure resources are correct to safely complete tasking.

(4) **Safe Processes/Procedures** (Unit Level). This condition supports resilience at the 'sharp-end' of naval operations by prompting safe behaviors in the work environment. Safe actions are dependent on effective leadership and supervision so that personnel routinely work safely and are resourced and

empowered to respond to emergent risks and issues. At this level, it is about individuals and teams working within a safety system's boundaries as defined by established standards and procedures. Risks and issues requiring mitigation beyond unit-level resources are elevated to the next higher AP.

A0303. Safety Case. One method of executing a risk control system is a safety case. A safety case is a structured argument, supported by a body of evidence that provides compelling, comprehensive and valid case that a system is safe for a given application in each operating environment and that risks have been mitigated to ALARA through appropriate and effective safety controls.

A0304. Proven Work Model

a. Operations across the spectrum of naval operations require procedures, supervision, training and oversight. Successful operations rely on implementing the watchstanding principles of formality, ownership, level of knowledge, forceful backup, questioning attitude, procedural compliance and integrity. All these principles play a vital role in providing the defense-in-depth required to successfully deal with the dynamic nature of naval operations. Most operations are planned evolutions (formality), conducted by trained personnel (level of knowledge or training), using a formal written procedure (procedural compliance or engineering) and applying an adequate level of supervision (forceful backup and level of knowledge or supervision). For dynamic operations such as response to casualties that are not specifically addressed by procedures, watchstanding principles ensure a large degree of training and on-watch supervision to compensate for the inability to engineer a procedure in advance of the unexpected event. The existence of constant tearing-down forces knocking crews off-peak necessitate a distinct focus on problem prevention. One tool to help crews avoid problems or otherwise investigate problems after they occur, is the work model presented in Figure 3-3. The work model is a tool to ensure the essential aspects of any nuclear job are considered during planning and are continually assessed during execution. The model can also be easily applied across the full spectrum of naval operations.

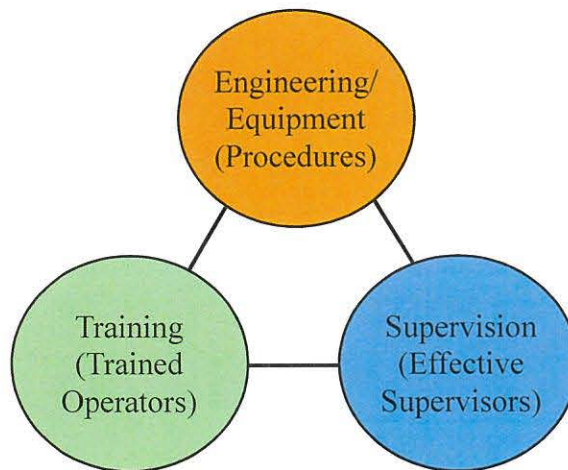


Figure 3-3. Work Model

b. There are always at least three elements necessary for the successful execution of work or operations – engineering (equipment), training and supervision. If fewer resources are invested in training, this likely must be compensated for by investing more in either engineering or supervision (or both). Similarly, if a procedure cannot be very detailed because there are too many different paths to take and

decisions need to be made in a timely manner, this must be compensated for by increasing the training of the operators or through increased supervision. The work model can be used as a problem prevention tool to think through the crew's strengths and weaknesses in each element and make adjustments as necessary. A conscious effort can then be made to adjust the size or detail of engineering, training and supervision based on the complexity of the task, level of training or experience, precision needed for the job and impact on safety.

c. When assessing an unplanned event or problem, the work model is a tool that could be used when determining the facts and problems associated with the event to thoroughly understand all sides of a problem. Probing the facts associated with each element will result in capturing the more significant problems and causes. When a problem occurs, there will always be a breakdown or weakness, in at least one of the three primary elements of the model, as well as a potential breakdown in oversight elements (those responsible for the safe conduct of the evolution not directly supervising). Continuing to use the model during causal analysis should result in the identification of causes that can be addressed with actions to correct and prevent similar problems. When problems are assessed through the "lens" of the work model, commands are able to identify how the evolution would have been successfully performed by a properly functioning work team. Focusing on differences or systematically grouping the associated facts in the work model format leads to supervisors and crews developing a mental model that continually assesses operations and maintenance evolutions by identifying and correcting imbalances real-time based on the skills, procedures and available supervision. The ideal balance should then be compared to the actual balance in place at the time of the problem to determine the "gaps" and focus on these differences as the major weaknesses in the planning and execution of the task.

CHAPTER 4

ASSURANCE

A0401. Assurance

a. Safety assurance involves routine and formal assessment through which justified confidence is provided that the safety requirements and standards are being met. In terms of resilience, assurance means that the risks and issues associated with equipment and resources, competent persons, infrastructure and compliance have been identified, controlled and owned at the appropriate level by an accountable person.

b. The Navy collectively assures the Risk Control System (RCS) is effective and is self-improving and self-correcting. The RCS involves problem solving, risk ownership and mitigation at the right level delivering a resilient Fleet. Therefore, Fleet and other echelon 2 organizations should conduct certifications, assessments and standards checks using a requirements-based, layered defense system or defense-in-depth. They should develop a system that effectively identifies and corrects problems while they are small – before they grow into larger, more systemic issues. We must place greater reliance on assuring successful naval outcomes through leading indicators or Key Risk Indicators than reactively learning and correcting from lagging indicators or Key Performance Indicators (see section A0403 below). Operating Safely is the natural product of risk management excellence.

A0402. Layered Defense System of Auditing and Assessment

a. First-party audits or assessments are self-awareness, self-assessment and self-correction. It is compliance with policy (orders, routines and processes) and risk management practices. The first-party audits/assessments assure the Commanding Officer (CO) and their immediate chain of command that the unit is Safe-to-Operate and Operating Safely. Emergent risks or issues discovered at this level should be registered locally and mitigations actively tracked by the CO and communicated up and down the chain of command. When first-party auditing detects an unsafe condition, the leaders must ensure the activity is stopped, where reasonably practicable, to assess the risk of harm and not restart the activity until protective controls are in place that meet the ALARA condition or the benefit of the operational (not operating) imperative justifies continuing the activity.

b. Second-party audits or assessments must be conducted by APs in the chain of command to ensure compliance with the principles of this instruction and other legislation, regulation and policy relevant to the echelon 2 environment. The second-party audits or assessments assure the echelon 2 Accountable Person and their subordinate commands that they are Safe-to-Operate, Operating Safely and resilient. Second-party auditing provides a formal mechanism for the chain of command to engage risks and issues (e.g., building a risk picture via risk registry (collection of risks)), assess readiness for the mission and confirm the SMS or SMP is effective at identifying, controlling and owning risks and issues. This method includes checking if risks are held at the appropriate level depending on the Risk Assessment Code (RAC) and whether the nominated risk owner has the proper levers to mitigate the risk (i.e., it is inappropriate for a person to own a risk or issue if they do not have the authority or resources to mitigate the risk to an ALARA condition).

c. First and second party auditing and assessment are inherent responsibilities to the chain of command to ensure that they and their subordinates are safe to operate and operating safely. The ability to identify and correct deviations from the expected standard is paramount to meeting the SMS desired outcomes (“4Ps”).

d. Third-party audits or assessments are an independent assessment of the overall resilience-level of echelon 2 (and below) commands conducted periodically by NAVSAFECOM on behalf of the CNO. Third-party audits or assessments ensure that subordinate APs are effective at generating safe operations, controlling risks and issues and are compliant with this manual and other relevant legislation, regulations and policies. This audit is a systems level assessment that the SMS is performing as designed; it is resilient and therefore Safe-to-Operate and Operating Safely. Third-party oversight provides justified confidence to the CNO that safety practices underpin and enable readiness and successful naval outcomes.

A0403. Key Indicators

a. The key indicators (measures) of risk management and safety performance that can be used for assurance are identified in subparagraphs A0403a(1) – A0403a(3).

(1) Key Performance Indicators (KPI). Primarily a lagging indicator of the effectiveness of the overall SMS. It’s a lag indicator because metrics are based on historical data showing how well the SMS functioned at keeping people and materiel free from harm. KPIs comprise metrics derived from: number and rate of mishaps; enforcement action, lost work time, lost equipment availability, lost capability, financial losses, etc.

(2) Key Risk Indicators (KRI). Primarily a leading indicator of the effectiveness of a risk control system (or risk management system). KRIs inform and update risk models to reduce uncertainty and judge impact against a capability need. KRIs comprise metrics derived from: audits, inspections, hazard reports, health and medical surveillance, competence availability, benchmarking, surveys, etc.

(3) KRIs are metrics that can provide an early signal of increasing risk exposure in a particular risk area. KRIs are indicators that provide an early warning system around the potential for a KPI to be missed. KRIs differ from KPIs in that the latter is a measure of how well something has done historically, whereas the former is an indicator of the possibility of future impacts. KRIs can be developed in tandem with KPIs and linked to the DON’s strategic planning, Enterprise Risk Management Concept of Operations and performance management processes. For each performance activity, KPIs are set to identify the performance target for that activity’s completion. Management further identifies the acceptable variation in performance with respect to the target outcome, typically so that these performance levels are consistent with the organization’s risk appetite. KRIs are then set to serve as leading indicators of when performance is operating outside of acceptable tolerance ranges and therefore indicating risk to the achievement of the desired outcome. KRIs provide an opportunity to proactively identify risks to meeting objectives and take corrective action to meet the performance target. The development of KRIs and KPIs require a collaborative effort at various levels in the organization.

b. Examples include, but are not limited to:

(1) KPIs (lagging indicators; how well have we done?)

- Deaths (zero, % by affected population)
- Mishaps, by class (number reported, % by Fleet)
- Occupational Safety and Health Administration (OSHA) reportable personal injuries number, downward trend, % by affected population)
- Lost workdays due to personal injury, primary role (xx days per month)
- Occupational health referrals (number)
- Equipment damage (\$\$)
- Lost mission, directly attributable to safety failure (xx missions per month)
- Lost equipment availability, attributable to safety failure (xx days per month)
- Cost of occupational injuries and illnesses, litigation (\$\$)
- Non-compliance with law or policy
- Regulatory enforcement notices
- Prosecutions

(2) KRIs (leading indicators; how resilient are we?)

- Redefining the pinnacle events below the mishap level thresholds and designing systems to prevent redefined pinnacle events from ever occurring (i.e., critiquing events to understand causality).
- Organization
 - Echelon 1 SMS, compliant with legislation and policy
 - Echelon 2/3 SMP, compliant with SMS and domain specific legislation and policy
 - Echelon 4/5 orders, standard operating procedures (SOP) and safety programs: available, effective, compliant with higher guidance
 - Compliance with OSHA, non-unique military activity
 - Compliance with DoD policy, uniquely military activity
 - Risk Registry (oversight and efficacy)
 - Risks, RAC 1-2 formally reviewed at least annually
 - Non-ALARA (insufficiently mitigated/controlled) risks held (number)
 - Mishap and hazard recommendations closed-out within agreed times (number, %)
 - 2nd & 3rd Party independent audits carried out (% completed against number planned)
 - Audits or inspections corrective actions executed within agreed timings and scope
 - Safety governance boards (by echelon, attendance, % achieved against planned)

- Benchmarking, horizon scan for lessons identified (LI) from similar High Reliability Organizations and OSHA
- Competence (see competency definition for logic)
 - Fit or fill (trained, qualified, suitably experienced & current in task. (i.e., aviation maintenance experience (AMEX))
 - Operational career experience
 - Non-Tech skills (welfare, general health and wellbeing)
 - Hazard observations or dangerous occurrences (number reported, upward trend)
- Operating Conditions
 - Operational change rates (i.e., frequency of transition periods)
 - Safety specific training and education completed (% of personnel)
 - Safety stand-downs
 - Safety critical positions filled with competent persons
 - Infrastructure fit for purpose
 - Suitable and sufficient emergency response plan in place and exercised
 - Safety noticeboard present, overtly accessible and updated
- Local Actions (work as done)
 - Suitable and sufficient workplace risk assessments carried out, in date, with risks mitigated
 - Safety induction brief, new personnel and visitors carried out
 - First-party self-audit (% completed against number required or alignment with 2nd Party assessments)
 - Safety committees or council held (monthly)
 - Climate surveys completed and responded to
 - Safety awards (number, % by number available)
 - Lessons identified briefed (at shift handover, flyers, posters, etc.)

A0404. Organizational Learning (Report, Analyze and Get Better)

a. Rarely is an accident or serious occurrence the result of a single factor or due to the actions of a lone individual. Invariably an incident is the confluence of multiple organizational safety failures and local actions that creates a path to cause harm to people, damage equipment or impact the environment. People manage risks and hazards every day during normal operations and in exceptional circumstances. Effective organizational learning is dependent upon gathering and capitalizing on lessons learned from others' experiences. Continuous self-evaluation to the recognized standard is required to prevent organizational drift and the normalization of deviation from safe practices.

b. Organizational learning is also about responsive and flexible organizations working hard to identify shortfalls and enact improvements to maintain resilience. Individuals and leaders at all levels need to self-correct; find and fix small problems before they become larger, systemic issues; fix the root causes,

not just symptoms. The higher in the chain of command the deviations from the standard are detected, the larger the problems are likely to be. Our people need to apply problem solving tools and best practices to shift from more activity to better outcomes. A learning mindset is essential. Leaders need to transparently share what they learn to make others more successful and iterate to find the best solution, adjusting the plan based on learning.

c. The Report, Analyze and Get Better (RAG) cycle shown in Figure 4-1 supports this need by perpetually gathering reports from all available sources, analyzing risk control efficacy and then capitalizing on that knowledge. The RAG of safety mishaps and hazard observations permits organizational learning to improve existing risk controls or identify new controls. When sufficient quality data is reported and analyzed effectively to identify lessons, this knowledge can be utilized to enhance resilience in the workplace and support informed risk-based decisions. Reference (g) provides requirements for this process.



Figure 4-1. Report, Analyze and Get Better

(1) Report. There are many ways to learn – from mishap investigations, routine reporting and analysis of safety occurrences, benchmarking, audits or just taking time to discuss safety with colleagues and supervisors. Risk Management Information (RMI) is used for the mandatory reporting of mishaps and is also used for other reporting such as near misses and hazard observations.

(2) Analyze. Learning from safety reports can be grouped as lagging and leading indicators. Lagging indicators include lessons gained from major or minor occurrences as shown in Figure 4-2. Mishap investigations are carried out to learn why things did not go as expected and so the learning opportunity lags these types of occurrences. Unidentified non-compliance that results in a mishap is a lagging indicator whereas non-compliance identified through self-assessment is a leading indicator. Figure 4-2 also highlights how lag indicators often expend significant resources to investigate the occurrence and deliver improvements. Simply learning from lagging indicators demonstrates a reactive organization and is representative of an immature organization. Conversely, leading indicators capitalize

on safety intelligence gained from hazard observations, dangerous occurrences, near misses, confidential reports, first, second or third-party safety assessments or audits and safety learning from benchmarking to gain early warning of weaknesses in the safety system. An organization that routinely invests in the widespread analysis of leading indicators is often seen as a proactive or resilient safety organization. Here, there is a collective effort to improve safety, for which the investment in organizational learning is now shared throughout the Navy. Significantly, leading indicators allow the reporting of everyday safety successes, which can be exploited for wider learning. Measuring safety behaviors in the workplace (as done) is also a leading indicator. Leading indicators can also include lessons from successful failures; where the safety system failed yet decisive leadership acted to direct resources to limit harm, e.g., The National Aeronautics and Space Administration (NASA) considered the ill-fated Apollo 13 to be a successful failure as the crew returned to Earth unharmed.

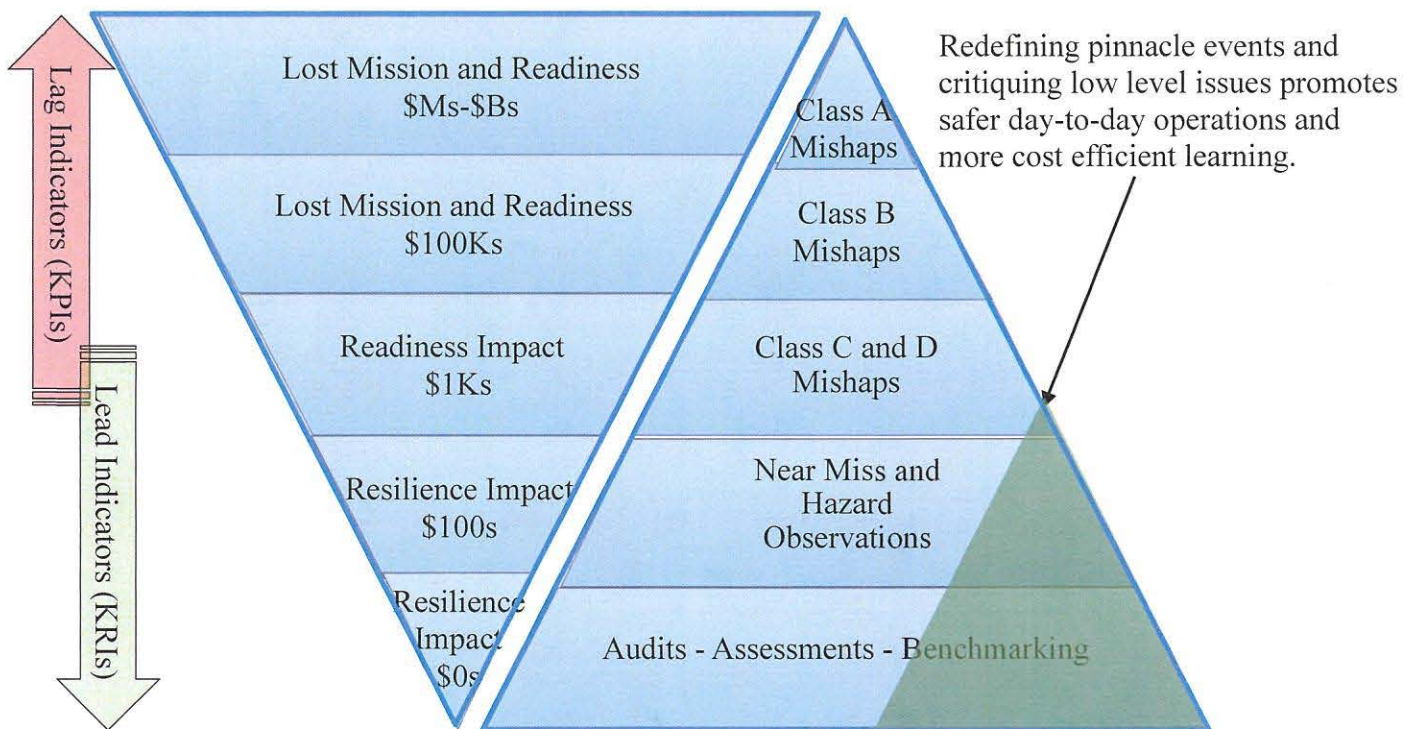


Figure 4-2. Human, Operational Availability (A_o) and Monetary Costs of Ineffective Learning

(3) Get Better. An effective organizational learning system exploits the safety intelligence gained from the analysis component. At the strategic level, intelligence gained from organizational learning can be mapped to one or more of the strategic controls described by the resilience model in Figure 3-1 to identify the efforts needed to mitigate weak risk controls. Using leading and lagging indicators in this manner is more likely to provide overall assurance of a safe working environment, rather than simply reacting to individual hazards. Knowledge or intelligence can also be utilized to update or raise new risks or issues and develop training and education. Critically, how we capitalize on lessons must be fed back to the affected community to ensure people learn to appreciate the real value of transparent reporting. The Naval Safety Command monitors safety events in RMI for good practices as well as oversight of risks relevant to the wider affected communities. Our Fleet's organizational risk management resilience will then be achieved through updates to policy and safety promotions.

(4) Refining Pinnacle Events. Echelon 2 SMS or SMPs must have systems and procedures to ensure we get better at learning in the green area shown in Figure 4-2 (i.e., we must invest in learning earlier where the cost is less therefore the overall return on investment is greater). An example of this methodology is to redefine pinnacle events at a lower mishap threshold and applying the same rigor and status of analysis that would normally be afforded a high impact pinnacle event (i.e., class A/B mishaps). Echelon 2 and 3 leadership needs to ensure these lessons learned are capitalized on in accordance with procedure outline in reference (g).

CHAPTER 5
OPERATIONAL RISK MANAGEMENT

Reserved for Future Use

SECTION B. SAFETY PROGRAMS

CHAPTER 1

ORGANIZATION AND COORDINATION

- Ref: (a) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
(b) SECNAVINST 5100.10K Department of the Navy Safety Program, 12 May 2015

B0101. Discussion

a. The Safety and Occupational Health (SOH) program gained special prominence after passage of the Occupational Safety and Health (OSH) Act on 31 December 1970. Although the primary thrust of the OSH Act was directed at the private sector employer, section 19 of the OSH Act directed federal agencies to establish and maintain comprehensive and effective OSH programs consistent with the standards issued under Section 6 of the OSH Act.

b. On 26 July 1971, the President signed Executive Order (E.O.) 11612, entitled *Occupational Safety and Health Programs for Federal Employees*. This E.O. stated the U.S. Government, as the nation's largest employer, has a special obligation to set an example for safe and healthful employment. It directed the head of each federal department and agency to establish an SOH program in compliance with section 19 of the OSH Act. Over the next 3 years, many federal agencies made only moderate progress. Consequently, Congress received considerable criticism for a perceived double standard in SOH requirements between the private sector and federal agencies. As a result, the President issued E.O. 11807 in 1974, which replaced E.O. 11612 and more clearly defined the scope, requirements, and responsibilities of federal agency programs. In addition, E.O. 11807 tasked the Secretary of Labor to issue guidelines designed to assist federal agencies in establishing their programs. The Secretary issued these guidelines on 9 October 1974 as part 1960 of title 29, Code of Federal Regulations (CFR), *Safety and Health Provisions for Federal Employees*.

c. These actions described still did not satisfy some critics since several federal agencies questioned the regulatory authority of the Secretary of the Labor guidelines (29 CFR 1960). Addressing this issue, on 26 February 1980, the President signed E.O. 12196, *Occupational Safety and Health Programs for Federal Employees*, superseding E.O. 11807. The Secretary of Labor revised DOL guidelines (29 CFR 1960) on 21 October 1980 and reissued them as *Basic Program Elements for Federal Employee Occupational Safety and Health Programs*.

B0102. Scope

a. SOH is a core value in all Navy operations and commands, units and activities. The primary mission is to prevent mishaps, save lives, and preserve combat readiness. This safety program manual provides Navy commanders, commanding officers, and officers in charge;

military and civilian supervisors; safety managers; safety and occupational health professionals; industrial hygienists; occupational medical professionals; collateral duty safety officers; operators; design agents and life-cycle managers; installation managers; and Navy military and civilian employees with comprehensive and effective policy guidance, tools, and training to support operational readiness and sustainability, in compliance with safety laws, regulations, and Executive Orders (E.O.), across the Navy Enterprise.

b. This manual implements requirement of the Occupational Safety and health Act of 1970 as implemented in Executive order 12196; Title 29 Code of Federal Regulation 1960; and Department of Defense Instructions 6055.01, 6055.04, and 6055.07. It directs commands, units, and activities, regardless of warfare community, to comply with the program elements in this manual as well as any additional guidance from other applicable policy. It provides clarifying guidance for uniquely military equipment, systems, and operations or other special conditions and provides new policy on Navy safety management procedures with special emphasis on responsibilities and organizational concepts. All subsequent Navy safety program related instructions, manuals, guidance, and directives derived from this manual must be aligned with the direction set forth herein.

c. This manual implements references (a) and (b) and provides policy, procedures, and guidance for the SOH program for the Navy.

B0103. Related Chapters. Each chapter in this manual covers a specific safety program or element. Some safety programs, as well as elements, are related or overlap. In addition, the chapters purposefully do not cover all SOH standards (i.e., laws, rules, regulations, instructions, etc.). They are written to provide Navy specific guidance and ensure consistency throughout the Navy enterprise.

B0104. Standards

a. The Navy must also comply with SOH standards issued for the private sector by the Secretary of Labor, under section 6 of the Occupational Safety and Health Act (OSH Act), including emergency temporary standards. The Office of the Chief of Naval Operations (CNO) and the CNO Special Assistant for Safety Matters (CNO N09F) are the only authorities to approve U.S. Navy deviations, waivers, or alternate SOH standards resulting from the application of reference (a) (e.g., military unique operations). This approval must be in writing, and may be in the form of an Office of the Chief of Naval Operations instruction (OPNAVINST) or manual (OPNAV M), or letter signed out by CNO N09F.

(1) This manual adopts all applicable U.S. Occupational Safety and Health Administration (OSHA) laws and regulations including emergency temporary standards OSHA issues under the provision of the OSH Act, as well as national consensus standards that have been “incorporated by reference.” The OSHA laws and regulations, any emergency temporary standards still in effect, and any national consensus standards incorporated by reference, are

collectively referred to, both in this directive and industry, as “OSHA standards.” It is not possible to list every reference that may be applicable as Navy operations and commands, units and activities vary greatly and invoke a variety of standards including, but not limited to, general industry, maritime, and construction. Throughout the manual, the key references applicable to each chapter at the top of the chapter.

Note: Most of the national consensus standards that OSHA incorporated by reference, were done so in the early formative years of that administration. Once a national consensus standard is incorporated by reference into either a law or regulation, it is no longer referred to as a national consensus standard. National consensus standards (i.e., also known as “industry standards”) are voluntary, typically copyright protected, and periodically updated by their respective standards organizations (e.g., American National Standards Institute, American Society of Safety Professionals, etc.).

(2) The use of OSHA standards may simply refer to a specific OSHA standard (e.g., 29 CFR 1910.95), or may paraphrase, transpose, or otherwise adopt the standard without altering the basic criteria (unless the alteration applies to more stringent criteria, such as lower exposure limits, increased monitoring frequency, etc.). In all cases, the Navy must comply with the latest edition of an OSHA standard or a national consensus standard.

b. Occupational Exposure Limits for Chemical Contaminants. The Navy will use the listed hierarchy of occupational exposure limits (OELs) for chemicals:

(1) OSHA Permissible Exposure Limits (PELs).

(2) Navy developed or adopted OEL’s. When both the Navy and OSHA have standards applicable to a given situation, commands, activities, and units will use the more stringent of the two.

(3) American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) where OSHA PELs or Navy OELs do not exist. Use of TLVs represent best practices, i.e., risk management goals to achieve using risk management practices. When the OSHA PEL is less stringent, the ACGIH TLVs will be included in reports of data to supplement the OSHA PEL and provide additional context to aid the risk management process. However, the OSHA PEL remains the legally binding standard.

(4) Nationally recognized industrial hygiene best practices may be used as to supplement the OEL hierarchy. The Industrial Hygienist will use professional judgement to recommend appropriate OEL guidelines, when appropriate, to aid the risk management process in a given situation. Sources include but are not limited to:

(i) California OSHA (Cal/OSHA) PELS.

(ii) National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs) or risk management limits for carcinogens (RMLs-CA).

(iii) Occupational Alliance for Risk Science (OARS) Workplace Environmental Exposure Levels (WHEELs).

c. Alternate OSHA standards that the Deputy Under Secretary of Defense (Environmental Security) (DUSD(ES)) authorizes, subject to Secretary of the Navy (SECNAV) approval.

d. Special DoD or Navy standards, rules, and regulations, or technical publications that govern the on-the-job safety and health applicable to military unique equipment, systems, and operations.

e. Other than those specified in paragraph B0104(b) when there is no DoD, DON, or OSHA standard available, the Navy hereby adopts nationally recognized sources of SOH guidance (i.e., ACGIH, the American National Standards Institute (ANSI), the National Fire Protection Association (NFPA), and National Institute for Occupational Safety and Health (NIOSH)). If there are conflicts, CNO N09F can clarify.

f. Certain operations are subject to mandatory safety standards or rules derived from separate or specific statutory authority (e.g., explosive safety standards issued under the authority of section 172 (1970) of title 10, U.S.C., and Nuclear Safety and Health Standards issued under the authority of sections 2012, 2021, 2121(b), and 2201(b) (1976) of title 42, U.S.C.). Provided there is no substantive conflict, the application of these special functional standards does not exempt any workplace from other SOH standards that address conditions not specifically covered by the special rules. For example, a naval weapons station is subject to special explosive safety standards and is also subject to SOH standards for machine guarding, eye protection, etc.

g. In overseas workplaces, where a status of forces agreement specifies different standards, those standards take precedence, subject to the same limiting rationale set forth in Chapter 1, paragraph B0104b of this Manual.

h. Where personnel of different DoD components or of DoD components and other federal agencies work in the same installations, host-agency standards must govern the DoD components and other federal agencies involved. When other agency standards conflict with OSHA standards, DoD components should refer the matter to Assistant Secretary of Defense (Energy, Installations & Environment) for adjudication.

B0105. Alternate Standard/Deviation/Waiver Process. Although OSHA standards and OEL's apply to all Navy workplaces, worldwide, without regard to warfare community, there are times when complete or partial compliance with the established standards is not possible due to the uniquely military equipment, systems and operations or other special condition. In these

situations, CNO N09F can grant written approval for deviations or waivers, as well as coordinate with applicable stakeholders for SOH alternate standards. In each of these cases, the safety risk management and safety assurance procedures instituted must be detailed. In addition, the package must show how the proposed change for the deviation or waiver will be at least equally protective as the original standard. Packages must be prepared by the affected command, unit, or activity and routed up their respective chains of command. The request will be submitted up the administrative chain of command(s) to CNO N09F/ COMNAVSAFECEN.

B0106. Process for Requesting Interpretations. The following process will be used to request official interpretation of OPNAV safety policy. Official requests for interpretation and all responses must be in writing.

a. The requester must:

(1) Specifically identify the requirement for interpretation;

(2) Provide the exact citation and quote the requirement in question. A separate request must be made for each requirement;

(3) State source of confusion regarding the requirement;

(4) Provide all the information necessary to understand the context in which the requirement is being applied;

(5) Provide interpretation of the requirement and rationale.

b. The request will be submitted up the administrative chain of command(s) to CNO N09F.

c. Interpretations apply only to the specific time and the context in which the requirement is being applied. They may not be used as precedents to determine future applications of the requirement. CNO N09F will make the proper notifications if an interpretation may be applied globally.

d. Unofficial requests for interpretations/clarifications of requirements from local SOHs may be made via email or telephone. However, the answers provided via this mode will be considered general guidance, not official interpretations.

CHAPTER 2

RESPONSIBILITIES

- Ref:
- (a) SECNAVINST 5100.10K Department of the Navy Safety Program, 12 May 2015
 - (b) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
 - (c) DoD Instruction 6055.05, Occupational and Environmental Health (OEH), 11 Nov 2008
 - (d) Department of the Navy Records Management Program, 17 Dec 2015
 - (e) DoD Instruction 6055.07, Mishap Notification, Investigation, Reporting, and Record Keeping June 6, 2011
 - (f) SECNAVINST 5211.5F, Department of the Navy (Don) Privacy Program 20 May 2019
 - (g) SECNAVINST 5720.42G, Department of the Navy Freedom of Information Act (FOIA) Program, 15 Jan 2019
 - (h) DoD Military Standard 882E, Department of Standard Practice System Safety, 11 May 2012
 - (i) Executive Order 12344, Naval Nuclear Propulsion Program, 1 Feb 82
 - (j) OPNAVINST 8020.14A, Department of the Navy Explosives Safety Management Policy Manual, 15 Aug 2014
 - (k) OPNAVINST 5450.180F, Mission and Functions of the Naval Safety Center, 18 Jan 2019
 - (l) N09F-NTSP-S-40-8603E/A, Navy Safety and Occupational Health Navy Training System Plan (SOH NTSP), June 2017
 - (m) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual, 7 Jan 2005
 - (n) DoD Instruction 1400.25, Civilian Personnel Management, 12 Dec 2017

B0201. Discussion. A Safety and Occupational Health (SOH) program is an inherent responsibility of command and therefore, implementation, direction, and control of the program will be through the chain of command with line managers and supervisors being primarily responsible for ensuring safe and healthful operations and working conditions. A successful program, one that truly reduces work-related risks and mishaps, results only when support and commitment to the program permeate every level of an organization. Within the Navy, the Chief of Naval Operations (CNO) has overall responsibility for the SOH program and implements the program through the chain of command. This chapter describes the responsibilities at each command level for implementing the SOH program.

B0202. Assistant Secretary of the Navy (Energy, Installations and Environment) (ASN (EI&E)). The ASN (EI&E) is the designated agency Safety and Occupational Health (SOH) official (DASHO) for the Department of the Navy (DON), which includes the Navy and Marine Corps (see reference (a)).

B0203. Deputy Assistant Secretary of the Navy (Safety) (DASNS). The Office of the Deputy Assistant Secretary of the Navy (DASN) for Safety advises ASN (EI&E), the Under Secretary, and the Secretary of the Navy (SECNAV) on all safety matters affecting the Sailors, Marines, and civilian employees in the Department of the Navy.

B0204. Chief of Naval Operations. Under reference (a), the CNO, in coordination with the Commandant of the Marine Corps (CMC) (concerning SOH matters of mutual interest such as occupational health), will:

a. Issue appropriate directives and policies for the safety and health program in accordance with references (a) and (b). The Office of the CNO is responsible for developing program policy and guidance and issuing standards under references (a) through (c).

b. Establish, manage, and maintain appropriate planning, programming, staffing, and budgeting for program implementation.

c. Issue criteria for records maintenance and provide to the SECNAV all reports required by references (c) through (g).

d. Conduct appropriate research and development to preclude occupational exposures degrading an employee's health status or work performance.

e. Within the systems safety process, ensure material solution SOH requirements of reference (h) and other applicable federal agency safety and health standards are identified to the appropriate acquisition manager in the procurement of military systems, subsystems, equipment, and related facilities.

f. Adopt, develop, and issue, standards, as necessary. Coordinate Navy review and input for new and revised SOH regulations and national consensus standards.

g. Ensure commands, units, and activities comply with applicable Navy regulations and federal statutes governing the control of classified and sensitive unclassified information. (Refer to Chapter 11, paragraph B1108 of this Manual).

h. Establish SOH management and mishap prevention performance metrics and goals.

i. Develop, assisted by Naval Safety Center (NAVSAFECEN) and Echelon 2 Commands, the U.S. Navy annual report to the Secretary of the Navy, Occupational Safety and Health Administration (OSHA). This report traditionally covers safety goals, objectives, accomplishments, and summary accident information, along with a list of Navy establishments for 29 CFR 1904 accident reporting purposes.

- j. Appoint CNO N09F as the executive secretary of the Navy Executive Safety Board (NESB).
- k. Assign the Director, Expeditionary Warfare Division (CNO N95) responsibility for parachute, diving and air drop safety, and safety of assigned ships and small craft.
- l. Assign the Director, Surface Warfare Division (CNO N96) responsibility for the safety of assigned surface ships.
- m. Assign the Director, Submarine Warfare Division (CNO N97) responsibility for the safety of submarines, assigned surface ships, deep submergence systems, and diving.
- n. Assign the CNO Special Assistant for Safety Matters (CNO N09F) responsibility for Naval Aviation Safety Program Policy, which is carried out through the aircraft controlling custodians.
- o. The Director, Air Warfare Division (CNO N98), is responsible for the safety of naval aviation aircraft and assigned surface ships.
- p. Assign the Nuclear Propulsion Program Safety (CNO N00N) responsibility for the safety of reactors and the control of radiation and radioactivity associated with nuclear propulsion plants in accordance with reference (i).
- q. Shore Safety. Assign the CNO N09F responsibility for those functional areas of the shore safety program listed in appendix B2-A.
- r. Explosives Safety. Assign the Supply, Ordnance and Logistics Operations Division (CNO N41) responsibility for the Navy Explosives Safety Program (conventional) and Shore Readiness Division (CNO N46) is responsible for the Navy Explosives Safety Program (nuclear).

B0205. Headquarters Commands. All headquarters commands are responsible for the implementation of a safety management system (SMS). A SMS contains a uniform set of requirements that ensure compliance with higher headquarters guidance for safety management systems. The implementation of the Navy SMS will help align the warfighting communities and enable operational naval forces and shore establishments to identify and implement elements within their SMS that will facilitate movement from managing safety to managing risk. The SMS is a comprehensive and systematic means to manage risk in order to prevent losses due to mishaps and preserve the warfighting capability of the Navy. It is an integral part of an organization, it's culture, and the way the organization functions. Headquarters commands will designate a qualified SOH professional who will have sufficient authority and responsibility to effectively represent and support the headquarters commander in the management and administration of the headquarters command safety program. The SOH professional will have a

direct reporting line to the Commander. Qualifications for a qualified SOH professional are identified in Chapter 6 of this Manual. The designated command SOH professional will:

- a. Establish, coordinate, direct, and evaluate the effectiveness of safety policies, plans, programs, and procedures.
- b. Provide technical advice, direction, guidance, and oversight on SOH matters to other commands, units, or activities as well as bureau organizational elements and to subordinate field activities.
- c. Interpret SOH standards and regulations and develop or participate in developing new or revised standards, when appropriate.
- d. Conduct assessments of the effectiveness of the command's overall SOH program by performing subordinate command SOH management evaluations and reviewing self-assessments. When subordinate commands, units, and activities utilize safety support services (e.g., base operating support safety services, echelon 2 mission safety resource support, Bureau of Medicine and Surgery (BUMED) industrial hygiene, occupational medicine, and occupational audiology services, or Naval Facilities Command (NAVFAC) safety program services, etc.), the effectiveness of those services must be evaluated as part of the assessment.
- e. Serve as the headquarters command's SOH representative on safety councils, committees, and working groups established by higher authority and the private sector. The SOH professional will serve as technical advisor to cognizant offices of the CNO on SOH-related matters in areas over which the headquarters command is assigned cognizance.
- f. Utilize and disseminate SOH management and mishap prevention performance metrics established by CNO or higher level command. Establish specific metrics relevant to the mission and functions of the organization as appropriate and disseminate to subordinates.
- g. Review illness and injury analyses from commands, units and activities to identify and initiate actions to improve the effectiveness of the SOH program and reduce instances of injury and illness.
- h. Foster safety awareness through appropriate promotional methods and channels of communication.
- i. Ensure adequate consideration of safety features in the design, purchase, or procurement of items over which the command exercises acquisition authority.
- j. Plan, develop, participate, and evaluate employee safety training in coordination with cognizant training groups offices, and organizations.

k. Review and coordinate budget requirements, requests, and program objective memoranda for SOH and coordinate budget submissions, as appropriate. Ensure that the SOH professionals in each command, unit, and activity have sufficient authority and responsibility to plan for and ensure funds for the staff, their equipment, materials, and the training required to ensure implementation of an effective SOH program.

l. Ensure subordinate commands, units, and activities are adequately staffed and organized to carry out the safety functions as required by Chapter 3 of this manual.

B0206. Specified Support Areas. The commanders of the Systems Commands (SYSCOMs), the Chief, Bureau of Medicine and Surgery (BUMED), Commander, Naval Safety Center (COMNAVSAFECEN), and the Commander, Naval Education and Training Command (NETC) in coordination with, or at the direction of the respective OPNAV major program sponsor, will develop specific procedures and provide instructions for the specified support areas assigned in this paragraph and appendix B2-A.

a. SYSCOMs. Reference (h) directs the SYSCOM commanders to provide support consistent with required military capabilities and to ensure that SOH aspects are considered, designed, and engineered into all ships and aircraft, weapons or weapon systems, equipment, materials, supplies, and facilities that are acquired, constructed, or provided through the SYSCOMs. In so doing, SYSCOM commands will ensure they apply and comply with system safety engineering and management principles and the provisions in reference (h). They will emphasize the engineering control of known significant occupational health problems, such as noise, asbestos, and hazardous chemicals and materials in the overall objective of this effort. SME will be invited to participate as appropriate in the investigation of Class A and B mishaps.

b. In accordance with reference (j), the Naval Ordnance Safety and Security Activity (NOSSA), under NAVSEA, is designated the Technical Authority for DON Explosives Safety. NOSSA manages and administers the DON Explosives Safety Management Program, to include weapons systems safety, ordnance assessment, electrical safety, insensitive munitions, facilities certification, ordnance environmental, training, and compliance oversight of all DON shore commands, units and activities and ships that manage ammunition/explosives.

c. Chief, Bureau of Medicine and Surgery (BUMED) will:

(1) Provide support to CNO and CMC in all aspects of occupational health, which include occupational medicine (medical treatment and surveillance), occupational audiology, industrial hygiene, and environmental health, including field support.

(2) Coordinate occupational health actions with cognizant headquarters' commands as required.

(3) Assist NETC and other headquarters' commands, in coordinating occupational health training in response to needs and requirements developed.

(4) Perform appropriate research, development, test and evaluation in occupational health to determine criteria necessary for establishing personnel exposure limits in naval operational environments.

(5) Maintain an exposure registry for occupational exposures to chemical substances and other hazardous physical or biological stressors.

(6) Act as a clearinghouse for reviewing and disseminating occupational health information and technical guidance.

(7) Process personnel medical records upon termination of employment, in accordance with references (d) and (e).

(8) Develop a program providing for the periodic occupational health medical surveillance of both personnel and their working environments, as required by reference (c).

(9) At no cost to government employees, provide for occupationally related medical support such as medical certification and surveillance examinations, emergency care, treatment for occupationally related injuries and illnesses, and required immunizations in accordance with reference (c) guidance.

d. NAVSAFECEN is responsible for those functional areas of the SOH program listed in reference (k) and will:

(1) Recommend program objectives, develop procedural guides, and prepare supporting implementing directives.

(2) Develop and maintain reporting and recording procedures and systems to provide meaningful statistics concerning mishaps, injuries, and occupational illnesses for use in evaluating the effectiveness of the program.

(3) Collect reports and analyze data with special emphasis on cause and trend analysis, and provide results to cognizant commands, units, and activities.

(4) Conduct surveys and investigations as requested.

(5) Promote the safety program.

(6) Maintain and make available a repository of mishap, injury, and illness data.

(7) Sponsor and coordinate the SECNAV and CNO safety awards.

(8) Provide lessons learned through the mishap, injury, and illness recordkeeping and reporting systems.

(9) Maintain liaison with the Office of the Judge Advocate General in all matters pertaining to the privileged status of mishap reports.

(10) Act as a clearinghouse for reviewing and disseminating SOH information and technical guidance.

(11) Provide assistance on safety matters to naval commands and activities as requested.

e. Naval Safety and Environmental Training Center (NAVSAFENVTRACEN) through NAVSAFECEN will:

(1) Provide specialized SOH training and education to military and civilian personnel as required to support the overall program in accordance with references (a), (l) and appendix B2-A.

(2) Serve as the central source for delivery and dissemination of information on SOH training courses.

f. NETC. Training and education are an inherent element in each primary and specified program element area. NETC, in coordination with NAVSAFECEN and BUMED, will: Incorporate SOH educational materials, including applicable provisions of this Manual, into the curricula of all appropriate military training courses.

g. Naval Inspector General (NAVINSGEN). NAVINSGEN coordinates the inspection program aspects of the SOH program for Navy echelon 2 commands. NAVINSGEN apprises higher authorities of program effectiveness as determined by the oversight program. NAVINSGEN also maintains close liaison with the President, Board of Inspection and Survey (PRESINSURV) and with cognizant OPNAV sponsors.

B0207. Responsibilities

a. Echelon 2 Commands. Establish a strategic plan with overall governance for safety assurance for command-wide implementation.

b. Headquarters commands other than echelon 2. Implement strategic plan and SMS as directed by echelon 2.

c. Commands, units and activities will:

(1) Issue policy statement adopting and enhancing the policy established in Chapter 1, paragraph B0104 of this Manual. Disseminate the policy statement to all personnel within 3 months after assumption of command. Commands, units and activities will accomplish this by posting the policy statement on all official bulletin boards and by other means as appropriate, such as publication in base newspapers, new employee indoctrination, safety videos, etc. The policy statement will reflect the commander's commitment to safety and to programs that prevent or minimize occupational mishaps.

Note: Tenant commands receiving base operating support safety support in accordance with Chapter 3, paragraph B0304.b(4) of this Manual may adopt the safety policy statement of the host or develop their own safety policy.

(2) Organize, staff, and maintain a safety function or safety office as required by Chapter 3 of this Manual. Assign SOH responsibilities to qualified personnel.

(3) Ensure all personnel are fully aware of their obligations and personal responsibilities to the safety program. Establish clear lines of accountability.

(4) Establish safety councils and committees at appropriate command levels in accordance with Chapter 4 of this Manual. Chair the council at a senior level (e.g., Commanding Office, Executive Officer, etc.) and ensure minutes are issued and maintained.

(5) Establish and maintain liaison between the local safety office and other DoD commands, units and activities for coordination of specialty functions such as medical, fire, security, etc.

(6) Ensure compliance with the mishap investigation reporting procedures in accordance with reference (m).

(7) Ensure that all workplaces are inspected at least annually or more frequently based on the level of risk (see Chapters 5 and 9).

(8) Establish a mishap prevention and hazard abatement (MPHA) program as required by Chapter 12 of this Manual.

(9) Establish procedures to protect all Navy personnel from coercion, discrimination, or reprisals for participation in the safety program. Ensure that employees are aware that they may file, through their appropriate grievance processes, allegations of reprisals for having filed a complaint of unsafe or unhealthy working conditions.

(10) Provide employees with access to their exposure and medical records.

(11) Develop procedures consistent with Office of Personnel Management, Navy Personnel Command, and safety management system guidance to measure and recognize superior and deficient safety performance. Performance evaluations will include personal accountability consistent with the duties of the position and the SOH program. Include recognition of superior performance or conversely deficient performance, as appropriate.

(12) Establish education and training programs in accordance with Chapter 6.

(13) Coordinate occupational medicine and industrial hygiene field support with the cognizant medical command in accordance with Chapter 8 of this Manual.

(14) Ensure compliance with applicable Navy regulations and federal statutes governing the control of classified and sensitive unclassified information (refer to Chapter 11, paragraph B1108 of this Manual).

(15) Establish a comprehensive self-assessment program for the command in accordance with Section A and Chapter 9 of this Manual.

(16) Ensure that senior management, middle management, and first line supervision support the SOH program to the extent of their authority and responsibility by:

- (a) Set the example for subordinates.
- (b) Promptly correct recognized hazards.
- (c) Clearly define and assign individual safety responsibilities to subordinates.
- (d) Document safety performance in evaluation of subordinates.
- (e) Ensure employees receive appropriate training, participating in committees or meetings, and conducting stand up safety meetings where required.
- (f) Conduct or participate in worksite inspections, including those made by commands, units and activities safety personnel.
- (g) Encourage safety awareness through incentives and awards programs.
- (h) Receive training appropriate to their level of responsibility and authority, in accordance with Chapter 6 of this Manual.
- (i) Acquire, maintain, require, and enforce the use of approved personal protective equipment, approved safety equipment, and other devices necessary to protect employees.

(j) Encourage a free flow of information and ideas from employees on methods of improving the safety of their workplaces, work practices, and work processes.

(k) Develop a reward process for outstanding safety contributions.

(17) Review all safety citations and findings from external authorities (i.e., OSHA, NAVINSGEN and internal sources), as warranted, to ensure the underlying causes of the problems are identified and that corrective actions address the underlying causes and not merely the symptoms. Report encounters with regulatory agencies in accordance with Chapter 11 of this Manual.

(18) Ensure that personnel are aware of the formal procedure for processing written reports of unsafe or unhealthy working conditions in accordance with Chapter 10 of this Manual. Commands will include provisions to preserve the individual anonymity of those reporting unsafe conditions when requested. The reporting procedures should encourage employees to make beneficial suggestions as a positive means of correcting potential hazards.

(19) Ensure support of Field Federal Safety and Health Councils and coordinate mutually beneficial accident prevention and safety programs with local communities to the maximum extent feasible and in accordance with applicable laws and regulations.

(20) Designate appropriate officials to consult with representatives of labor organizations recognized under reference (n) with respect to the safety program.

(21) State the location(s) where personnel can review copies of the safety standards, records of safety and health committees and their actions and recommendations, the commands, units and activities hazard communication plan, and documentation on the commands, units and activities safety program (shore only).

(22) Make available a copy of each command, unit or activity's annual summary report of work-related injuries and illnesses for the preceding calendar year. The summary report must be certified by the Commanding Officer (CO), or Officer in Charge (OIC) indicating he or she has examined the document, and to the best of his or her knowledge the entries are true, accurate, and complete. Post this summary no later than 1 February through 30 April, annually. In addition to posting, commands, units and activities may publish it in appropriate written media, such as the commands', units' and activities' newspaper. A copy of the annual summary report must be compiled and posted separately for civilian and military personnel, as applicable.

(23) Post a completed copy of Occupational Safety and Health Protection Program for Employees of the Department of Navy in prominent locations such as on all official bulletin boards. Copies may also be posted on command electronic bulletin boards (shore only). Blank copies can be obtained at https://www.public.navy.mil/NAVSAFECEN/Documents/safety-officer/OSH_Poster.pdf

(24) Establish local agreements to clearly define the respective roles and responsibilities of the BUMED and non-BUMED industrial hygienists, when, where appropriate, due to the nature and complexity of local operations, non-medical commands, units and activities have established industrial hygiene staffs to assist in implementation of the commands, units and activities safety program.

d. Individual Civilian and Military Personnel. Commands, units, and activities can only achieve safe and healthful workplaces through the full participation and cooperation of all personnel. Accordingly, all personnel will:

(1) Comply with all standards, applicable rules, regulations, and orders issued under this Manual. Violators of safety regulations or instructions are subject to disciplinary action prescribed in reference (n) for civilians: Civilian Human Resources Manual, subchapter 752 (appendix B-Schedule of Offenses and Recommended Remedies), or for military: the Uniform Code of Military Justice. The command, unit, or activity will also consider such actions in personnel performance evaluations (refer to paragraph B0207c(1)).

(2) Report observed workplace hazards listed procedures outlined in Chapter 10 of this Manual.

(3) Immediately report to his or her supervisor, injuries or occupational illnesses or property damage resulting from mishaps or any near-mishaps.

APPENDIX B2-A
DESCRIPTION AND ASSIGNMENT OF SPECIFIED PROGRAM RESPONSIBILITIES

Functional Areas	Responsibility	Policy
Note: Listed Alphabetically	Note: Echelon 1: Policy and Resources (i.e., governing directives); Echelon 2: Implementation.	
1. Asbestos: This chapter provides guidance for controlling or eliminating the exposure of Navy and Civilian personnel to asbestos during the use, removal, and disposal of asbestos containing materials (ACM).	<p>Echelon 1: Office of the Chief of Naval Operations (OPNAV)</p> <p>Echelon 2: Chief, Bureau of Medicine and Surgery (BUMED)</p> <p>Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM)</p> <p>Echelon 4: Navy and Marine Corps Public Health Center (NMCPHC)</p>	<p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p> <p>OPNAVINST 5090.1E</p> <p>NAVFAC P-502</p> <p>Industrial Hygiene Field Operations Manual (IHFOM)</p> <p>NMCPHC-TM OM 6260</p>
2. Aviation Safety: All aspects of safety and mishap prevention with respect to naval aviation safety and the safety of assigned surface ships, including the establishment of broad guidelines and objectives for the research development, design and modification of ships and aircraft, as well as for the operational safety of associated systems and material.	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> Commander, U.S. Fleet Forces Command (COMUSFLTFORCOM)</p> <p>Commander, U.S. Pacific Fleet (COMPACFLT)</p> <p>Commander, Naval Safety Center (COMNAVSAFECEN)</p> <p>Commander, Naval Air Systems Command (COMNAVAIRSYSCOM)</p> <p>Commander, Naval Sea Systems Command (COMNAVSEASYSOM)</p> <p><u>Echelon 3:</u> Commander, Naval</p>	<p>OPNAVINST 5100.19F</p> <p>OPNAVINST 5450.351</p> <p>OPNAVINST 3750.6S</p> <p>OPNAVINST 3750.16C</p> <p>OPNAVINST 3750.21</p> <p>Unified Facilities Criteria (UFC) 4-211-01</p> <p>UFC 4-171-01N</p> <p>UFC 4-212-01N</p>

Functional Areas	Responsibility	Policy
	Air Forces (COMNAVAIRFOR) / Commander, Naval Air Force, Pacific (COMNAVAIRPAC) Commander, Naval Air Force, Atlantic (COMNAVAIRLANT)	
<p>3. Bloodborne Pathogens: Provide guidance necessary to understand and implement the requirements of OSHA’s bloodborne pathogens standard.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> BUMED</p>	<p>29 CFR 1910.1030, “Bloodborne Pathogens”</p> <p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p> <p>NMCPHC-TM OM 6260</p>
<p>4. Confined Space Entry (CSE) Program (non-maritime): All aspects of shore non-maritime confined spaces and poorly ventilated enclosed spaces. Excluded are Navy commands whose primary mission is shipbuilding, ship repair, or ship breaking.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVFACENGCOM</p> <p>COMNAVAIRSYSCOM</p>	<p>29 CFR 1910.146</p> <p>29 CFR 1926.1201-1213</p> <p>OPNAVINST 5100.23H</p> <p>U.S. Army Corps of Engineers EM 385-1-1</p>
<p>5. Construction and Design Safety: All aspects of construction and design performed at naval facilities worldwide, including elements of the Naval Construction Force, contractor safety, safety aspects of environmental clean-up and base closure.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVFACENGCOM</p> <p>COMUSFLTFORCOM</p> <p><u>Echelon 3:</u> Commander, Naval Expeditionary Combat Command (COMNECC)</p>	<p>OPNAVINST 5100.23H</p> <p>Unified Facilities Criteria (UFC) [various]</p>
<p>6. Contractor Oversight in DON Multi-Employer Worksites: All aspects of safety oversight of contractor operations in DON multi-employer worksites, to include ensuring that contracting officer’s representative personnel are appropriately</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVFACENGCOM</p> <p>All echelon 2 commands</p>	<p>Secretary of the Navy, Occupational Safety and Health Administration (OSHA) manual CPL 2.103, Chapter 3</p> <p>“OSHA Field Operations Manual (FOM),” Chapter</p>

Functional Areas	Responsibility	Policy
<p>trained to oversee the safety of contractor operations and the use of injury trends and risk metrics in contract award selection process.</p>		<p>V, Section</p> <p>OSHA Directive CPL 2-00.124</p> <p>OPNAVINST 5100.23H, Chapter 5</p>
<p>7. Diving Safety: All aspects of diving safety and mishap prevention with respect to design, development, and modification of diving equipment and for operational safety of systems and material.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSAFECEN</p> <p>COMNAVFACENGCOM</p> <p>Commander, Naval Sea Systems Command (COMNAVSEASYSKOM)</p> <p>BUMED</p> <p>Commander, Naval Education and Training Command (NETC)</p> <p>COMNAVSPECWARCOM</p>	<p>OPNAVINST 3150.27C</p> <p>OPNAVINST 5100.19F</p> <p>OPNAVINST 3130.6E</p> <p>NAVSEAINST3150.1A</p> <p>NAVSEA 0910-LP708-8000</p> <p>NAVSEA SS521-AA-MAN-010</p> <p>NAVSEAINST 5450.27</p> <p>BUMEDINST 6200.15A</p> <p>UFC 4-159-01N</p>
<p>8. Electrical Equipment: All aspects of design, repair, and maintenance of electrical equipment, <i>except</i> equipment associated with naval nuclear propulsion plants.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVFACENGCOM</p> <p>COMNAVSEASYSKOM</p>	<p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p> <p>NAVSEA S0400-AD-URM-010/TUM</p> <p>NAVSEA Naval Ship's Technical Manual (NSTM) S9086-KC-STM-010/CH-300</p> <p>NAVSEA "Occupational Safety, Health and Environment (OSHE) Control Manual for</p>

Functional Areas	Responsibility	Policy
		Naval Shipyards,” Chapter 230 Unified Facilities Criteria (UFC) 3-500 (series) National Fire Protection Association (NFPA) 70- 2017 NFPA 70E-2018
9. Electronic Equipment: All aspects of design, repair, and maintenance of electronic equipment, <i>except</i> equipment associated with naval nuclear propulsion plants.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> COMNAVFACENGCOM COMNAVSEASYSKOM	OPNAVINST 5100.23H OPNAVINST 5100.19F NAVSEA S0400-AD- URM-010/TUM NAVSEA “OSEH Control Manual for Naval Shipyards,” Chapter 230 NFPA 70E-2018
10. Emergency Management (Safety): SOH aspects of the emergency management program, for natural disasters and in support of anti-terrorism force protection (ATFP), including chemical, biological, radiological, nuclear, and explosives hazards.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> Commander, Navy Installations Command (CNIC) Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) Chief, Bureau of Medicine and Surgery (BUMED) All echelon 2 commands	Homeland Security Presidential Directive 5 DOD Instruction 6055.17 OPNAVINST 3440.17A OPNAVINST 3040.5 NAVMED P-5042 UFC 4-141-04 UFC 4-024-01 NFPA Codes and Standards 1561

Functional Areas	Responsibility	Policy
<p>11. Energy Control (lockout/tagout and lockout/tags-plus): To address the practice and procedures necessary to disable machinery or equipment, thereby preventing the release of hazardous energy while employees perform servicing and maintenance activities.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSAFECEN</p> <p>COMNAVSEASYSKOM</p>	<p>29 CFR 1915.89</p> <p>29 CFR 1910.147</p> <p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p> <p>NAVSEA Technical Publication S0400-AD-URM-010/TUM</p>
<p>12. Ergonomics: To prevent work-related musculoskeletal disorders (WMSDs) and injuries/illnesses by identifying, evaluating, and controlling physical workplace risk factors.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p>Computer/Electronics Accommodations Program (CAP)</p> <p><u>Echelon 2:</u> BUMED</p> <p>COMNAVFACENGCOM</p> <p>COMNAVSEASYSKOM</p> <p>All echelon 2's</p>	<p>OPNAVINST 5100.23H</p> <p>MIL-STD-1472F</p> <p>DOD-HDBK-743A</p> <p>NIOSH Publication No. 97-117</p>
<p>13. Explosives Safety: All technical aspects of explosives safety involved in the design, manufacturing, storage, handling and transportation of items containing high explosives or chemical yield material, including missile propellants, pyrotechnics, and ammunition.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> CNIC</p> <p>COMUSFLTFORCOM</p> <p>COMPACFLT</p> <p><u>Echelon 3:</u></p> <p>Commanding Officer, Naval Ordnance Safety and Security Activity (NOSSA)</p> <p>Commander, Navy Munitions Command, Atlantic (NMCLANT)</p> <p>Commander, Navy Munitions</p>	<p>DOD Instruction 6055.16</p> <p>OPNAVINST 8020.14A</p> <p>NAVSEA OP-4</p> <p>NAVSEA OP-5</p> <p>NAVMED P-117</p> <p>MIL-HDBK-1028/3</p> <p>UFC 4-215-01</p> <p>UFC 4-420-01</p> <p>UFC 3-340-02</p>

Functional Areas	Responsibility	Policy
	<p>Command, CONUS West Division (NMC CONUS WEST)</p> <p>Commander, Navy Munitions Command, Pacific, East Asia Division (NMCPAC EAD)</p>	
<p>14. Fall Protection: All technical aspects of fall hazard prevention and control measures; fall protection systems and equipment inspection; and storage, care, and maintenance of fall protection equipment. The DON Fall Protection Working Group (FPWG) meets semiannually and serves as the fall protection technical and policy advisor regarding the prevention of falls when working at heights and on the same level.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVFACENGCOM</p> <p>COMNAVSEASYSKOM</p> <p>COMNAVVAIRSYSKOM</p>	<p>29 CFR 1910.23</p> <p>29 CFR 1915.159</p> <p>29 CFR 1926, Subpart M, OPNAVINST 5100.23H</p> <p>American National Standards Institute (ANSI)/American Society of Safety Professionals (ASSP) A10.32-2012</p> <p>ANSI/ASSE A10.8-2011,</p> <p>ANSI/Accredited Standards Committee (ASC) A14.3-2008</p> <p>ANSI/ASSE A1264.1-2007</p> <p>ANSI/ASSE Z359</p> <p>U.S. Army Corps of Engineers EM 385-1-1 (2014), Section 21</p> <p>NAVSEA NSTM S9086-S3-STM-010/CH-555V1</p>
<p>15. Fire Protection: All aspects and measures related to the prevention, detection, control,</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMUSFLTFORCOM</p>	<p>29 CFR 1915, Subpart P</p> <p>DoD Instruction 6055.06</p>

Functional Areas	Responsibility	Policy
and extinguishment of fires.	COMNAVSEASYSKOM CNIC COMNAVFACECOM COMNAVVAIRSYSKOM COMNAVSUPSYSKOM	OPNAVINST 11320.23H CNRMCIINST 4790.13 NAVSEA Technical Publication S0570-AC-CCM-010/8010 NAVSEA NSTM S9086-S3-STM-010/CH-555V1 NAVSEA NSTM S9086-S3-STM-020/CH-555V2 UFC 3-600-01 UFC 3-601-02
16. Gas Free Engineering (maritime): Ship Repair/Maintenance OSHA Alternate Standard	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> COMNAVSEASYSKOM	SECNAVINST 5100.16B OPNAVINST 5100.19F NAVSEA S6470-AA-SAF-010 NAVSEA S9086-CH-STM-030, NSTM 074, Volume 3
17. Hazardous Materials; Hazardous Waste; and Emergency Response: HAZWOPER Note: This functional area is primarily intended to ensure compliance with OSHA 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response (i.e., HAZWOPER); however, there will be overlap with functional area #10, Emergency Management	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> CNIC COMUSFLTFORCOM BUMED COMNAVSUPSYSKOM	OPNAVINST 5100.23H OPNAVINST 5100.19F OPNAVINST 5090.1E NAVSEA NSTM S9086-T8-STM-010/CH-593 Naval Warfare Publication (NWP) 4-11 NMCPHC-TM OM 6260

Functional Areas	Responsibility	Policy
(Safety) concerning emergency response aspects.		
<p>18. Hazardous Materials / Hazardous Wastes: All aspects of mishap prevention designed to control and minimize hazardous materials and hazardous wastes during procurement, transportation, storage, use and disposal. Refer to Glossary for hazardous material definition</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> BUMED</p> <p>COMNAVSAFECEN</p> <p>CNIC</p> <p>COMUSFLTFORCOM</p> <p>COMNAVSEASYSKOM</p> <p>COMNAVSUPSYSCOM</p>	<p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p> <p>OPNAVINST 5090.1E</p> <p>NAVMED P-5010</p> <p>BUMEDINST 6280.1C</p> <p>BUMEDINST 6570.3A,</p> <p>NAVSEA NSTM S9086-WK-STM-010/CH-670V1R8</p> <p>NAVSEA NSTM S9086-WK-STM-020/CH-670V2R1</p> <p>NAVSEA NSTM S9086-WK-STM-030/CH-670V3</p> <p>NAVSEA S9593-CJ-MAN-010</p> <p>NAVSUP P-573</p> <p>NAVSUP P-722</p> <p>UFC 4-832-01N</p> <p>NMCPHC-TM OM 6260</p> <p>Industrial Hygiene Field Operations Manual (IHFOM)</p>
<p>19. Hearing Conservation and Noise Abatement: All aspects of</p>	<p><u>Echelon 1:</u> OPNAV</p>	<p>DoDI 6055.12 (9 Dec</p>

Functional Areas	Responsibility	Policy
hearing conservation programs to include: field sound level measurements, noise dosimetry, technical and engineering control methodology, hearing loss, medical surveillance, audiometry, training, record keeping, and hearing protection.	<p><u>Echelon 2:</u> BUMED</p> <p><u>Echelon 4:</u> NMCPHC</p>	<p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p> <p>BUMEDNOTE 6260,</p> <p>NMCPHC-TM 6260.51.99-2</p> <p>Industrial Hygiene Field Operations Manual (IHFOM)</p>
20. Helicopter Rope Suspension Techniques	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSAFECEN</p> <p>Naval Special Warfare Command (COMNAVSPECWARCOM)</p>	<p>OPNAVINST 3500.43</p> <p>OPNAVINST 5100.19F</p>
21. High Risk Training: All aspects involving the planning and execution of high-risk training including development of procedures to eliminate or minimize mishaps during high-risk training.	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> NETC</p> <p>COMNAVSAFECEN</p> <p>COMUSFLTFORCOM</p> <p>COMPACFLT</p> <p>COMNAVRESFOR</p> <p>COMNAVSPECWARCOM</p> <p>BUMED</p> <p>Superintendent, United States Naval Academy (USNA)</p> <p><u>Echelon 3:</u> Navy Medical Education Training and Logistic Command (NMETLC)</p>	<p>OPNAVINST 1500.75D</p> <p>COMNECC/COMNECC PACINST 1500.3</p>

Functional Areas	Responsibility	Policy
	Commander, Navy Expeditionary Command (COMNECC)	
22. Indoor Air Quality: All aspects of indoor air quality that effects the work environment.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> BUMED COMNAVFACENGCOM	SECNAVINST 5100.13E OPNAVINST 5100.23H Industrial Hygiene Field Operations Manual (IHFOM) NAVFAC Interim Technical Guidance (ITG) FY03-4 ANSI/American Society of Heating, Refrigerating, and Air-Conditioning Engineers Standard ANSI/ASHRAE 55-2017 ANSI/ASHRAE 62.1-2016
23. Ionizing Radiation Safety (Non-nuclear propulsion): All aspects of safety and mishap prevention with respect to occupational ionizing radiation hazards associated with the design and construction of x-ray devices, accelerators, radiographic units and from both licensed and non-licensed radioactive materials, including wastes, regardless of source; and low-level radiation from nuclear weapons. The foregoing excludes radioactive sources during medical treatment or diagnosis, and radioactivity associated with naval nuclear propulsion.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> BUMED COMNAVSEASYSOM	DoD Instruction 6055.08 OPNAVINST 6470.2C OPNAVINST 5100.19F BUMEDINST 6470.10B OPNAVINST 5100.27C MCO 5104.1D NAVMED P-5055

Functional Areas	Responsibility	Policy
<p>24. Lithium Battery Safety: All aspects of all types of lithium batteries and power sources related to design, acquisition, use, storage, and disposal.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSEASYSKOM</p>	<p>NAVSEAINST 9310.1C</p> <p>OPNAVINST 5100.19F</p>
<p>25. Mishap Prevention and Hazard Abatement (MPHA): A centrally managed fund to correct safety and health deficiencies beyond the funding capabilities of the activity.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVFACENCOM</p>	<p>OPNAVINST 5100.23H</p>
<p>26. Mishap Reporting: Web-Enabled Safety System (WESS)</p> <p>[Common Access Card (CAC) required for access]</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSAFECEN</p>	<p>DOD Instruction 6055.07</p> <p>OPNAVINST 5102.1D/MCO P5102.1B</p> <p>OPNAVINST 5100.23H</p> <p>OPNAVINST 3750.6S</p> <p>COMNAVSURFLANTINST 3040.1A</p>
<p>27. Non-ionizing Radiation:</p> <p>All aspects of safety and mishap prevention with respect to non-ionizing radiation hazards associated with the emissions from electromagnetic and electro-optical sources such as lasers, microwave, and high frequency communications.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> BUMED</p> <p>COMNAVSEASYSKOM</p> <p>Commander, Space and Naval Warfare Systems Command (SPAWAR)</p> <p>COMNAVSAFECEN</p>	<p>DoD Instruction 6055.15</p> <p>DoD Instruction 6055.11</p> <p>SECNAVINST 5100.14E</p> <p>OPNAVINST 5100.23H,</p> <p>OPNAVINST 5100.19F</p> <p>OPNAVINST 5100.27B/MCO 5104.1</p> <p>BUMEDINST 6470.19A</p> <p>BUMEDINST 6470.23</p> <p>IHFOM</p>

Functional Areas	Responsibility	Policy
28. Nuclear Propulsion	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSEASYSKOM</p>	
29. Nuclear Weapons: All aspects of accident prevention for the protection of nuclear weapons against unauthorized or inadvertent events which could result in damage, radioactive contamination, loss, or detonation.	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> Director, Strategic Systems Programs (DIRSSP)</p>	<p>OPNAVINST 3120.32D</p> <p>OPNAVINST 8110.18D</p>
30. Occupational Health and Medical Safety Programs: All aspects of providing a healthful working environment by identifying health hazards; developing policies and procedures to prevent or minimize health risks; and monitoring and documenting employee exposures.	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> BUMED</p>	<p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p>
31. Operational Risk Management (ORM): Standardized risk management approach to naval operations to reduce mishaps and optimize operational mission success and readiness.	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSAFECEN</p> <p>COMUSFLTFORCOM</p> <p>COMPACFLT</p> <p>COMNAVSUPSYSCOM</p>	<p>OPNAVINST 3500.39D</p> <p>COMUSFLTFORCOMINST/COMPACFLTINST 3500.1</p>
32. Personal Protective Equipment: All aspects of protective equipment where there is a reasonable probability that the use of the equipment will prevent or reduce the severity of injuries or illnesses.	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSAFECEN</p> <p>BUMED</p>	<p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p> <p>Specification CID-A-A-50359</p> <p>Military Standard MIL-</p>

Functional Areas	Responsibility	Policy
		<p>S-82245</p> <p>MIL-S-43860</p> <p>MIL-B-87067</p> <p>American Society for Testing and Materials International (ASTM) F2412-18</p> <p>ASTM F2413-17</p> <p>ANSI/International Safety Equipment Association (ISEA) Z87.1-2015</p> <p>ANSI Z89.1-2014</p> <p>IHFOM</p>
<p>33. Premeditated Personnel Parachuting (P3) Safety: All aspects of safety and mishap prevention with respect to assigned personnel parachute and airdrop programs, including the establishment of broad objectives for the design, research, development, test and modification of equipment, training, and procedures, as well as for the safety of associated systems and material.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> NETC</p> <p>COMNAVSPECWARCOM</p>	<p>OPNAVINST 3501.225C</p> <p>OPNAVINST 3150.27C</p>
<p>34. Recreation and Off-Duty Safety: All aspects of mishap prevention and safety awareness associated with recreation, athletics, and other off-duty activities.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> CNIC</p> <p>COMNAVSAFECEN</p> <p>COMNAVSUPSYSCOM</p>	<p>OPNAVINST 5100.23H</p>

Functional Areas	Responsibility	Policy
<p>35. Respiratory Protection: All aspects of workplace air contaminants where employees are required to wear respiratory protection equipment due to the nature of their work or job.</p>	<p>All echelon 2 commands</p> <p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> BUMED</p> <p><u>Echelon 4:</u> NMCPHC</p>	<p>29 CFR 1910.134</p> <p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p> <p>ANSI/ASSE Z88-2015</p> <p>IHFOM</p>
<p>36. Safety and Occupational Health (SOH): All aspects of SOH ashore and afloat.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSAFECEN</p> <p>All echelon 2 commands</p>	<p>29 CFR 1910</p> <p>29 CFR 1915</p> <p>29 CFR 1925</p> <p>29 CFR 1926</p> <p>29 CFR 1960</p> <p>DODI 6055.01</p> <p>SECNAVINST 5100.10K</p> <p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p>
<p>37. Safety and Occupational Health (SOH) Training:</p> <p>All aspects of SOH training ashore and afloat.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> NETC</p> <p>COMNAVSAFECEN</p> <p>Commanding Officer, Naval Safety and Environmental Training Center (NAVSAFENVTRACEN)</p>	<p>OPNAVINST 5100.23H</p> <p>OPNAVINST 5100.19F</p> <p>OPNAV N09F-NTSP-S-40-8603E/A</p>
<p>38. Safety Awards Program: CNO-level safety awards for the various communities – shore, aviation, and afloat. Set criteria</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSAFECEN</p>	<p>SECNAVINST 5100.10K</p>

Functional Areas	Responsibility	Policy
for the awards, administered and selected by COMNAVSAFECEN.		OPNAVINST 5100.23H OPNAVINST 1650.28B
39. Safety Investigations, Reporting and Record Keeping: All aspects of afloat and shore mishap investigations, recording and reporting procedures.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> COMNAVSAFECEN All echelon 2 commands	OPNAVINST 5100.23H OPNAVINST 5102.1D/MCO P5102.1B OPNAVINST 3750.6S OPNAVINST 3750.16C
40. Safety Management System (SMS)	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> COMNAVSAFECEN COMUSFLTFORCOM COMPACFLT	OPNAVINST 5100.23H OPNAVINST 3750.6S COMUSFLTFORCOM/ COMPACTFLTINST 5100.9
41. Shore and Installation Safety: All base operating support (BOS) Safety Services aspects of safety and mishap prevention with respect to shore installations or operations ashore. BOS safety is implemented by CNIC.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> COMNAVSAFECEN CNIC All echelon 2 commands	OPNAVINST 5100.23H CNICINST 5100.3
42. Sight Conservation: All aspects of personnel having exposure to eye hazardous operations.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> BUMED	OPNAVINST 5100.23H OPNAVINST 5100.19F NAVMED P-117 ANSI/ISEA Z87.1-2015 ANSI/ISEA Z358.1-2014
43. Submarine Safety: All aspects of occupational safety and mishap prevention with respect to assigned surface ships, including the establishment of	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> COMUSFLTFORCOM	OPNAVINST 5100.19F, COMSUBLANT/COMS UBPACINST 5400.49

Functional Areas	Responsibility	Policy
broad guidelines and objectives for the design, development, and modification of ships, as well as for the operational safety of associated systems and material.	<p>COMPACFLT</p> <p>COMNAVSAFECEN</p> <p>COMNAVSEASYSKOM</p> <p><u>Echelon 3:</u></p> <p>Commander, Submarine Forces (COMSUBFOR)</p>	<p>NAVSEA S9002-AK-CCM-010/6010</p> <p>COMUSFLTFORCOM/COMPACTFLTINST 5100.9</p>
44. Surface Ship Safety: All aspects of operational and occupational safety and mishap prevention with respect to assigned surface ships, including the establishment of broad guidelines and objectives for the design, development, and modification of ships, as well as for the operational safety of associated systems and material.	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMUSFLTFORCOM</p> <p>COMPACFLT</p> <p>COMNAVSAFECEN</p> <p>COMNAVIARSYSKOM</p> <p>COMNAVSEASYSKOM</p> <p><u>Echelon 3:</u></p> <p>Commander, Naval Surface Forces (COMNAVSURFOR)</p> <p>Commander, Naval Air Forces (COMNAVAIRFOR)</p> <p>Commander, Military Sealift Command (COMSC)</p>	<p>OPNAVINST 5100.19F</p> <p>OPNAVINST 3120.32D</p> <p>NAVSEA Technical Publication S9002-AK-CCM-010/6010</p> <p>COMUSFLTFORCOM/COMPACTFLTINST 5100.9</p> <p>COMNAVSURFPAC/COMNAVSURFLANTINST 5100.1B</p> <p>COMNAVSURFLANTINST 5400.1</p> <p>COMSCINST 5100.17E</p>
45. Systems Safety and Acquisition Safety: Technical aspects of system safety related to the acquisition of systems, subsystems, materials, equipment, and facilities.	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVSEASYSKOM</p> <p>COMNAVAIRSYSKOM</p>	<p>OPNAVINST 5100.24B</p> <p>OPNAVINST 5100.23H</p>

Functional Areas	Responsibility	Policy
	COMNAVSUPSYSCOM COMNAVFACENGCOM Navy Exchange Command (NEXCOM)	
46. Toxic Metals: All aspects of prevention specifically directed to inorganic compounds that negatively affect people’s health.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> BUMED <u>Echelon 4:</u> NMCPHC	29 CFR 1910.1024 29 CFR 1910.1025 29 CFR 1910.1026 29 CFR 1910.1027 OPNAVINST 5100.23H OPNAVINST 5100.19 UFC 3-190-06 NMCPHC-TM OM 6220
47. Traffic Safety: All aspects of prevention specifically directed to motor vehicles, both government and privately owned.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> COMNAVSAFECEN CNIC All echelon 2 commands	DoD Instruction 6055.04 OPNAVINST 5100.23H
48. Training and Community Management of 0018 Classification Series: All aspects of Federal occupations in the 0018 Series (Safety and Occupational Health) official position titles, and descriptions of the various levels of work.	<u>Echelon 1:</u> OPNAV <u>Echelon 2:</u> COMNAVSAFECEN	U.S. Office of Personnel Management (OPM), “Handbook of Occupational Groups and Families” (May 2009) OPM, “Introduction to the Position Classification Standards” OPM TS-107, “The Classifier’s Handbook”
49. Weight Handling Equipment	<u>Echelon 1:</u> OPNAV	SECNAVINST

Functional Areas	Responsibility	Policy
<p>and Crane Safety [shore only]: All aspects of managing cranes and weight handling equipment assigned, plus identified on plant accounting for naval shore commands worldwide.</p>	<p><u>Echelon 2:</u> COMNAVFACENGCOM</p> <p><u>Echelon 3:</u> Navy Crane Center</p>	<p>11260.2A</p> <p>OPNAVINST 5100.23H</p> <p>NAVCRANECENINST 11450.2</p> <p>NAVFAC P-307</p>
<p>50. Rail: All aspects of safety, operations, and maintenance for Naval activities operating or handling railroad equipment.</p>	<p><u>Echelon 1:</u> OPNAV</p> <p><u>Echelon 2:</u> COMNAVFACENGCOM</p> <p><u>Echelon 3:</u> Engineering and Expeditionary Warfare Center (EXWC)</p>	<p>OPNAVINST 11240.8H, “Management of Civil Engineering Support Equipment in the Navy”</p> <p>NAVFAC P-301 (with CH-2), “Navy Railway Operating Handbook”</p> <p>NAVFAC P-301, “Navy Railroad Program Management” (title changed; new version release expected in August 2018)</p>
<p>* Coordinates with BUMED and other SYSCOMs</p>		

CHAPTER 3

ORGANIZATION AND STAFFING

- Ref:
- (a) DoD Instruction 4000.19, Support Agreements, 30 Nov 2017
 - (b) Title 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters,
 - (c) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping Manual, 7 Jan 2005
 - (d) Naval Education and Training Professional Development and Technology Center (NAVEDTRA) 10076A, Career Development Program for Safety and Occupational Health and Industrial Hygiene Personnel, Sept 1997
 - (e) BUMEDINST 5100.13F, Navy Medicine Support Command “A Staffing Model Developed for Industrial Hygiene Departments”, 19 June 2015

B0301. Purpose. This chapter provides guidance on functional organization, staffing and responsibilities. An effective and dynamic command safety organization requires a structure that provides all levels of the command with good lines of communication to the commanding officer for safety matters.

B0302. Background. The Navy is viewed and held accountable as an Agency in the eyes of the Occupational Safety and Health Administration (OSHA). As required by regulation, activities associated with safety must be viewed from the Agency perspective. As such, the Navy has organized safety to function as a matrix organization with shared accountability, authority, responsibility, and subject matter expertise. Base Operating Support (BOS) Safety is provided to all commands, units, and activities on Navy installations or are identified as a special area in internet Navy Facilities Asset Data Store (iNFADS). In accordance with reference (a), the level and quality of support services provided by BOS to receivers will be equivalent to the level and quality of support the supplier furnishes to its own mission. The BOS provider and receiver must agree to the level and quality of support if the level and quality differ from what the supplier furnishes to its own Component's organizations. This Chapter outlines how the accountability, authority, responsibility, and subject matter expertise are shared to fulfill the Agency compliance with OSHA. Figure 1 depicts the matrix relationship and how the Agency complies with OSHA.

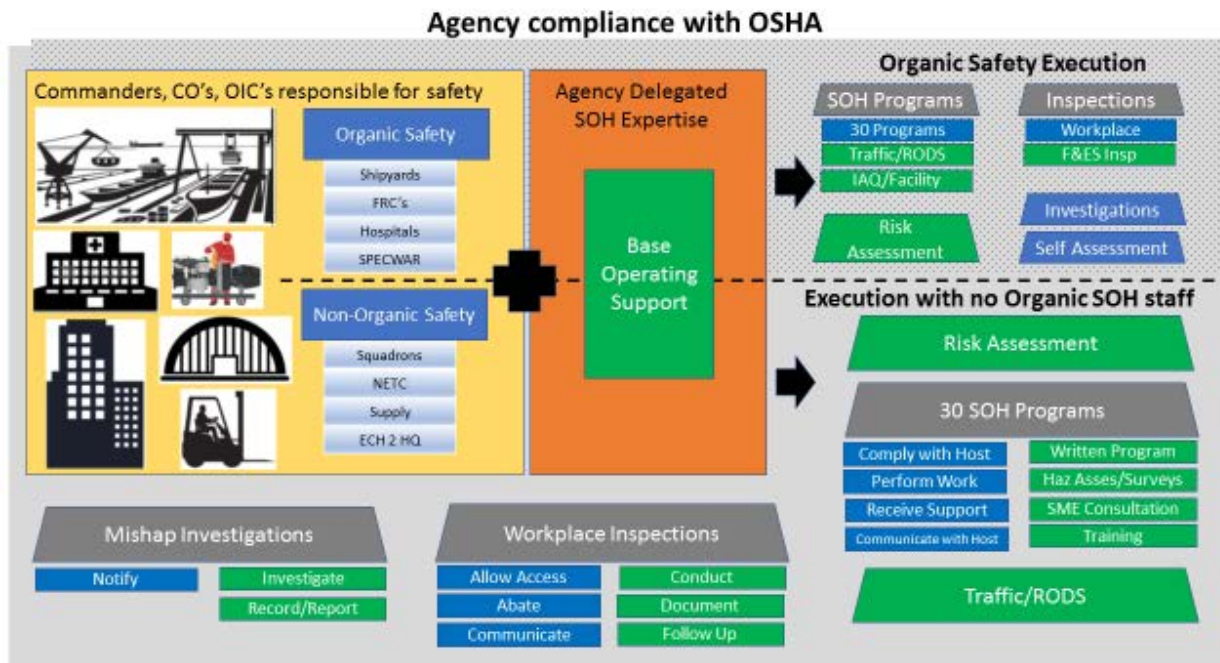


Figure 1

B0303. Headquarters Commands Organization Functional Responsibilities, and Staffing Criteria of Safety Organizations. All headquarters commands must designate a safety professional who will have sufficient authority and responsibility to represent effectively and support the headquarters commander in the management and administration of the safety program for all assigned personnel and subordinate commands. The designated safety professional must report directly to the headquarters commander. Headquarters command must provide adequate resources for the designated safety professional including sufficient staff to perform this task:

- a. Guide and assist subordinate commands in establishing, coordinating, directing, and evaluating the effectiveness of safety policies, plans, programs and procedures.
- b. Conduct oversight of subordinate commands to ensure effective SOH programs are in place. Evaluate base operating support (BOS) SOH services provided to commands, units, and activities, and determine effectiveness.
- c. Serve as the focal point for SOH for the commander consolidating and communicating hazards, risks, and SOH information to the commander for the entire chain of command.

B0304. Command, unit and activity Organization and Staffing Criteria

- a. Designation of Safety Personnel

(1) Every command, unit, and activity in the Navy must designate, in writing, a safety professional or collateral duty safety officer (CDSO) which may be a military member or civilian. The designated safety professional or CDSO must report directly to the Commander, CO or OIC. The CDSO will complete, at a minimum, Introduction to NAVSOH Ashore. The CDSO may perform the same duties and functions as the designated safety officer or safety manager with the exception of any specific elements from reference (b) requiring specific qualification or experience.

b. Safety Staffing Models

(1) In addition to the designated safety professional or CDSO, each command, unit and activity, must be resourced and staff to fulfill the organization mission as outlined in the approved mission, function and tasks (MFT) containing the elements of who, what, when, where, and why. The approved MFT of the shore command is translated into position-level organizational and staffing requirements provided in the shore activity manpower document (AMD). Unit-level commands, units and activities funded for mission safety have structured safety billets on their AMD. With the MFT's specific to the individual missions, shore staffing varies throughout the Navy Enterprise.

(2) The listed are examples of organizations with organic safety structure to manage and execute a full safety program (not all inclusive):

(a) Fleet commands performing SOH functions in support of ship intermediate and maintenance work and high-risk training.

(b) Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) subordinate commands are responsible for the global COMNAVFACENGCOM mission such as, military construction design and construction, contractor safety, and environmental cleanup.

(c) Chief, Bureau of Medicine and Surgery (BUMED) subordinate commands have mission critical safety services that are defined as The Joint Commission standards for employee, patient, and visitor safety.

(d) Commander, Naval Air Systems Command subordinate commands perform SOH functions in support of aircraft research, development, test and evaluation (RDT&E), acquisition, and intermediate and depot maintenance.

(e) Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) subordinate commands perform SOH functions in support of ship intermediate and depot maintenance work, RDT&E, and acquisition and contractor oversight (i.e., supervisor of shipbuilding).

(f) Director, Strategic Systems Programs subordinate commands perform SOH

functions at Strategic Weapons Facilities.

(g) Commander, Naval Special Warfare Command subordinate commands performing SOH functions (operations and training) in support of US Special Operations Command.

(h) Commander, Navy Reserve Forces subordinate commands perform SOH functions in support of reserve aircraft intermediate maintenance operational units (including those with deployable units).

1. President Naval Postgraduate School, performing mission critical OSH functions in support of cutting edge research and education in science, physics, and engineering of current and future commissioned officers of the Naval Service and naval warfare systems.

(3) The listed are examples of organizations with safety structure that are used for other safety purposes and rely on BOS for day-to-day or programmatic support (not all inclusive):

(a) Commander, Naval Education Training Command have safety personnel solely dedicated to high risk training.

(b) Headquarters safety personnel performing limited mission safety related operations such as oversight to subordinate commands or managing programs or parts thereof unique to the command.

(4) The majority of commands, units, and activities in the Navy Enterprise do not warrant organic safety staff because safety support and services as outlined in paragraph B0305 are available through the base operating support structure.

NOTE: For the purpose of Figure 1, paragraphs B0305.b(1) and (2) are included in the non-organic safety execution paragraphs.

B0305. Execution of Safety. Safety is the responsibility of every sailor and civilian in the Navy. Commanders, CO and OIC maintain the inherent responsibility of the safety program. As outlined, some aspects of the accountability, authority, responsibility, and subject matter expertise for safety is shared between host, who provides BOS safety services, and tenants. BOS Safety is a functional mission responsibility of CNIC. BOS Safety is defined as host installation safety functions provided as common-service (non-reimbursable) or cross service (reimbursable) support, and the services are normally provided at common output levels (COLS) to receiving tenant activities for the prevention of mishaps and mitigation of risk to the lowest acceptable level. BOS safety will be provided to all commands, units and activities that are located on Navy installations or are identified as a special area in iNFADS. The only exceptions are those tenant commands, units and activities that submit a waiver request up the administrative chain of command for ultimate approval by CNO N09F. The specific services provided are based on the

organic safety MFT of the tenant commands, internal self-assessment, and risk assessment completed with the BOS provider. In the event of limited BOS resources, services will be prioritized to allow those commands, units, and activities with the most risk to receive services first. Any services not provided must be communicated up the operational and administrative chains of command starting at the local level and elevating up from there.

a. Commands, units, and activities that have organic safety staff to manage and execute a full safety program like that usually found in Naval shipyards, Fleet Readiness Centers, and Hospitals will receive minimal services from BOS. Specific services include:

(1) Establish, coordinate, manage, and provide resources for an effective overall base wide traffic safety and RODS program.

(2) Assistance with OSHA inspections.

(3) Chair base safety council to share lessons learned, identified deficiencies, and best practices.

(4) Consultation support for indoor environmental quality, facility assessment components (structural, electrical, mechanical, or facility related SOH programs (e.g., fall protection anchorage points, hazard abatement program) or maintenance or sustainment issues owned by CNIC.

b. Commands, units, and activities that do not have organic safety staff (squadrons, supply, etc.) or have staff solely dedicated for other safety purposes (high risk training, echelon 2 staff, etc.) will receive more extensive safety services and program support. In fact, they will be the primary focus of installation BOS safety services and program support. Each BOS provider will strictly adhere to CNIC Headquarter policy and guidance for BOS execution to ensure consistent delivery of safety services across the Navy Enterprise. Deviations must be approved by CNIC Headquarters and CNO N09F.

(1) Specific BOS service authority and responsibility include:

(a) Risk assessment to determine gaps in the safety program requirements and what services are needed as outlined.

(b) Safety Inspections. Trained safety and occupational health inspectors will conduct and document safety inspections of all applicable installation and tenant work centers, buildings, training facilities, and ranges in accordance with Chapters 5, 9, and 12 of this Manual. Inspections must include a review of applicable safety and occupational health programs, associated operations, and all assigned personnel.

(c) Establish, coordinate, manage, and provide resources for an effective overall base wide traffic safety and RODS program.

(d) Investigation and documentation of all reports of unsafe or unhealthful work conditions, including occupational health hazards identified in an industrial hygiene survey. Maintain a log of identified and potential safety and occupational health hazards, interim abatement actions, and date corrected.

(e) Mishap Investigations. Ensure all on and off duty mishaps and near misses are investigated, recorded and reported by qualified personnel in accordance with reference (c).

(f) SOH Program Support by subject matter experts

1. Written program/template of BOS Safety service provided to tenants.
2. Hazard assessment and surveys as appropriate by SOH program or operations.
3. Subject matter expertise and assistance for program elements such as procedures, training, or fit test.

(g) Personal Protective Equipment (PPE). During safety inspections and risk assessments, document PPE (e.g. head, sight, hearing, respiratory and foot protection) requirements and compliance. Ensure appropriate PPE training and fit testing is conducted, and that PPE is available, used, and maintained.

(h) Support Military Operations and Training. Provide qualified safety professionals for operational training, pre-deployment and deployment operations to ensure safety expertise, guidance, and assistance is available to identify hazards, assess risk, and develop and implement control measures to mitigate hazards.

(i) Safety Promotional Material. Ensure safety offices maintain a comprehensive public information program, which includes posters, booklets, handouts, and other means to promote safety programs and risk aboard the base.

(j) Accompany all external federal and/or state safety and occupational health inspectors on SOH inspections in accordance with Chapter 11 of this Manual.

(k) Collaborate with Injury Compensation Program Administrators (ICPA) to provide an assessment of the work relatedness of reported injuries and illnesses and a professional opinion on workplace conditions and worker practices appropriate for light duty assignment as required to reduce DoD civilian personnel lost work time due to injury.

(l) Safety Training. Provide required safety training for all personnel on SOH

programs covered in this Manual.

(m) Safety Consultation. Upon request, the BOS safety will provide professional support for special events and exercises for all organizations. Ensure the application of risk management principles for new construction, renovation projects, and service contracts.

(n) Conduct and document an annual self-assessment of installation core safety services capability and level of service required and delivered to ensure full implementation. Maintain documented self-assessments for three years for review by higher authorities.

(o) Host installation safety council meetings and invite all tenants.

(2) Specific tenant command, unit, or activity authority and responsibility include:

(a) Where cognizant echelon 2 has not provided specific written guidance, comply with host written programs or subject matter experts (SME).

(b) Commanding Officer or their designated representative attends installation safety council meeting. Members of the respective safety departments or offices will serve as advisors to the council.

(c) Allow access by BOS SME's.

(d) Designate and train program managers as required by this Manual when there are frequent or continuous operations making BOS support not feasible or practical. Where cognizant echelon 2 has not provided specific written guidance, comply with host risk assessment for periodicity.

(e) Request support from BOS provider for SOH issues or program questions.

(f) Abate identified deficiencies when within the authority of the command. Track abatement of deficiencies where command employees are exposed to hazards, regardless of who is responsible for abatement (e.g., NAVFAC repairing/removing damaged asbestos pipe insulation).

(g) Report mishaps to BOS provider.

(h) Ensure documented occupational health and industrial hygiene services are received from the local MTF.

(i) Track completion of safety related services provided and communicate to Headquarters.

B0306. BOS Service Risk Assessment. Risk assessment is the primary process used to determine what services are provided to all commands, units, and activities in the Navy Enterprise.

a. Minimum of annually, BOS will conduct a risk assessment of all tenants on CNIC installations that include:

(1) An assessment of commands, units, and activities that have provided identification of organic safety personnel and corresponding MFT responsibilities for these safety personnel.

(2) Identification of SOH programs needed based on specific tenant MFT and operations.

(3) Determine the need for program managers or designated SOH personnel for high risk programs such as Energy Control, Electrical safety, confined space, fall, and respiratory protection.

(4) Listing of what services have been provided in the past and planned services for upcoming year.

b. The risk assessment format is provided by CNIC Headquarters must be used without modification by all BOS service providers.

c. The results of the risk assessment will be provided to the tenant, tenant Immediate Superior in Command (ISIC), and BOS ISIC.

d. Commander Navy Installation will provide a brief to the Safety Quality Council on an annual basis detailing the safety performance of BOS including what services were and were not provided to tenants.

B0307. Organization and Staffing of the Safety Function.

a. Staffing Criteria. Commands, units and activities with more than 400 employees will assign, at a minimum, a full time safety manager and adequate clerical support unless support is provided in accordance with paragraph B0305. In the event non-mission commands, units and activities are not receiving BOS safety services, the safety professional staffing matrix must be followed. The real measure of adequate staffing is whether all designated functions are performed effectively and strong mishap prevention programs are implemented. Commands, units and activities must determine the number of professional (non-clerical) personnel needed to perform the primary functions previously listed by these methods:

(1) Use the equation provided, predicated upon the level of risk by major job hazard category and the number of personnel in each category. Most commands, units and activities will have more than one job hazard category. The total number of professional personnel needed to perform

minimum functions in the safety organization is the sum of personnel specified for each category. Appendix B3-A explains the job hazard categories. Commands, units and activities must evaluate actual needs based on support available from others and number of supported personnel.

(2) The equation for calculating the number of professionals on the safety staff is:

$$\begin{aligned} & 0.0033 \text{ X the first 1200 persons in Category A} \\ + & 0.0025 \text{ X the next 800 persons in Category A} \\ + & 0.0020 \text{ X the remaining persons in Category A} \\ + & 0.0020 \text{ X total number of persons in Category B} \\ + & 0.0016 \text{ X total number of persons in Category C} \end{aligned}$$

where $0.0033 = 1/300$ (1 professional per 300 workers), $0.0025 = 1/400$ (1 professional per 400 workers), $0.0020 = 1/500$ (1 professional per 500 workers), and $0.0016 = 1/600$ (1 professional per 600 workers).

(3) An example of staffing using this equation is:

$$\begin{aligned} & 900 \text{ employees in Category A requires 3.0 staff} \\ + & 500 \text{ employees in Category B requires 1.0 staff} \\ + & 1200 \text{ employees in Category C requires 2.0 staff} \\ = & \text{Six professional employees required for office plus clerical staff.} \end{aligned}$$

(4) The number of employees counted in each category includes all who receive full safety support (tenants and others). The equation does not include partial and part-time support (such as that provided students, reservists and tenants with safety staff). Organizations must account for this separately, based on local workload determinations.

(5) An assistant manager is required for an office with a total staff of ten or more. The staffing calculation in paragraph B0307a(2) includes the safety manager and assistant manager(s).

(6) Base clerical support on workload. At least one full-time base clerical support is required for all safety organizations supporting commands, units, and activities with a population exceeding 600.

e. **Position Classification Considerations.** The safety organization will have as its head, a fully qualified and trained safety professional supported by a staff of qualified professionals. Reference (d) describes qualification and training requirements for safety professionals. Chapter 6 outlines the minimum core training required to be a Navy safety professional. Classification guidance is provided as listed:

(1) Safety manager positions range from GS-11 to GS-15; safety assistant managers from GS-11 to GS-14; specialists and technicians from GS-05 to GS-12 (the journeyman level is GS-11); and clerical support from GS-03 to GS-07. It is strongly recommended that every position at the GS-13 or GS-14 level (CDR/05) be filled by a Certified Safety Professional (CSP).

Appropriate military equivalents include Navy Officer Billet Codes 0862 Industrial Hygiene Officer, 2740 Safety Engineer, 8656 Aviation Safety Officer and 8995 Staff Aviation Safety Officer.

Navy Enlisted Classifications (NECs) include 825A, SW-B22A, and 8301, from E-4 to E-9. Military equivalents must have acquired additional professional training appropriate to their assignment.

(2) Classification series that apply to Safety and Occupational Health Managers, Assistants, and Specialists include:

0018 Safety and Occupational Health Management
0081 Fire Protection and Prevention
0690 Industrial Hygiene
0803 Safety Engineering
0804 Fire Protection Engineering
Other series which safety is identified in the position description

f. It is strongly recommended that safety and occupational health professionals (i.e., military and civilian) obtain licensure, registration, or certification, as appropriate, in their respective disciplines. This list is not all inclusive – Associate Safety Professional (ASP®), Certified Safety Professional (CSP®), Certified Industrial Hygienist (CIH®), Safety Management Specialist (SMS®), Occupational Health and Safety Technologist (OHST®), Certified Safety & Health Manager (CSHM®), and Certified Hazardous Material Manager (CHMM®), Certified Occupational Health Nurse (COHN®), Certified Health Physicist (CHP®); licensed Professional Engineer (PE); Certified Audiologist (Certification of Clinical Competence in Audiology); Certified Professional Ergonomist (CPE®); and Occupational Hygiene and Safety Technician (OHST®).

B0308. Organization and Staffing of the Occupational Health Function. Professional disciplines properly supervised are integral to the proper establishment of a comprehensive safety and occupational health program. The program disciplines of industrial hygiene, occupational medicine, occupational health nursing, and occupational audiology of those medical activities are responsible for providing complete occupational health support to all commands within their

assigned area of responsibility. Successful occupational health programs require professional supervision and oversight by qualified occupational health professionals. The primary sources of support services are hospitals and medical clinics. The occupational health/industrial hygiene components of those medical activities are responsible for providing complete occupational health support to all commands, units and activities within their assigned area of responsibility (see chapter 8 for further details).

a. BUMED activities will ensure centralized technical management of industrial hygiene, occupational medicine, occupational health nursing, and occupational audiology services under their command, preferably within a Directorate of Public Health, and technical management must be performed by qualified occupational health professionals.

b. Functions. Refer to chapter 8.

c. Occupational Health Staffing Guides and Industrial Hygiene Laboratory Support Policy. Factors influencing the guidance provided are: previously published guides for similar programs, the anticipated demand for physician services when applicable DoD instructions are fully implemented, and a review of physician-to-population ratios at regional medical commands. The guidance provides a staffing level that allows implementation of all medical components of the program at a high level of quality consistent with progressive management of the Navy's industrial and fleet support programs. It conforms to the Federal Personnel Manual guidelines for physician staffing in the low-risk category and provides additional staffing for the high-risk category.

(1) Occupational Medicine Staffing Guide. The occupational medicine staffing guide applies to two specific professional categories: occupational health physicians and occupational health nurses. Disciplines contributing to occupational health programs, such as surgical and medical specialties, radiology, audiology, optometry, laboratory and technical or administrative support are not included. Minimal staffing of an OH clinic should include one occupational health technician and one administrative support personnel for each occupational health nurse. Expressed in mathematical notation, the staffing guide for occupational medicine is as listed:

$$MD = 0.0005A + 0.00033B + 0.00025C + 0.000125D + 0.000125E + 0.000125F$$

Where:

MD = required number of full-time physicians

A = population in risk category "A" B = population in risk category "B"

C = population in risk category "C"

D = population in risk category "D"

E = population in risk category "E"

F = population in risk category "F"

Note: Appendix B3-A describes population categories A through F with examples.

(a) The coefficients in the staffing formula represent the number of staff required to support one employee (e.g., 0.0005 physicians for one shipyard employee). The reciprocal of this coefficient expresses the number of employees supported by one physician or nurse (e.g., one physician for 2,000 shipyard employees).

(b) The staffing guide provides one physician for every 2,000 employees in category A, plus one for every 3,000 employees in category B, and one for every 4000 employees in category C, and one for every 8000 employees from other commands, units and activities.” The guide provides half as many physicians for mobile populations as provided for the low risk category.

(c) A number of factors influence the required staffing, including local injury and illness rates, past accomplishments of the occupational health program and proximity to definitive care facilities. Local variation from the expected typical situation is likely. Where significant variation exists, make an appropriate adjustment, either up or down, to the staffing level calculated by the guide. Clinics must have sufficient staffing to meet applicable access to care standards, i.e., 28 days or less or periodic medical qualification or medical surveillance exams, and seven days or less for pre-placement or formal fitness for duty exams. Also, if population risk category data is unavailable, clinics can use access to care data to support staffing requirements.

(d) If the total population in categories A, B, C, D, E and F supported by a medical treatment facility is less than 6,000, then activities must base physician staffing on achieving minimum required capability and enhancing efficiency using a combination of physicians and occupational health nurses. In larger medical treatment facilities, where the calculation indicates the need for three or more physicians, commands, units and activities must substitute medical providers (physician's assistant or nurse practitioner) at the rate of four alternates for three physicians (recognizing that when these substitutions are made, some additional physician time is needed for supervision).

(e) When the population served is geographically distributed in groups smaller than 6,000 employees or where the occupational health staff of the commands, units and activities is dispersed among numerous small medical treatment facilities, commands, units and activities must use the guide to indicate fractions of full-time equivalents. Medical treatment facilities serving 400 or more employees should have a full-time nurse, and those serving 2,000 or more employees should have a full-time physician. Rounding the staffing calculation at the medical treatment facility level rather than at a superior medical command level may yield a larger staffing requirement. The need for a specialized capability at remote locations justifies the additional requirement, even if met on a standby basis. This guide defines a remote location as one requiring more than 30 minutes of travel time from the nearest regional medical treatment facility during peak traffic load.

(f) Each medical treatment facility should have access to at least one physician with recognized credentials in occupational medicine, such as board certification in Occupational and Environmental Medicine by the American Board of Preventative Medicine (ABPM). However, the complement of physicians in an occupational health clinic may include family practice physicians, internal medicine physicians and general medical officers. Appendix B3-B provides a recommended grade level structure for direct support occupational medicine physicians at the line organizational level.

(2) Occupational Health Nurse Staffing Guide. Determine staffing for occupational health nursing staff by the listed formula:

$$\text{OHN} = 0.0006A + 0.0004B + 0.0003C + 0.00015D + 0.00015E + 0.00015F$$

Where:

OHN = required number of occupational health nurses

A = population in risk category "A"

B = population in risk category "B"

C = population in risk category "C"

D = population in risk category "D"

E = population in risk category "E"

F = population in risk category "F"

(3) Industrial Hygiene Staffing Guide. The cognizant medical command must be based on the total military and civilian personnel supported. Industrial Hygiene Department staffing (i.e., IHs, IHOs, IHTs, and Admin support) for BUMED organizations that directly support line activities will be based on reference (e) and BUMED approved updates.

(a) Most commands, units and activities will require at least one individual with skills and experience expected at the GS-12 level (LCDR/04). Commands, units and activities that support activities with a wide range of industrial settings, including major industrial facilities or highly complex research and development environments, will require technical positions at the GS-13 level. Supervisory positions at the GS-13 or GS-14 level (CDR/05) are appropriate, depending on the size and complexity of the commands, units and activities programs. It is strongly recommended that all positions at the GS-13 or GS-14 (CDR/05) level be filled by a Certified Industrial Hygienist (CIH).

(b) Although reference (e) predicts staffing requirements for BUMED activities:

1. Additional staff should be added to support remote facilities where the travel requirement exceeds 5 percent of total staff time.

2. Additional staff may be justified to place full-time industrial hygienists in remote facilities where the calculated requirement exceeds 0.5 people but is less than 1.0 person. The added increment would greatly enhance the program's effectiveness by reducing unproductive travel and enabling much quicker response time for evaluating intermittent operations, investigating employee complaints and conducting special surveys to monitor unusual or exceptional hazards.

3. Additional staff likely will be required to provide engineering design review and to develop operating procedures for major facility expansion efforts. Additional staff may also be required to support the Facilities Engineering Commands (FECs) in facilities acquisition and review of construction plans and specifications for the elimination or engineering control of health hazards in accordance with Chapter 12 of this Manual.

4. Additional staff as approved by BUMED may be required to provide Industrial Hygiene support to high hazard production facilities, major industrial facilities, highly complex research and development environments, or unique environments such as overseas or remote locations, as determined by workload analysis and assessment of current and historical IH staffing levels.

5. Additional IH staff as approved by BUMED may be required to support the implementation and sustainment of Defense Occupational and Environmental Health Readiness System – Industrial Hygiene (DOEHRS-IH).

(4) Industrial Hygiene Laboratory Support. The BUMED-owned Comprehensive Industrial Hygiene Laboratories operated by the Navy and Marine Corps Public Health Center (NMCPHC) must be the primary source of industrial hygiene chemical laboratory support for Navy and Marine Corps occupational health program offices.

(a) Recommendations made by Navy industrial hygienists, based on laboratory analysis of collected air samples, affect the health of employees. Laboratory results are used in the determination of appropriate respiratory protection for any given job or operation, the design or modification of equipment and engineering controls and to document worker exposure. Biological samples, such as blood and urine collected by clinical personnel and analyzed by the laboratories, serve to evaluate the uptake of such toxic substances as lead and mercury.

(b) Analytical methods must conform to those validated by the Occupational Safety and Health Administration (OSHA) Laboratory or the National Institute for Occupational Safety and Health (NIOSH). The laboratory must also be capable of preparing non-routine sample media and performing any other related chemical or instrumental work in support of the industrial hygienist.

(5) Industrial Hygiene Laboratory Resource Guide.

(a) Navy Industrial Hygiene Laboratory Support Policy. Considering the Navy's projected needs for industrial hygiene laboratory support and the recommendations of occupational health program managers, the Navy must maintain two comprehensive laboratories, each to serve a specific geographical area. Each comprehensive industrial hygiene laboratory (CIHL) must maintain accreditation by COLA, Clinical Laboratory Improvement Program (CLIP), and American Industrial Hygiene Association (AIHA), as appropriate, and participate in all applicable round robin testing programs.

(b) Commands, units and activities must staff laboratories to meet the expected sample analysis requirements of Navy industrial hygienists and occupational health clinics, based on extrapolation of the trend in requested determinations performed by each laboratory. Each laboratory must also have one clerical billet to handle sample receipt, logging and administrative correspondence.

(c) Commands, units and activities that analyze environmental samples (such as indoor environmental quality or air toxins) may justify their staffing for these analyses based on evaluation of commercial prices for similar analyses.

(d) BUMED has CIHLs at these listed activities:

1. Navy Environmental and Preventive Medicine Unit Two, Norfolk, VA.
2. Navy Environmental and Preventive Medicine Unit Five, San Diego, CA.

(e) Medical activities having an industrial hygienist on staff must maintain or establish minimum laboratory capabilities for local usage or utilize the CIHLs for:

1. Asbestos identification using polarized light microscopy (PLM) and quantification using phase contrast microscopy (PCM). This capability is provided by the CIHLs and will be the primary lab for industrial hygiene sample analysis including asbestos sample analysis. Where analysis by the CIHL is not feasible, asbestos sample analysis may be secured through in-house capability, appropriately accredited contract or outside commercial laboratory, or Memorandum of Understanding (MOU).

2. Commands, units, and activities with an in-house asbestos laboratory performing fiber counting must enroll it in the proficiency analytical testing (PAT) program operated by the American Industrial Hygiene Association (AIHA). Each in-house laboratory performing asbestos bulk identification must participate in the Asbestos Bulk Identification Proficiency Testing Program operated by the AIHA. In-house laboratories may only perform asbestos analyses when they have achieved proficient ratings in each of the testing program. Local laboratories performing other

analyses (e.g., mold) must enroll in and successfully maintain the appropriate accreditation program for that specialty.

3. Asbestos bulk and air sample analysis by BUMED IH department are not intended to support asbestos building management inventories, routine facility related projects or project planning. The CIHLs do not accept samples from contractors, or samples used for contracts.

4. Calibration equipment necessary to calibrate industrial hygiene sampling equipment.

(f) BUMED, through the NMCPHC, must ensure appropriate audit control and overall centralized management of the CIHLs.

(6) Emergency Industrial Hygiene Laboratory Support. Some samples will require rapid analysis because of the hazardous toxicants involved and potentially costly work stoppages. In such situations, commands, units and activities may use local commercial testing laboratories if:

(a) Such laboratories are accredited by AIHA and have a proficient rating through the PAT Program for the particular analyses of interest, (i.e., metals, organic solvents, free silica or asbestos).

(7) Occupational Audiology Staffing Guide. Proper executing and implantation of the Hearing Conservation Program (HCP) requires a mix of certified audiology technicians, senior hearing conservation systems analysts, Occupational Audiologists (OA) and medical administrative staff. The Occupational Audiology Staffing Model (OASM) developed by BUMED M14 will be used as guidance in determining appropriate HCP staffing levels. Each echelon 4 medical command requires a Hearing Conservation Program Manager (HCPM) be designated. OAs are HCP subject matter experts and are best suited to serve as the HCPM. Circumstances such as program size and geography may require more than one OA, HCPM or Assistance HCPMs to be designated.

APPENDIX B3-A

JOB HAZARD CATEGORIES

Review manpower authorization lists to identify all jobs by hazard exposure category as listed. Most commands, units and activities will have employees in more than one category. The listed work center descriptions are examples of the type of work performed in each job hazard category. They are not all inclusive:

JOB	HAZARD	HAZARD	WORKCENTER DESCRIPTION
CATEGORY	LEVEL		
A	HIGH		<p><u>INDUSTRIAL OPERATIONS</u>: Machine shop (cutting, grinding, machining, drilling, planning and shaping metal); arc and acetylene welding; foundry operations (work with molten metals); electroplating; abrasive blasting; solvent cleaning operations; high-voltage electrical work; power plants (i.e., steam or electrical generation); ship repair work; aircraft corrosion control; aircraft rework; and spray painting.</p> <p><u>MEDICAL</u>: Radiation sources, communicable diseases, contaminated medical substances and handling chemicals.</p> <p><u>HEAVY EQUIPMENT OPERATIONS AND MAINTENANCE</u>: Heavy equipment operations (bulldozers, cranes and earth movers); repair and maintenance of large motors, engines and materials handling equipment (i.e., tower and bridge cranes).</p> <p><u>TOXIC/HAZARDOUS MATERIALS HANDLING</u>: Work involving use or cleanup of acids, corrosives, reactives, pyrophoric materials, carcinogens, pesticides, radioactive material and other high hazard chemicals or materials (asbestos, PCBs, asbestos, cadmium, beryllium, chromium, etc.).</p> <p><u>CONSTRUCTION</u>: Construction or repair of piers, warehouses and buildings to include all building trades (i.e., painters, carpenters, sheet metal workers, plumbers, electricians, roofers, tilers, masons, concrete workers, and work on scaffolding, communication towers, or other high risk work).</p> <p><u>HIGH RISK TRAINING</u>: All basic or advanced, individual or collective training in a traditional or non-traditional environment which exposes the crew, staff, students or assets to the potential risk of death, permanent disability, or loss during training.</p> <p><u>OTHER</u>: Work involving extreme exposures to heat, cold, diving and salvage, heights or other high risk work. Stevedore and longshoring operations.</p>
B	MODERATE		<p><u>SUPPLY/TRANSPORTATION</u>: Movement of materials in</p>

JOB HAZARD CATEGORY	HAZARD LEVEL	WORKCENTER DESCRIPTION
		aviation cargo or storage facilities using forklift trucks, overhead cranes and powered hand trucks, where materials are stacked above three feet in height. Manual material handling and lifting (i.e., assembly line, exchanges and warehouse operations). <u>MECHANICS</u> : Repair and maintenance of automotive vehicles, building maintenance, and aircraft maintenance. <u>RDT&E</u> : Engineers, test mechanics, and laboratory personnel involved in the RDT&E of systems.
C	LOW	<u>ADMINISTRATIVE, CLERICAL, CLASSROOM</u> : Those positions that involve primary work in an office environment but may include visits to worksites for inspection or evaluation.
D*		<u>SHIPBOARD PERSONNEL</u> : Those positions that involve working on board ships at sea.
E*		<u>OPERATING FORCES</u> : Those positions on shore and at sea that involve the operation and support of aircraft operations.
F*		<u>STUDENTS</u> : Positions allotted to personnel who are receiving formal offsite training in excess of five working days.
A	HIGH	NAVSHIPYD, SRF, NSSA, FRC, PWD, WEAPONS/ORDNANCE STATION, MEDICAL/DENTAL ACTIVITIES, COMNECC COMMUNITY, SURFACE WARFARE CENTERS, TEST CENTER OR LAB, SUB IMA.
B	MODERATE	NAS, NAF, NAVSTA, NAVCOMTELSTA, NCTAMS, NAVCOMMU, FLCs, TRADE SCHOOLS (only those involving the teaching of industrial operations, repair or maintenance operations).
C	LOW	NAVPRO, HEADQUARTERS, and all commands, units and activities with primarily office or classroom work.
D*		Personnel serving onboard CVN, LHA, LHD, CG, DDG, FFG, LPD, LSD, LCS, PC, MCM, SSN, SSBN, SSGN and other ships not designated. All applicable MSC civil service mariner manned ships
E*		Wings, air squadrons.
F*		Students at OCS and midshipmen at U.S. Naval Academy.

*Job Hazard Categories D, E and F can be Hazard Level HIGH, MODERATE or LOW depending upon the specific duties assigned to the individual.

APPENDIX B3-B

DISTRIBUTION OF OCCUPATIONAL HEALTH PHYSICIANS BY RANK/GRADE LEVEL

Rank/Grade	Total Number of Physicians														
		14	13	12	11	10									
06 / GS-15	1	1	1	1	1	1	1	1	1	1	1				
05 / GS-14	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1
04 / GS-13	4	4	3	3	3	2	2	2	2	2	2	2	2	1	
03 / GS-12	8	7	7	6	5	5	4	3	3	2	1	1			

NOTE: The GS-12 positions are to be filled with experienced non-physician health care providers such as physician assistants and nurse practitioners working under an established preceptor. Physicians without appropriate training or experience are not suitable for working independently in the occupational health field.

CHAPTER 4

COUNCILS AND COMMITTEES

- Ref:
- (a) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
 - (b) Executive Order 12196--Occupational safety and health programs for Federal Employees, 1 Oct 1980
 - (c) OPNAVINST 5100.12J, Navy Traffic Safety Program, 26 June 2012
 - (d) Field Federal Safety and Health Councils
 - (e) Title 29 CFR 1960.36, Subpart F (Occupational Safety and Health Committees)

B0401. Discussion

a. Safety and occupational health (SOH) councils and committees at various organizational levels provide opportunities for groups and individuals to express multiple viewpoints and interests. Their purpose is to identify, define and assess issues, problems and needs, and to recommend corrective measures. New or revised policies, procedures and practices may develop from these recommendations to improve the effectiveness of the Navy SOH program.

b. Commands, units and activities will establish and maintain safety councils and committees that meet the requirements of references (a), (b) through (e), and 0404 of this chapter.

B0402. Navy Executive Safety Board (NESB)

a. The Chief of Naval Operations (CNO) established the NESB as a collaborative and interactive decision-making forum of the Navy's senior leaders. The NESB provides oversight of the Navy's SOH programs and considers and approves initiatives and policies to improve SOH programs, prevent loss of life, reduce mishaps, injuries and enhance Navy readiness. The NESB will:

- (1) Act as recorder for the executive safety board meeting.
- (2) Provide broad oversight of the Navy's mishap reduction efforts.
- (3) Identify shortfalls and evaluate the effectiveness of existing SOH programs and approve and direct improvements in programs and policies.
- (4) Approve and direct implementation of new initiatives.
- (5) Reconcile resourcing issues for existing and emerging SOH programs and initiatives.
- (6) Ensure effective, Navy-wide communication of important SOH information.

b. Chaired by the Vice Chief of Naval Operations (VCNO), the NESB will be composed of senior Navy leaders (Flag/SES) from echelon 2 and 3 organizations.

B0403. Safety Quality Council

a. The NESB chartered the Safety Quality Council (SQC) to serve as the Action Officer level forum under the direction of the flag level NESB and NESB Steering Group (NESB SG). The SQC provides a forum to evaluate the effectiveness and viability of existing Navy SOH policies and programs, evaluate safety best practices, and to review and analyze the Navy's unit self-assessment data. All of these actions are taken for the purposes of identifying trends and actionable information and make recommendations for Navy SOH policy and program improvement.

b. The SQC is comprised of core members from commands represented on the NESB and chairs of all NESB Working Groups. SQC membership includes Action Officer representatives from: U.S. Fleet Forces Command, U.S. Pacific Fleet, Naval Sea Systems Command, Naval Air System Commands, Navy Installations Command, Naval Facilities Engineering Command, Naval Safety Center, Naval Education Training Command, Naval Special Warfare Command, Space and Naval Warfare Systems Command, Naval Reserve Forces, Bureau of Medicine and Surgery, Strategic Systems Programs, History and Heritage Command, Operation Test and Evaluation Force OPTEVFOR, Naval Supply, Commander Naval Personnel, Fleet Cyber Command and the Chair of each SQC Working Group. Various commands, units and activities will be called to serve as advisors on the Council as needed.

c. The SQC will convene at least semiannually. The SQC will:

(1) Annually, review safety data, conduct analysis, identify trends, and gather facts from Navy commands, units, and activities annual unit safety self-assessment data that have been consolidated and rolled up by the echelon 2 commands. Prepare a summary report to the NESB highlighting the key trends and issue results from the analysis of Navy unit self-assessment data.

(2) Evaluate the effectiveness and viability of existing Navy safety and occupational health policies and programs. Propose changes to policies and programs that have the potential to reduce mishaps and injuries.

(3) Evaluate safety best practices for the purpose of determining improvements to Navy safety policies and programs.

(4) Perform additional tasks assigned by the NESB and provide status reports as needed.

(5) Establish and support working groups such as fall protection, ergonomics system safety advisory board and National Transportation Safety Board (NTSB).

(6) Provide oversight of Mishap Prevention and Hazard Abatement (MPHA) fund execution and facilitate approval of projects by members as required.

B0404. Councils and Committees

a. Depending upon size, organization and mission, if considered necessary or desirable, the Budget Submitting Office (BSO) (headquarters level) may establish councils composed of both military members and civilian employees.

b. Safety councils will be established on all ships and submarines and at all Navy commands, units and activities that provide their own safety support. Commands, units and activities receiving Base Operating Support (BOS) Safety services are not required to establish their own formal safety councils, but may supply command representation to the host command safety council.

Note: The requirement for a safety council can be met by any formally established commands, units and activities board or council that addresses safety issues, even if it also addresses other issues, as long as such boards/councils meet the basic intent and criteria of this chapter and have similar attendance. For commands, units and activities that participate in OSHA's Voluntary Protection Program (VPP), the VPP Steering Committees may serve as the Safety Council.

Note: Commands, units and activities that are primarily administrative in nature, or have fewer than 100 employees, are not required to establish formal safety councils. However, heads of such commands, units and activities will ensure an open line of communication exists for all employees on safety matters, and use captain's calls, handouts, local newsletters, and other methods, as appropriate, for communication.

c. Squadrons, air stations, and other large aviation commands, units, and activities will form an Aviation Safety Council.

d. Safety Councils are chaired by the Commanding Officer or the Executive Officer, and facilitated by the appropriate SOH Manager.

e. Functions. Councils may perform the listed functions as determined by authority that establishes the council:

(1) Coordinate mutually beneficial mishap prevention and safety programs with local communities (e.g., locally assigned tenant commands, units and activities).

(2) Review mishaps and near-miss incidents, recommend improvements to the safety program, and/or identify corrective measures needed to eliminate or control recognized hazards.

(3) Identify resources to educate personnel in safety techniques, concepts and principles to maintain a healthful work environment and conduct operations (on and off duty, occupational and operational support) in a safe and healthful manner.

(4) Identify and assess risks to people, facilities and equipment and communicate findings and recommendations to responsible authorities of DoD operations.

(5) Identify and assess mishap causal factors and potentially unsafe practices or conditions, and recommend corrective actions to prevent mishap recurrence and reduce exposures to hazardous conditions.

(6) Update/implement commands, units and activities mishap prevention plan and safety initiatives.

(7) Update/implement commands, units and activities safety awareness programs with current, relevant, and user-friendly information developed and used to promote installation safety. Safety awareness programs include, but are not limited to, safety awards, safety initiatives, outreach programs, promotions, and marketing activities.

(8) Verify status of BOS Safety service delivery and determine way ahead to address tenant safety program needs and self-assessment gaps in command safety program.

(9) Establish mishap prevention goals and plans.

(10) Review command plans, policies, procedures, conditions and instructions to ensure their currency, correctness and responsiveness to safety recommendations.

(11) Review issues and recommendations identified by annual self-assessments or submitted by subordinate committee(s).

(12) Periodically review open issues from previous meetings/reviews.

(13) Review compliance with operational risk management (ORM) implementation in all applicable operations and evolutions.

f. Membership

(1) Host commands, units and activities safety council core membership is comprised of the installation host and tenant organizations represented by department heads from command and staff, air operations, port operations, public safety, environment, facility support, fleet and family readiness; and locally assigned tenant command representatives. Commands, units and activities that do not have a safety staff and receive safety services from a BOS safety service provider may be asked to participate in the host command safety council meetings. Commands,

units and activities that do not participate in the safety council must be provided minutes of the meetings as necessary.

(2) COs must designate, either by council charter or by title or position in a local instruction. Membership must include military and civilian personnel, when possible, as well as safety and health professionals. Civilian personnel must be represented on the council by union representatives if local labor-management agreements contain provisions concerning employee representation.

g. Meeting Frequency: commands, units and activities safety councils will meet at least quarterly. All other councils will meet at least twice a year and more often as situations dictate

h. Agenda: The council develops agendas and action items based on the nature of the commands, units or activities scope of operations and its hazard and mishap experience. Subject matter discussed by the council will include goals, program improvement plans, mishap prevention experience, requirements and initiatives, compliance issues and hazard abatement. The safety office will develop proposed agendas and presentations for the council and ensure meetings are scheduled on behalf of the Chairperson.

i. Minutes: Minutes of each meeting will be recorded (electronic or hard copy) and retained by the safety officer, with proof that the chair has reviewed and approved the minutes (initials, signature, or electronic record).

j. Traffic and motorcycle safety council will also be established in accordance with chapter 36 of this Manual. This can be combined with other existing councils/committees.

k. Committees. Commands, units and activities with industrial or other hazardous operations are encouraged to organize additional committees at the supervisory and/or shop level. When such sub-level committees are formed, provisions will be made for their communication with the primary safety council.

B0405. Field Federal Safety and Health Councils

a. Field Federal Safety and Health Councils (FFSHCs) are cooperative interagency organizations chartered by the Secretary of Labor to facilitate the exchange of ideas and information about Occupational Safety and Health (OSH) in the federal government. The FFSHCs are designed to be dynamic forums for sharing knowledge, ideas, expertise, technology, and other OSH resources among participating agencies with the goal of reducing the incidence, severity, and cost of injuries and illnesses at federal facilities. These councils consist of representatives of local area federal agencies.

b. Commands, units and activities will support Field Federal Safety and Health Councils and coordinate mutually beneficial mishap prevention and safety programs with local communities to the maximum extent feasible .

CHAPTER 5

HAZARD IDENTIFICATION

- Ref: (a) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
(b) Title 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters

B0501. Discussion. The Navy is viewed and held accountable as an Agency in the eyes of the Occupational Safety and Health Administration (OSHA). As required by regulation, activities associated with safety must be viewed from the Agency perspective. Specifically, the term Agency is all-inclusive of Navy personnel (Civ, Mil, FN) and their workspaces regardless of the assigned command. Similarly, buildings are viewed as “systems,” which refers to facility infrastructure, affixed equipment and machines, internal operations, and resident employees and their work processes. To ensure Agency compliance and system integrity. The Navy uses a variety of planned and non-routine methods to accomplish hazard identification by trained and qualified specialists to meet the requirements of references (a) and (b).

As outlined in Chapter 3 of this Manual, accountability, authority, responsibility, and subject matter expertise is shared between host and tenant commands. For the purpose of Navy Enterprise workplace inspections, they will either be conducted by BOS or organic safety organization provided it is an essential duty covered in the MFT as outlined in paragraph B0305.a of this Manual.

B0502. Hazard Identification Personnel. Navy safety professionals, who are Safety and health inspectors and specialists as defined by 29 CFR 1960, will receive training as outlined, in Chapter 6 of this Manual and qualifications as determined by CNO N09F or cognizant echelon 2. The listed civil service series conduct and oversee hazard identification activities: Safety and Occupational Health Manager/Specialist GS-018, Safety Engineer GS-803, Fire prevention Engineer GS-804, Industrial Hygienist GS-690, Fire protection and Prevention Specialist/Marshal GS-081, and Safety Technician GS-019. They are supported by military members and other civilian personnel that receive commensurate or task specific training.

B0503. Hazard Identification Process. All management and supervisory personnel, trained and qualified safety and health inspectors, safety and health specialists, and other personnel supporting safety and occupational health (SOH) programs such as collateral duty safety officers must conduct hazard identification in an ongoing and proactive manner. This will be accomplished by inspections and non-routine activities. The focus is on hazards to any Agency personnel (military members, civilians, and foreign nationals), those in the vicinity of the workplace who can be affected by the activities of the organization, workers at a location not under the direct control of the organization, and potential emergency situations. It is the expectation that no hazard is left unaddressed once identified. When a hazard that could reasonably be expected to cause death or serious physical harm, it must be controlled

immediately, usually through interim controls, and permanent abatement initiated as soon as possible. Abatement must be accomplished by the responsible organization and it may be necessary to withdraw employees who are not necessary for abatement of the dangerous conditions. The hazard identification process is required to cover these principles:

a. How work is organized, social factors (including workload, work hours, etc.), leadership and the culture in the organization;

b. Routine and non-routine activities and situations, including hazards arising from:

(1) Infrastructure, equipment, materials, substances and the physical conditions of the workplace;

(2) Product and service design, research, development, testing, production, assembly, construction, service delivery, maintenance and disposal;

(3) Human factors;

(4) How the work is performed;

c. Past relevant incidents, internal or external to the organization, including emergencies, and their causes;

d. Involvement and engagement of employee representatives as outlined in 29 CFR 1960.

e. Other inspections including OSHA, SMS certification, Fire, Facilities, Explosives, and Environmental.

f. Other issues, including consideration of:

(1) Design of work areas, processes, installations, machinery/equipment, operating procedures and work organization, including their adaptation to the needs and capabilities of the workers involved;

(2) Situations occurring in the vicinity of the workplace caused by work-related activities under the control of the organization;

(3) Situations not controlled by the organization and occurring in the vicinity of the workplace that can cause injury and ill health to person's in the workplace;

g. Actual or proposed changes in organization, operations, processes, activities and the SOH management system;

h. Changes in knowledge of, and information about, hazards.

i. Regardless of how identified (Fire, Facilities, Environmental, Industrial Hygiene, Zone Inspections, reports of unsafe/unhealthful conditions, etc.), all hazards must be documented tracked to completion with interim controls put in place as applicable meeting the minimum element. The documentation will occur in ESAMS or other CNO N09F approved system until release of the Risk Management Information (RMI) Safety Program Management (SPM) module.

(1) Such notices of hazards will be issued not later than 15 days after completion of the inspection for safety violations or not later than 30 days for health violations.

(2) Notices must be in writing and will describe in detail the nature and degree of seriousness of the unsafe or unhealthful working condition, including a reference to the standard or other requirement involved; the notice will fix a reasonable time for the abatement of the unsafe or unhealthful working condition with;

(3) A copy of the notice must be sent to the official in charge of the workplace, the employee representative who participated in the closing conference, and/or the safety and health committee of the workplace, if any.

(4) The official in charge of a workplace must immediately post notice of all unsafe or unhealthy working conditions as required by Title 29 CFR 1960.26(c)(3).

(5) Each notice of an unsafe or unhealthful working condition, or a copy thereof, will remain posted until the unsafe or unhealthful working condition has been abated or for 3 working days whichever is later. A copy of the notice will be filed and maintained for a period of five years after abatement at the establishment and made available to the Secretary of Labor upon request.

(6) Long term facility related SOH issues that are controlled by interim controls that are suitable or feasible until modernization must be entered into the internet Navy Facilities Asset Data Store (iNFADS) by the organization holding the maintenance UIC for the facility.

j. Conduct hazard abatement in accordance with the requirements listed in Chapter 12 of this Manual.

k. Safety councils and committees will evaluate identified hazards, interim controls, as well as assist with prioritization of abatement and communication of risks.

l. Sufficient unannounced inspections and unannounced follow-up inspections should be conducted by the agency to ensure the identification and abatement of hazardous conditions.

m. A qualified safety and health inspector will verify the hazard has been sufficiently abated prior to closure of the deficiency.

B0504. Key Concepts. Paragraphs (a) through (h) are provided as clarification and amplifying guidance to help understand the scope, facilitate coordination and prevent duplication of work.

a. Workplace Inspection Scope – Workplace inspections will encompass the entire building and all Agency and affected personnel workplaces. Therefore, any area where an Agency employee may access or conduct work will be inspected including but not limited to mechanical rooms, roofs, locked areas, etc. This inspection is specifically intended to identify all safety and occupational health related hazards including but not limited to Safety, Fire, Industrial Hygiene, and Facilities related areas. As such inspection results from other safety and health inspection entities (e.g., fire prevention, facilities management specialists, environmental, or zone inspection team participants) may be used to support or even satisfy the Agency workplace inspection requirements in reference (b), provided they are trained and qualified to recognize the hazards to Agency personnel in those areas and assess from the holistic standpoint. There is no representative sampling of workplaces authorized. Each workplace must be thoroughly inspected.

b. Workplace Inspection Frequency - All areas and operations of each workplace, including office operations, will be inspected at least annually. More frequent inspections will be conducted in all workplaces where there is an increased risk of accident, injury, or illness due to the nature of the work performed.

c. Qualifications for personnel to conduct workplace inspections:

(1) Safety and health Inspector - Safety and Occupational Health Manager/Specialist GS-018, Safety Engineer GS-803, and Safety Technician GS-019 that has completed Introduction to Navy Occupational Safety and Health (Ashore), A-493-0050 or A-493-0550, General Industry Safety Standards, A-493-0061, Electrical Safety Standards, A-493-0033, NAVSOH Assessment Tools and Strategies, A-493-0089 or A-493-0889, Introduction to Industrial Hygiene for Safety Professionals, A-493-0035 or A-493-0335, and OSHA online course #6008 Intro to OSHA for Other Federal Agencies as well as any specific training needed to assess unique hazards of workplace (e.g., machine guarding, scaffolding, laser, etc.).

(2) Fire prevention Engineer GS-804 or Fire protection and Prevention Specialist/Marshal GS-081, or Industrial Hygienist GS-690 that have completed the training listed in 0502f(1) as well as PQS that includes sign off by qualified safety and health inspector if they will be performing holistic workplace inspections. If these personnel are only performing workplace inspections of areas that only contain hazards associated with their specialty/expertise, for which they are trained and qualified, no additional training is required.

(3) The requirements listed in 0502f(1) may be waived in writing for lower hazard locations as approved by the installation and operational chain of command. At a minimum, training must be sufficient to recognize the hazards associated with the workplace and recommend adequate abatement. A qualified safety and health inspector must conduct a baseline workplace inspection for any location where waivers will be used for the minimum training requirements.

d. Hazards, deficiencies, and risks identified by host and tenant personnel will be brought to the installation safety council to allow the Installation Commanding Officer a holistic view of hazards and risks across the installation. The Council will track deficiencies and hazards as well as assist or provide coordination to facilitate abatement. In addition, they will help ensure that all workplace inspections are accomplished in accordance with requirements from all commands on each CNIC installation and identified hazards are tracked through abatement to include ensuring interim controls and mitigations are appropriate. Overall safety performance will be reported up the CNIC and operational chains of command and discussed regularly installation level councils with ultimate visibility at the Safety Quality Council.

e. Figure 1 depicts the process flow for workplace inspections.

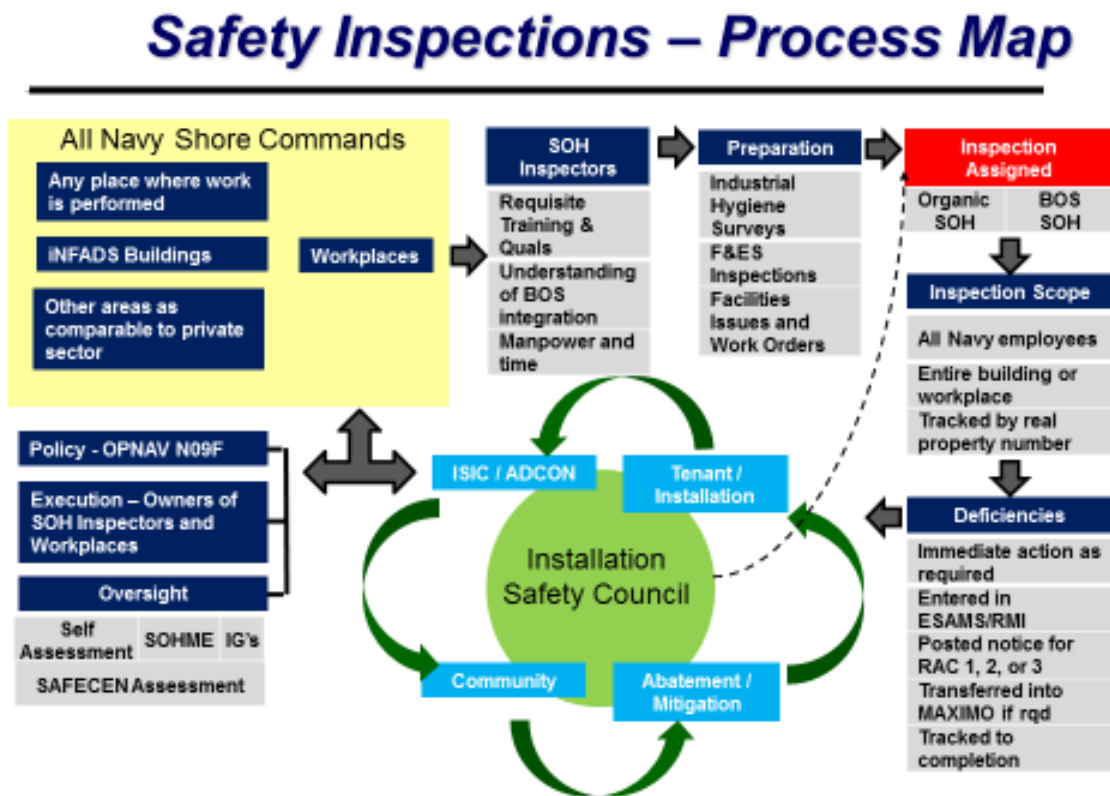


Figure 1

CHAPTER 6

TRAINING

- Ref:
- (a) N09F-NTSP-S-40-8603E/A, Navy Safety and Occupational Health Navy Training System Plan (SOH NTSP), June 2017
 - (b) NAVEDTRA Publication 10076B, Career Development Program for Safety and Occupational Health and Industrial Hygiene Personnel
 - (c) Department of the Navy (DON) Civilian Human Resources Manual, Subchapter 410
 - (d) OPNAVINST 1540.56B, Navy Credentialing Programs, 2 Oct 2017
 - (e) Title 29 CFR 1960.54, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters, Subpart H - Training, (29 CFR 1960.54-1960.60)

B0601. Discussion. This chapter establishes Navy implementing policy for safety and occupational health training. It identifies required training for specific billets as well as lists Navy safety and occupational health formal training courses. This chapter is applicable to all other chapters in this manual with regards to courses or other methods to provide training for the identified requirements. Not all courses required to fulfill all responsibilities and duties by SOH professionals are contained in this chapter.

B0602. Requirements

a. The Navy's safety and occupational health training requirements are established to implement efficient and effective training that provides the right training to the right people at the right time as required in support of Navy's mission. The Navy SOH Training Plan (SOHTP) supports the ability of U.S. naval forces to effectively operate worldwide in a safe and healthful environment with awareness of risks and hazard abatement, both ashore and afloat. The SOHTP identifies Navy safety and occupational health training needs, authorizes courses, and provides resources to develop safety and occupational health training courses.

b. SOHTP requirements are documented in the SOH Navy Training System Plan (NTSP), reference (a). The NTSP describes the roles and responsibilities in the development, execution, and management of the SOHTP and lists formal courses, electronic learning (eLearning), and other training vehicles authorized within the SOHTP. Between revisions of the NTSP, the Office of the Chief of Naval Operations, Special Assistant for Safety Matters (CNO N90F), in consultation with the SOHTP Working Group, may modify the program by authorizing new, modifying existing, or deactivating existing training.

B0603. Navy Safety and Occupational Health Training Program Working Group. The SOHTP Working Group manages a process to update and maintain the NTSP as well as identify unmet safety and occupational health training needs, validate the need, and recommend whether SOHTP training should be developed. In addition, the working group must define the safety and occupational training requirements, recommend priorities for dedicated safety and occupational

health training courses, assess the effectiveness and efficiency of the safety and occupational health training, and identify and recommend actions to resolve training issues. This committee is chaired by CNO (N09F) and is comprised of representatives from budget submitting offices (BSO), Fleet, SYSCOM's, BUMED, Commandant of the Marine Corps (Safety Division), the Naval Safety and Environmental Training Center (NAVSAFENVTRACEN), and others as invited by the chair. At its discretion, the SOHTP Working Group must appoint working groups to address specific issues.

B0604. SOH Training Methodology. Creating and maintaining a well-rounded cadre of safety professionals and collateral duty safety officers is accomplished by a systematic approach to develop competencies and ensure that an appropriate level of proficiency is achieved and maintained by every individual military member and civilian. The Deputy Assistant Secretary of the Navy for Safety established competencies are provided on the NAVSAFECEN Web site under the Career Program Manager section. The listed requirements outline how to assess proficiency and develop the competencies:

a. Assess Proficiency

(1) Initial training is required for all primary duty and collateral duty safety personnel. The specific courses are outlined in paragraph B0607 through B0609. Initial training requirements may be waived by Safety Career Program Manager located at CNO N09F/COMNAVSAFECEN for those career SOH professionals that can demonstrate equivalent safety competencies through training, academic education/degree, experience, and professional certifications.

(2) Gap Analysis - A gap analysis must be performed by all civilian SOH professionals with the assistance and approval of their supervisor. The gap analysis will assess all competencies, at the appropriate proficiency level, detailed in documentation provided on the NAVSAFECEN Web site under the Career Program Manager section. The gap analysis will document illustrations required to demonstrate competency proficiency and any applicable training completed. In the event a sole safety professional works in an organization, the next higher Echelon Safety Director/Manager or Safety Career Program Manager can assist.

(3) Supervisors of SOH professionals must ensure that personnel filling safety and health positions receive training opportunities that are consistent with the guidelines established by this Manual and the Safety Career Program Manager. Supervisors are responsible for mentoring employees on individual career development. Managers will ensure that Individual Development Plans (IDPs) or Job Qualification Requirements (JQR) are established and implemented for each professional based on the gap analysis, and initial/organizational training requirements. Reference (b) should be used as a guide in competency development for personnel identified. Each SOH professional is responsible for managing his or her own career and professional development. Personnel will establish an individual development plan to document career goals (short-term objectives and long-term goals) consistent with required job series

competencies. The IDP must include a list of competency development processes in order to meet the short- and long-term career goals. Examples are available on the Naval Safety Center Web site. Individuals and supervisors will review and update IDPs and gap analysis on an annual basis, preferably during annual performance evaluations.

b. Develop Competencies. Competency development is achieved through a combination of:

(1) On-the-Job Training (OJT) - OJT must be oriented to providing exposure in all knowledge, skills, and abilities (KSA's). Safety professionals should actively participate in all SOH program functional areas during their developmental period. The goal of OJT assignments is to develop basic abilities and provide sufficient experience to perform effectively and independently at the appropriate level. OJT is situational and dependent upon the requirements and mission of the activity.

(2) Formal Classroom Training - (Self-Study, Distance Learning (DL) Course, Seminars, Classroom, College Courses) Specialized training in order to perform assigned tasks or manage programs. Training requirements for personnel assigned specific program responsibilities. The assigned supervisor working with the Safety Career Program Manager is responsible for ascertaining sources of approved training (federal and commercial) to meet training needs. The goal of formal classroom training is to provide the trainee with technical knowledge in all primary elements of the safety practice in the Naval environment.

(3) Annual Training & Continuing Education Units (CEUs).

(a) Full time SOH professionals must receive a minimum of seven (7.0) continuing education units (CEU) or equivalent of two weeks of training per year. The annual training must be consistent with the guidelines established by the SOH Career Manager and the individual's IDP.

(b) The International Association for Continuing Education and Training (IACET) defines one CEU as: "one (1) CEU equals ten (10) contact hours of learner interaction with the content of the learning activity." For example, a full 8-hour day of instruction that includes one hour of lunch only provides 7 hours of contact time. Therefore, the training only provides 0.7 CEUs (divide the number of contact hours by 10). A 5-day course (40hr) that includes an hour for lunch each day provides 35 hours of contact time and equals 3.5 CEUs. A typical two-week course is equivalent to 7.0 CEUs. Overall, the SOH professional is responsible for tracking his or her CEUs as the number of CEUs per training program is dependent upon the number of contact hours and lunch breaks provided during the training.

(4) Developmental Assignments - SOH professionals should receive orientations in each major functional element of an activity. Assignments are designed to familiarize the SOH professional with organization and functional requirements. The goal of the orientations is to provide exposure and experience with all elements of activity operations and Navy SOH

program administration in order to meet overall KSA requirements and perform professionally at all levels. For small or tenant activities where major SOH programs (i.e. materials handling, crane operations, confined space entry, etc.) may not be applicable, rotating SOH professional should be strongly encouraged to other larger Naval activities providing the SOH professional exposure to a variety of SOH programs and processes at these activities.

(5) Mentorship – A mentor is someone who teaches or gives help and advice to a less experienced person. Mentorship programs convey to employees that management is willing to invest in its personnel, contribute to the development of a better-trained and engaged workforce, develop relationships across commands, educates employees on how to accept feedback in important areas, such as communications, technical abilities, change management, and leadership skills, and improves the employee’s interpersonal relationship skills.

(6) Professional certification is a designation earned by an individual identifying that they have demonstrated a standard level of skill, experiences, and expertise within their field. Professional certifications are generally earned from a professional society with a certifying body and are granted based on a combination of education, experience, and knowledge, rather than solely by attending a course and passing an exam. Certification of individuals in their professional specialty is highly desirable and fully supported by the Department of Navy. Commanders and supervisors of SOH professional should encourage professional certification.

(a) The Navy SOH community only recognizes professional certifications accredited through third-party organizations such as the American National Standards Institute (ANSI), Council on Engineering Standards Boards (CESB), or the Institute for Credentialing Excellence (ICE). Examples of professional societies with an accredited certifying body include the Board of Certified Safety Professionals (BCSP), Institute for Safety and Health Management (ISHM), and the American Board of Industrial Hygiene (ABIH). Specific examples of professional certifications include Associate Safety Professional (ASP®), Certified Safety Professional (CSP®), Certified Industrial Hygienist (CIH®), Safety Management Specialist (SMS®)(experience based – no academic degree required), Occupational Hygiene and Safety Technician (OHST®), Certified Safety & Health Manager (CSHM®), and Certified Hazardous Material Manager (CHMM®). NAVSAFENVTRACEN offers CSP®, CIH®, or CHMM®.

(b) For full time SOH professionals, payment of costs associated with obtaining and renewing professional credentials including professional accreditation, state-imposed and professional licenses, and professional certifications, and examinations to obtain such credentials is authorized at the command, unit, or activity level. Given the availability of funding, an activity may pay for professional credentials that are necessary or beneficial for the civilian employee in the performance of official duties. See reference (c) for further details.

(c) Military personnel can obtain credentialing support via the Credentialing Opportunities On-line Web site at <https://www.cool.navy.mil/index.htm>. Military enlisted personnel should also refer to reference (d). Commands, units and activities must support

personnel who achieved certification to ensure required certification points are obtained to maintain certification.

(7) Academic Education / Degree. SOH community members are strongly encouraged to seek academic degrees and advanced degrees related to their job series competencies. Commanders and supervisors of SOH professionals should encourage academic education.

B0605. Needs Assessment. Each year during the NAVSAFENVTRACEN needs assessment process, Commands, units and activities will submit, via their chain of command, SOH related training needs for the next year based on employee IDPs. In addition, Commands, units and activities will list all safety related training received from other sources to improve internal controls, oversight, and funding throughout the Navy.

B0606. Equivalency. There are many different options to fulfill SOH training. Although the NAVSAFENVTRACEN, Norfolk, VA, is the primary source for formal classroom training for Navy safety professionals. CNO N09F/NAVSAFECEN, via the Safety Career Program Manager, will maintain a list of equivalent courses that are available to all Navy military and civilian personnel. Headquarters Commands can request any course to be added to the list by providing the title, name of vendor, and title of equivalent Navy training. For specialty classes like confined space and fall protection, the cognizant technical warrant holder or lead SYSCOM will determine equivalency in coordination with the Safety Career Program Manager. Primary options to complete the required training using other than NAVSAFENVTRACEN include:

a. OSHA Technical Institutes (OTI) education centers, National Safety Council, American Society of Safety Professionals, American Industrial Hygiene Association, universities/colleges, commercial safety training companies, various NIOSH Education & Research Centers, which are located throughout the nation. They offer many basic and advanced classes for safety and occupational health as well as CEU's for maintaining professional certifications or refresher training for maintaining competencies and skills.

b. Joint Service Safety and Occupational Health training program is operated by the US Army. Individuals completing this training obtain the CP-12 Professional Certificate which indicates completion of specific combinations of courses (similar to any university certificate program). The CP-12 is training on different subjects and specialties designed to work in conjunction with development assignments and practical application such as that associated with interns. This training is best for personnel in developmental or career ladder positions as well as those new to the profession. Personnel who have completed CP-12 are exempt from all minimum training requirements except Introduction to Navy Occupational Safety and Health (Ashore).

c. Professional certifications are encouraged and signify a certain level of knowledge and proficiency that has been validated by a third party and backed by national accreditation through ANSI. As such, Certified Safety Professionals (CSPs®) are exempt from all minimum

requirements as outlined in paragraph B0607 except Introduction to Navy Occupational Safety and Health (Ashore) and Mishap Investigations; Certified Industrial Hygienists (CIHs®) are exempt from all minimum requirements except Introduction to Navy Occupational Safety and Health (Ashore), and Mishap Investigations

B0607. Initial Primary Duty/Safety Professional Training. For all Navy safety professionals, supervisors must prioritize the required initial training as outlined:

a. The first three training courses must be completed within one year or attend the next available course:

(1) Introduction to Navy Safety and Occupational Health (Ashore), A-493-0050 or A-493-0550

(2) General Industry Safety Standards, A-493-0061

(3) Mishap Investigation (Ashore), A-493-0078

b. The listed training courses, which is not an all-inclusive list to develop all safety competencies, should be prioritized by the commands organizational training requirements and incorporated into their gap analysis and IDP:

(1) Electrical Safety Standards, A-493-0033

(2) Introduction to Hazardous Materials (Ashore), A-493-0031 or A-493-0331

(3) Introduction to Industrial Hygiene for Safety Professionals, A-493-0035 or A-493-0335

(4) Navy Ergonomics Program, A-493-0085

(5) Machinery and Machine Guarding Standards, A-493-0073

(6) NAVSOH Assessment Tools and Strategies, A-493-0089 or A-493-0889

(7) OSHA online course #6008 Intro to OSHA for Other Federal Agencies

B0608. Collateral Duty Safety Personnel. As a minimum, all collateral duty personnel or personnel that support safety, or conduct safety related functions listed, must complete the initial training as outlined in this paragraph within 1 year of assuming duties. Attempts will be made to take the training prior to assignment.

a. Military and civilian personnel assigned collateral duty responsibilities for safety management must satisfactorily complete Job Qualifications Requirements (JQR) as well as attend any training provided by the base operating support safety organization as required by their echelon 2.

b. Collateral duty safety officers will also receive training commensurate with the scope of their assigned responsibilities. Such training will include: Navy occupational safety and health program; section 19 of the Act; Executive Order 12196; 29 CFR 1904, 1910, and 1960; Navy procedures for the reporting, evaluation and abatement of hazards; Navy procedures for reporting and investigating allegations of reprisal, the recognition of hazardous conditions and environments; identification and use of occupational safety and health standards, and other appropriate rules and regulations. CDSO's will also receive any initial training as required in other chapters of this Manual for assigned duties such as Intro to Hazmat Ashore, NAVSOH Assessment Tools and Strategies, Ergonomics, Electrical Safety, Machine Guarding, Fall Protection, and Confined Space.

c. Collateral duty safety personnel who investigate mishaps or near mishaps.

(1) Mishap Investigation (Ashore), A-493-0078 or

(2) Aviation Safety Officer Course (CIN S4J-3302), or equivalent

B0609. Embedded Safety and Occupational Health Training. In addition to SOHTP, many Navy training courses have safety and occupational content embedded into their curricula. Although the safety and occupational health content may constitute a small portion of these training courses, the accuracy and completeness of the safety and occupational health content must be maintained. NAVSAFENVTRACEN will continually update these courses to ensure the inclusion of current safety and health laws, regulations, E.O.s, and DoD and DON policies. Curriculum Control Authorities (CCA) are responsible for course content and will ensure safety and occupational health content in non-safety and occupational health training courses are appropriate, accurate, and complete. When curricula are under development or revision, CCAs may request participation by a SOHTP PM or their representative as a quality assurance check on the accuracy and completeness of the safety and occupational health content.

B0610. Safety Indoctrination Briefing. Commands, units and activities will ensure newly arriving personnel receive a safety indoctrination briefing, generally within 30 days of arrival or before being exposed to any new occupational or local area hazards. At a minimum, this briefing will include:

a. Brief description of the Command's safety organization / policy / POCs

b. Local hazard and mishap reporting procedures

- c. Safety rights and responsibilities (employee and supervisors)
- d. Common safety references (e.g. OPNAVINST 5100 series, CFRs, etc.)
- e. Required safety training (specific to the new individual)
- f. Required personal protective equipment (PPE).
- g. Local and workplace occupational (hazard communication, life safety, emergency management, noise, etc.) and environmental (water, diving, etc.) hazards.
- h. The safety indoctrination briefing is best accomplished as a two-part briefing; one general part addressing those hazards common to all new personnel, and a second, detailed brief for specific hazards found in the individual employee's worksite. Web based training and electronic methods are acceptable.

B0611. Specific Safety and Occupational Health Training

a. All Navy personnel will be provided and must complete SOH related training in those areas needed to safely execute their job duties and tasks. In general, this training will address:

- (1) Any PPE required to be used
- (2) Safety requirements particular to the operation/task.
- (3) Risk mitigation techniques and controls
- (4) Lessons / experiences from previous related operations/tasks
- (5) Accident / incident reporting procedures
- (6) Discussion on all known or perceived hazards associated with the task
- (7) In addition, safety training will contain mandatory or directed elements from applicable federal or state standards (e.g. 29 CFR 1960, 29 CFR 1910, 29 CFR 1915, etc.) and consensus body standards (e.g. NFPA, NEC, ANSI, etc.), in addition to any elements the Command deems necessary for safe task and duty accomplishment.

b. Non-Supervisory Personnel

(1) Commands, units and activities must provide training to non-supervisory personnel consistent with reference (e) that includes process specific safety and health training appropriate to the work performed by the employee. This training must include a review of the relevant

standards, an analysis of the material and equipment hazards associated with the worksite and standard operating procedures for specific tasks. Commands, units and activities must also provide instructions on employee rights and responsibilities under relevant statutes, regulations, and the safety program. Electronic training methods are acceptable.

(2) Safety offices must tailor specialized training to the individual's worksite.

(3) Commands, units and activities must make arrangements to provide training to all new personnel as close to the time of assuming their responsibilities as possible. The initial training provided for new employees must include as applicable:

- (a) Command and or local policy on SOH;
- (b) Work unit policy on SOH;
- (c) Individual responsibility for safety and health;
- (d) Employee reporting procedures for hazardous operations and conditions;
- (e) Awareness of hazards common to the individual's worksite, trade, occupation or task;
- (f) Specific hazards of chemicals and materials used in the workplace and the command or activity's HAZCOM plan;
- (g) An introduction to the local occupational health program, including how to obtain occupational medical assistance, audiology evaluations, and required medical evaluations and procedures to follow in case of occupational illness or injury;
- (h) PPE requirements for the job;
- (i) Mishap reporting procedures.

c. Management Personnel. Navy Leaders, Commanders, Directors, Supervisors or Managers will be provided specialized SOH training to enable them to properly execute their SOH duties and responsibilities (SOH Leadership Training). Commands, units, and activities must provide management personnel with sufficient training, consistent with reference (y), to enable them to actively and effectively support programs in their specific areas of responsibility.

Note: Additional training tools can be found on the Naval Safety Center Web site at: <https://intelshare.intelink.gov/sites/navsafe/Pages/Home.aspx>

d. Supervisors and Employee Representatives

(1) Supervisory personnel are defined as military personnel (E-5 or above) and civilian personnel who give direction to one or more military and or civilian personnel. Commands, units and activities must provide training for supervisory personnel and employee representatives, which will include introductory and specialized courses to enable them to recognize and resolve unsafe and unhealthful working conditions and practices in the workplace.

(2) Commands, units and activities must provide newly assigned supervisors with safety training as soon as possible (but no later than 180 days) after becoming a supervisor.

B0612. Reserve Component Safety and Occupational Health Training. Commanders and COs of Naval reservists will ensure safety and occupational health training appropriate for mobilization duties is obtained.

B0613. Recordkeeping. All SOH related training and briefings will be recorded in the person's official training folder, the Command safety information management system, or local files. In all cases, a course title or number, provider, who attended, date and short training synopsis or outline must be available for inspection/review by inspectors or other SOH professionals. OSHA training standards may stipulate additional training record requirements. If training is received from any source other than NAVSAVENVTRACEN, supervisors must ensure SOH professionals and collateral duty safety personnel upload their training records into the human resources system of records.

B0614. Responsibilities

a. Office of the Chief of Naval Operations Special Assistant for Safety Matters (CNO N09F):

- (1) Provide overall program management for SOHTP;
- (2) Coordinate with the resource sponsor(s) for SOHTP training courses. Ensure billets and funding for SOHTP execution is provided through the planning, budgeting, and execution process;
- (3) Chair the SOHTP Working Group;
- (4) Maintain the list of dedicated safety and occupational health training courses and annually issue an updated list of SOHTP courses and other training vehicles;
- (5) Establish policy for SOH training programs;
- (6) Develop and maintain the SOH NTSP/SOH Navy Career Management Guide; and

(7) Provide resources for the SOH training courses provided and/or administered by the NAVSAFENVTRACEN as outlined in the NTSP.

b. BSOs or Echelon 2's as appropriate will:

(1) Provide representation on the SOHTP Working Group;

(2) Ensure funding is provided to their commands to accomplish necessary safety and occupational health training;

(3) Ensure officer, enlisted personnel, and civilian safety and occupational health awareness training is accomplished during initial accession or employment; and

(4) Provide subject matter experts (SME) to assist in training execution and course review.

c. Naval Education and Training Command (NETC)

(1) Integrate safety and occupational health as appropriate into all formal military Navy training; and

(2) Evaluate training to ensure courses meet the training guidelines.

(3) Develop and maintain training course curricula to ensure accuracy with regulatory, policy, and technical information;

(4) Periodically review approved courses to ensure curricula technical accuracy and completeness. The review must include SMEs not affiliated with the school and ensure the course meets the needs of the target audience and accomplishes learning objectives;

(5) Provide representation on the SOHTP Working Group; and

d. NAVSAFENVTRACEN must:

(1) Direct, coordinate, execute, monitor and evaluate safety training as outlined in reference (a).

(2) Implement assigned actions in the SOH NTSP; and

(3) Develop and maintain training course curricula to ensure accuracy with regulatory, policy, and technical information;

- (4) Ensure safety courses are listed in the Catalog of Naval Training, CANTRAC website.
 - (5) Periodically review approved courses to ensure curricula technical accuracy and completeness using the Training Requirements Reviews (TRR) process. The review must include NAVSAFECEN SOH SME's as well as SMEs not affiliated with the school and ensure the course meets the needs of the target audience and accomplishes learning objectives;
 - (6) Conduct a training needs assessment via Echelon 2 commands, to be completed by 1 September each year.
 - (7) Must perform the executive agent function for the annual Professional Development Symposium (PDS).
 - (8) Provide programming and budgeting information to CNO (N09F); and
 - (9) Provide representation on the SOHTP Steering Committee.
- e. Commander, Naval Safety Center and Commander, NETC must maintain a memorandum of agreement to establish appropriate policies, responsibilities, and execution of SOH training.
- f. Naval Inspector General and President, Board of Inspection and Survey should include evaluations of safety training programs as a part of all inspections.
- g. Commanders of Echelon 2 and Other Headquarters Commands must:
- (1) Establish programs to provide safety training to personnel under their authority.
 - (2) Participate in the TRR courses taught by the NAVSAFENVTRACEN.
 - (3) Complete and submit the Training Needs Assessment including subordinate command(s) input to NAVSAFENVTRACEN by 1 September each year.
 - (4) Include training and competency development course and activity completion by safety professionals and collateral duty personnel in oversight inspections and evaluations.
- h. Commanders, Commanding Officers, and Officers in Charge
- (1) Budget for safety and occupational health training as required; and
 - (2) Identify local safety training requirements and sources for training appropriate for personnel and operations under their cognizance;

(3) Ensure all personnel receive job specific safety and occupational health training so compliance with safety and occupational health laws, regulations, E.O.s, and DoD and DON policies.

(4) Accomplish training consistent with the command or activity needs and the requirements of this chapter as set forth in a local written training plan; and

(5) Maintain local training records.

CHAPTER 7

HAZARDOUS MATERIAL CONTROL AND MANAGEMENT (HMC&M)

- Ref:
- (a) Title 29 CFR 1910.1200, Subpart Toxic and Hazardous Substances (Hazard Communication)
 - (b) DoD Instruction 6050.05, DoD Hazard Communication (HAZCOM) Program, 26 Feb 2019
 - (c) BUMED Instruction 6270.8C, Occupational Health Hazard Assessments, 31 May 2017
 - (d) Title 29 CFR 1910.120, Subpart Hazardous Materials (Hazardous Waste Operations and Emergency)
 - (e) NAVSUP Publication 573, Storage and Handling of Hazardous Materials, 9 Jun 1998
 - (f) NAVSUP Publication 718, Navy Guidance Manual for the Hazardous Material Substitution Process
 - (g) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (h) CNO ltr 5090, Ser: N4/4U745710 Regional Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP), 4 Feb 04
 - (i) Title 29 CFR 1910.120, Subpart Hazardous Materials, Compliance Guidelines
 - (j) DLA Instruction 4145.12, Joint Service Manual (JSM) For Storage and Materials Handling, 12 Apr 1994
 - (k) NAVSUP PUB 505 – Preparing Hazardous Materials for Military Air Shipments, 3 Dec 2012
 - (l) OPNAVINST 5090.1E, Environmental Readiness Program Manual 2 Sep 2019
 - (m) Title 29 CFR 1903, Inspections, Citations And Proposed Penalties
 - (n) Naval Ships Technical Manual (NSTM) 670 Stowage, Handling, and Disposal of Hazardous General Use Consumables
 - (o) Title 29 CFR 1910.1450, Subpart Toxic and Hazardous Substances (Occupational Exposure to Hazardous Chemicals in Laboratories)
 - (p) Title 29 CFR 1910.119, Subpart Hazardous Materials (Process Safety Management of Highly Hazardous Chemicals)
 - (q) DoD Instruction 4715.18, Emerging Chemicals (ECs) of Environmental Concern, 4 Sep 2019

B0701. Discussion

a. This chapter identifies safety and occupational health (SOH) functions and defines requirements and responsibilities for commands, units and activities hazardous material control and management (HMC&M). HMC&M focuses on preventing, minimizing, or eliminating the introduction of hazardous material (HM) into the Navy, substituting less hazardous HM for HM already in the Navy, safely using HM in the workplace, and safely handling and disposing of hazardous waste (HW). HMC&M incorporates the requirements of references (a) through (q).

HMC&M involves a variety of local organizational and functional elements due to the requirements in reference (a), state and local right-to-know laws, overlapping requirements of the laws, and regulations that affect HM use and the logistic aspects of supply and material disposition.

b. The Navy has adopted the Occupational Safety and Health Administration (OSHA) Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3, as part of OSHA's Hazard Communication (HAZCOM) standard. Using this methodology, hazards are recognized through a universal system for labeling. Hazard classification is used to show the intrinsic properties of a chemical compound or mixture. In addition to the hazard class, hazard severity is identified by comparison of relevant data with universal classification criteria. Identified hazards are communicated to workers, consumers, emergency responders, and the public. Further information on GHS is available in reference (b).

c. This chapter summarizes the HMC&M program elements for commands, units and activities, identifies functions for each element, and defines specific responsibilities and actions required for HMC&M program implementation. HMC&M is accomplished by successful implementation of multiple policies and requirements that are established by the safety, occupational health, supply and environmental offices within the Navy.

B0702. HMC&M Program Requirements

a. Health Hazard Assessments (HHAs). A health hazard assessment (HHA) must be performed whenever new HM or a new or different use of existing HM is introduced into the Navy workplace. As part of the HHA, safety and industrial hygiene personnel will perform risk assessments and evaluate the potential health hazards and physical safety risks associated with the HM. The HHA will evaluate if it is possible to minimize hazards through reduction, substitution, or elimination of HM in the process and will include any engineering or administrative controls or personal protective equipment used to mitigate safety or occupational health hazards. Reference (c) provides guidance on the performance of HHA's.

b. All HM used by Navy personnel or on Navy installation or vessels must comply with all applicable storage and segregation requirements. References (d), (e), and (n) provide additional guidance.

c. Any use or storage of HM in the Navy requires authorization. This is accomplished by the Authorized Use List (AUL). The AUL is the list of all HM authorized for use by any command, unit or activity. Each command, unit, or activity (or work center) that uses HM must have an AUL. Only material identified by the workplace AUL is authorized for order, issue, or storage at customer sites. For each HM listed, the AUL must include the National Stock Number (NSN), National Item Codification Number (NICN), or Local Stock Number (LSN) item name, and manufacturer contact information such as address and phone number as they appear on the product label and Safety Data Sheet (SDS).

(1) All proposed additions to the AUL must undergo a review by safety, occupational health, supply, and environmental personnel.

(2) All HM must have a justified need. Attempts should be made to eliminate the use of HM or substitute for a less hazardous HM. Reference (f) provides guidance on substituting and eliminating HM.

(3) Each AUL must be reviewed periodically, annually at a minimum, to eliminate unnecessary HM, substitute less hazardous HM where feasible, and comply with higher level requirements.

(4) NAVSUP is the coordinator and maintainer of the installation or region AUL. The NAVSUP Pub 722 Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) Manual provides additional guidance for the use and maintenance of AULs. Contact the local CHRIMP Center, occupational health, environmental, or safety personnel for assistance, as required.

d. Maintain an SDS for all HM acquired, issued, received, or brought into the command, unit, or activity or facility except those substances or materials excluded from the HAZCOM Standard by Section b of 29 CFR 1910.1200. This requirement may be satisfied by maintaining access to the DOD Hazardous Material Information Resource System (HMIRS) in lieu of maintaining a hard copy. The online service must maintain the appropriate SDS version for the HM issued, received, or brought onto the facility and provide a means to uniquely identify the SDS.

(1) SDSs must be readily accessible to employees during all working hours and that employees have an opportunity to review them prior to working with HM. The term “readily accessible” may be accomplished in several ways. Commands, units and activities may keep the SDSs in a binder, or on computers, as long as the employees have immediate access to the information without leaving their work area when needed, and a back-up is available for rapid access to the SDS in the case of a power outage or other emergency.

(2) If a SDS is not available for an item of HM on hand, an effort must be made to obtain one. If a SDS cannot be obtained, but a Material Safety Data Sheet (MSDS) is available, the MSDS may be used provided the effort made to obtain the SDS is documented and maintained along with the MSDS. If neither a SDS or MSDS can be obtained, then the HM cannot be used. Contact local NAVSUP FLC CHRIMP Center for assistance in obtaining SDSs.

(3) SDSs developed for any HM manufactured at a Navy facility must meet the requirements of references (a) and (ag) and must be distributed to downstream users of HM in accordance with the requirements of reference (a). Contact the Navy and Marine Corps Public Health Center (NMCPHC) for assistance, as necessary. All developed SDSs must be submitted

to Chief, Bureau of Medicine and Surgery (BUMED) for peer review prior to dissemination outside of the developing activity.

(4) An SDS does not need to be developed for small quantities of HM created at a Navy facility and used for research within the facility. However, an SDS must be developed in accordance with paragraph (d) prior to any pre-production testing or evaluation of the HM, including prior to the HM leaving the confines of the facility.

(5) For all procurement involving hazardous material or suspected hazardous material, Federal Standard 313 must be included in contract language which requires the manufacturer to provide an SDS for the product.

e. All HM, except that HM specifically exempt from labeling requirements in section b.(5) of reference (a), will be labeled in accordance with the requirements of section (f) of reference (a). At a minimum, all HM must be labeled with:

(1) The original GHS HAZCOM compliant manufacturer's label, or an exact copy of the GHS HAZCOM compliant manufacturer's label, or

(2) A GHS HAZCOM compliant label generated by a source other than the manufacturer or supplier (e.g., DoD HMIRS system), or

(3) In instances where a GHS HAZCOM label is not available and there is insufficient information available to generate a GHS HAZCOM compliant label, a standard Department of Defense (DoD) DD 2521 Hazardous Chemical Warning Labels (8 1/2" x 11") or DD 2522 Hazardous Chemical Warning Label (4" x 6") may be used until such time that a GHS HAZCOM compliant label can be obtained or generated.

(4) Commands, units and activities will accept the content of manufacturer-provided HAZCOM labels at face value and do not need to verify the technical content of the label. Ensure these labels provide the manufacturer's name, the product name, and hazard warning as required by reference (a).

(5) Labeling deficiencies should be reported to the local commands, units and activities CHRIMP center or supply organization, manufacturer, or distributor that supplied the material.

(6) National Fire Protection Association labels do not comply with reference (a) and may only be used as a supplement to a HAZCOM compliant label.

(7) Tanks and breakdown containers, must be labeled in accordance with the requirements of paragraphs (f)(7) and (f)(8) of reference (a). Piping is not considered a HM container, and is not required to be labeled under the guidelines of reference (a).

(8) Manufacturer labels must not be removed or covered.

(9) HM or chemicals must not be used when not properly labeled.

f. Each command, unit, or activity that uses hazardous material must develop, implement, and revise as necessary a command, unit, or activity-level HM inventory that includes, at a minimum, the identity and quantity (by building) of HM present at the facility.

g. All Navy HM will be issued and tracked from hazardous materials minimization (HAZMIN) centers, also known as CHRIMP centers, following CHRIMP requirements, as prescribed in reference (b) and reference (h). It is important for all afloat and ashore commands, units and personnel, and operations to coordinate with COMNAVSUPSYSCOM, as needed, to improve HM supply procedures and practices

h. Training

(1) Afloat CHRIMP technicians (ACT) and afloat Hazardous Material Coordinators (AHMC) will attend classroom or Web-based HMC&M Program training, such as Afloat Hazardous Material Coordinator Computer Based Training (CBT) available from the My Navy Portal (MNP) Web site. <https://my.navy.mil/>.

(2) Ashore HMC&M training requirements are covered in Chapter 6 of this Manual.

(3) All communities require a program that ensures military members and employees receive and document required HAZCOM training.

(4) The Hazardous Material Control and Management Technician, course A-322-2600, is available and required only for shore and afloat commands with a Secondary Navy Enlisted Classification 830A authorized billet requirement listed on the commands manpower document.

(5) All Navy personnel assigned hazardous material duties are required to take Introduction to Hazardous Materials (Ashore), A-493-0031.

(6) All personnel involved in spill response or hazardous waste operations as outlined by reference (d) must have HAZWOPER training.

i. Use. All commands, units and activities must:

(1) Notify the facility's responsible organization, usually the safety office or the hazardous materials minimization (HAZMIN)/CHRIMP center, if unauthorized HM is delivered

to the shop or work center. When notified, the responsible organization must take action or provide guidance in rectifying the problem. This must be accomplished before the HM is used.

(2) Oversee their respective areas of responsibility to ensure that HAZCOM trained personnel use HM only in processes for which it is authorized via the AUL and to ensure that HM for which there is no apparent authorized use is returned to the HAZMIN center for proper disposition.

(3) Ensure that work processes are performed in accordance with all applicable Environment, Safety and Occupational Health (ESOH) controls.

(4) Provide a mechanism for informing contractors of Navy-owned HM to which their personnel may be exposed, and for informing Navy personnel of contractor-owned HM to which they may be potentially exposed, and for providing Navy personnel with SDSs for contractor-owned HM.

(5) Ensure the command, unit, or activity provides a written plan to adequately address unresolved safety and occupational health concerns regarding the facility AUL, local purchases of hazardous material, other hazardous material management methods, means used to reduce or eliminate hazardous material use, as well as the operation of HAZMIN centers, implementation of CHRIMP and Navy ERP System.

(6) Notify the commands, units or activities environmental staff regarding any HM that is not eligible for shelf-life extension and must be retained beyond its expiration date (e.g., for emergency response purposes when new stock is unavailable). This ensures that overlapping Environmental program requirements related to management of HM (and, subsequently hazardous waste) can be properly considered and addressed.

j. HMIRS. All commands, units and activities must participate in the DoD Hazardous Material Information Resource System (HMIRS) in accordance with the guidance contained in Appendix B7-A. (<http://www.dla.mil/HQ/InformationOperations/Offers/Products/LogisticsApplications/HMIRS.aspx>)

k. Processing of HM. Commands, units and activities as well as HAZMINCEN/CHRIMP Centers must have a written plan outlining the criteria and procedures for reviewing incoming SDSs to ensure they contain the information required by reference (a). SDS deficiencies must be reported to the cognizant manufacturer or distributor for correction.

l. Transportation of all HM will be done in accordance with reference (i), (j) and (k).

m. All Navy facilities must maintain contingency plans to combat releases of HM, hazard substances, or discharges of oil, and minimize hazards to human health and the environment, as

outlined in Chapters 30 and 39 of reference (l). These plans will include the safety requirements for spills to ensure compliance with higher level directives including reference (d).

n. The HMC&M program receives inspections and oversight from each of the core functional areas of safety, industrial hygiene (IH), supply, and environmental in addition to any higher echelon oversight as prescribed elsewhere in this manual as well as outlined in reference (m). The periodicity for inspections and oversight differ dramatically. These minimum requirements are provided:

(1) Safety – During every workplace inspection where HM is used or stored.

(2) Industrial Hygiene – During every periodic industrial hygiene survey (PIHS) conducted by IH personnel as stated in chapter 8.

o. Household-like Material. A household product that is used in a workplace in such a way that the duration and frequency of use are the same as that of a consumer is not required to be included in the hazardous material program. It is up to each individual command, unit or activity to make this determination for their workplaces by assessing the exposure potential of the consumer products that may be utilized and ensure that the frequency and duration of use of these products, by their personnel, are not greater than that of normal household use.

B0703. Afloat HMC&M. Chapters B3 and D15 of reference (g) and Chapter 22 of reference (l) delineate functional responsibilities of key HMC&M participants aboard Navy ships and submarines. Reference (n) contains storage requirements, management, implementation guidance, and precautions for handling hazardous material. In general, COMNAVSUPSYSCOM CHRIMP ashore activities must coordinate with ships and submarines regarding the movement of used and excess HM and ensure that containers are properly segregated, packaged, and labeled in accordance with reference (a) and ensure that SDSs are provided to the shore receiving command, unit, or activity along with the applicable used or excess HM.

B0704. Chemical Hygiene Plans. Commands, units and activities with laboratories, as defined in reference (o), must develop chemical hygiene plans. The chemical hygiene plans may cover more than one laboratory, as long as similar work is performed at each laboratory and the other requirements of reference (o) are met. There may be instances where a laboratory may need both a chemical hygiene plan and a HAZCOM program. Cognizant headquarters commands will assist commands, units and activities in identifying specific laboratories that meet the definitions in reference (o).

B0705. Process Safety Management. Commands, units and activities having processes that meet the threshold quantities of reference (p) must follow the requirements of that reference.

B0706. Nanoscale Materials. Changing science in the emerging field of nanomaterials may discover potential risks to health, safety and the environment that are currently not well understood. The terms “nanomaterials” or “nanoscale” materials are defined as those in the size range of approximately 1-100 nanometers in mean diameter. At this scale, the risks are dependent not only on chemical toxicity, but on the potential for a greatly increased surface area available to react and even the actual shape of the particles comprising the nanomaterials. Due to their small size, nanomaterials may follow different routes of entry and affect different target organs than the corresponding materials of sizes routinely encountered. Materials commonly believed to be low risk, may no longer be, when reduced to a nanoscale. Service components and program managers must ensure that ESOH hazards and the risks associated with nanomaterials are identified and managed pursuant to DoD policy requirements.

a. Commanders, Commanding officers, and Officers in Charge must ensure that the use of nanomaterials and engineered nanomaterials at their commands, units and activities is identified, and appropriate hazard controls are implemented.

b. Commands, units and activities engaged in the manufacture of nanoscale materials must ensure that a SDS is developed which accurately describes the materials and their known hazards. Commands, units and activities involved in the research, development, testing, or evaluation of nanoscale materials must follow reference (o) and document use and handling of nanomaterial in a command, unit or activity chemical hygiene plan. Such SDSs must be made available to employees, as well as recipients of shipments of such materials. All developed SDSs must be submitted to BUMED for peer review prior to dissemination outside of the developing activity. Materials produced solely for in-house analysis and research by those familiar with the material do not require preparation of an SDS.

c. In the absence of information, consult the BUMED Industrial Hygiene Department who can assist in obtaining or developing the required information, and provide a HHA in accordance with 0702.a.

B0707. Responsibilities

a. Chief of Naval Operations Special Assistant for Safety Matters (CNO N09F) establishes policy for HM to cover all safety related aspects of HM.

b. Chief of Naval Operations, Energy and Environmental Readiness Division (CNO N45) establishes the environmental policy for HM and has complete environmental oversight of all HM and Hazardous Waste (HW) within the Navy.

c. Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) establishes the supply related policy for all HM except as excluded by reference (g).

(1) Develop and recommend to CNO N09F, and cognizant program managers those policies and procedures and any associated life cycle costs to enhance personnel safety and systems acquisition or facilities safety, and reduce or minimize entry of new HM into the supply system.

(2) Coordinate with Commander, United States Fleet Forces Command (USFF) and Commander, United States Pacific Fleet (CPF), SYSCOMs, and CNO N09F for Navy-wide HM and chemicals substitution as stated in references (c) and (q).

(3) With cooperation of Commander, Navy Installations Command (CNIC), implement Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) operations at all commands, units and activities and installations.

(4) Determine training and assistance for required supply aspects of HM including CHRIMP implementation at afloat and ashore and commands, units and activities.

(5) Establish hazardous material logistics requirements, material information systems, mark and label containers received, shipped, distributed, or issued for use, provide assistance on hazardous material storage compatibility, control hazardous material acquired or used overseas, acquire only that hazardous material authorized by activity hazardous material AULs, and issue guidance for hazardous material reuse and shelf life management.

(6) Ensure Enhanced CHRIM Afloat Program (ECAP) services are provided to all Navy ships and submarines in Navy ports to maximize reutilization of hazardous material and ensure proper training and system updates occur on Navy ships and submarines.

(7) Maintain and update procedures and instructions to ensure ship-to-shore transfer of used hazardous material is accomplished per requirements and policies for HMC&M in accordance with environmental policy.

(8) Establish and maintain ship-to-shore off-load assistance procedures for excess hazardous material and establish performance metrics to monitor CHRIMP Afloat effectiveness for achieving hazardous waste minimization goals.

d. Chief, Bureau of Medicine and Surgery (BUMED) will upon request, in addition to the general occupational health responsibilities for HM evaluation and consultation addressed in Chapter 8 of this Manual:

(1) In coordination with safety professionals:

(a) Perform health hazard assessments (HHAs) for:

1. New HM.

2. New uses for existing HM.

(b) Confirm requirements for toxicological research for:

1. New systems.

2. For Navy-unique HM.

3. Navy-manufactured HM.

(c) Peer review of Safety Data Sheets (SDSs) developed for Navy-manufactured HM or nano-scale materials for acceptability.

(2) As appropriate, ensure development of needed data for the safe use and handling of the HM in Navy systems, both ashore and afloat. Reference (b) provides additional guidance.

(3) Assist Navy systems commands (SYSCOMs), echelon 2 commands, program managers, commands, units and activities with implementing HMC&M requirements and performing HHAs associated with management of the facility-level authorized use list (AUL).

e. Naval Safety and Environmental Training Center will develop and deliver effective training as identified by all applicable safety, occupational health, supply, and environmental policies and regulations.

f. Commanders of headquarters commands, units and activities budget submitting offices will coordinate with CNO N09F, CNO N45, BUMED, COMNAVSUPSYSCOM, program managers, field activities, and Navy commands, units and activities to implement and maintain HMC&M and CHRIMP programs as required by this Manual. Budget submitting offices must provide safety support and funding appropriate to develop and implement HM elimination and substitution processes for all systems and operations under their cognizance.

g. Navy commands, units and activities will coordinate with Commander, Navy Installations Command (CNIC), program managers, and field activities to which they provide support to implement, manage, and maintain HMC&M programs as required by this Manual. Navy commands, units and activities executing centralized HMC&M program functions on behalf of shore facilities must comply with those provisions applicable to commands, units and activities in accordance with this chapter.

h. Commanders, commands, units and activities officers, and officers in charge of Navy activities in foreign countries must conform to U.S. OSHA laws and regulations and to this chapter, and to the extent feasible, comply with applicable HM and HW requirements of host nation Status of Forces Agreements (SOFAs), Final Governing Standards, Overseas

Environmental Baseline Guidance Document, or other official agreements which are more restrictive than U.S. regulations.

i. Commands, units and activities must:

(1) Define and assign responsibilities within the facility for the HMC&M program and ensure compliance with this chapter.

(2) Ensure activity managers, such as shop heads, general foremen, and supervisors participate in the HMC&M and CHRIMP program.

(3) Ensure that a compliant written HAZCOM plan is implemented that addresses the key elements of reference (a).

APPENDIX B7-A

HAZARDOUS MATERIAL INFORMATION RESOURCES SYSTEM (HMIRS)

1. Background and Discussion

a. DOD established HMIRS as the authoritative source for Safety Data Sheets (SDSs) and other value added information for hazardous materials. HMIRS provides a means of sharing and communicating information on HM procured by DOD components with other commands, activities, and units within DOD. The overall operation of HMIRS is prescribed in reference (c). This appendix discusses the Navy's implementation and operation of HMIRS.

b. The Defense Logistics Agency (DLA) manages the DOD HMIRS. Local users of hazardous material receive SDSs via vendors or suppliers who provide them in accordance with references (n). The Navy is responsible for entering Navy managed NSNs and locally procured items in the HMIRS. Navy records are entered into HMIRS through two HMIRS Focal Points. The Navy Health and Safety Focal Point for HMIRS is the Navy and Marine Corps Public Health Center (NMCPHC) and the Logistics Focal Point is NAVSUP Weapon Systems Support (WSS). SDSs received by contracting and local users must be provided to the HMIRS focal points to be initiated as a record in HMIRS in accordance with the instructions in this appendix.

c. The provisions of this appendix and reference (a) are not applicable to:

(1) HM purchased by the military exchange systems for subsequent resale, however, the Consumer Product Safety Commission or other regulatory agencies may regulate the sale of that material.

(2) Laboratory quantities of chemicals or other HM when used by qualified professions in Navy laboratories as defined in reference (o). In both these situations, the special provisions of reference (a) apply.

2. System Operation

a. Vendors and Suppliers. Vendors selling material to DOD activities will submit an OSHA compliant SDS, GHS compliant label, and product data sheet as required by FED STD 313 to the procuring command, unit or activity per the procurement contract. Reference (n) contains instructions for completing the SDS forms.

b. Commands, Units, and Activities

(1) Contracting officers for Navy commands, units, and activities purchasing HM or consumables through vendors or local purchases must require the SDS, GHS compliant label, and/or product data sheet as a line item deliverable in the contract for all Navy managed HM. Contracting officers will attach a copy of documentation that adequately identifies the product

(including National Stock Number (NSN)/locally (service)-assigned Stock Number (LSN), contract number, applicable military/Federal specification to which the product conforms and date of purchase or requisition and a point of contact within the contracting command, unit, or activity to the SDS. Hazardous Materials purchased through other federal agencies (e.g., DLA, Government and Services Administration) will be entered into the HMIRS by their respective Focal Points.

(2) Upon Navy contract award, the contracting officer or Hazardous Material Minimization Center (HAZMINCEN) personnel must forward electronic copies of the SDS, product data sheet, and GHS compliant label to the NAVSUP WSS, which is the Navy (service) SDS submission point for HMIRS. Submissions must be electronically sent to this address except for hazardous materials managed through a Navy ashore HAZMINCEN. HAZMINCENs should follow established procedures to enter a hazardous material master record into Navy ERP which includes an HMIRS build, if necessary.

afloathazmat.wss.fct@navy.mil
Additional contact information is:
NAVSUP WSS
Attn: Code N26, Bldg. 312
5450 Carlisle Pike
Mechanicsburg, PA 17055-0788
717-605-1560

(3) For hazardous material acquired locally (credit card, blanket purchases, direct buys or "off-the-shelf" purchases) by a Navy command, unit, or activity, including ships or submarines, must ensure it obtains an SDS from the vendor and the SDS is available at the command, unit, or activity. The Navy command, unit or activity must determine whether the SDS is present in the HMIRS and if not present forward the SDS to NAVSUP WSS, in accordance with the instructions in paragraph 2b(2).

NOTE: There may be more than one SDS for a given HM or stock number (LSN or NSN) due to formulation changes and different manufacturers. The HMIRS uses a unique five-digit alpha serial number (i.e. DYTCV) based on stock number, manufacturer/Part Number, chemical composition, and other physical/chemical hazards. If determined these match exactly and only the date of the SDS has changed the item will be loaded under the same HMIRS serial number. If different, the item will be loaded under new HMIRS serial number.

(4) To the requirements of reference (a), each command, unit, activity must maintain an (M)SDS for all hazardous material issued, received, or brought on the facility. This requirement may be satisfied by subscription to an online SDS service in lieu of maintaining a hard copy.

c. NAVSUP WSS.

(1) NAVSUP WSS Hazardous Material and Pollution Prevention Code N26 must:

- (a) Act as the Navy Logistics service focal point for HMIRS.
- (b) Receive SDS and applicable documents from Navy activities.
- (c) Review each SDS and applicable document for legibility, and compliance with reference (c). Reject illegible and non-compliant information back to submitter.
- (d) For Navy managed (NSN) material; enter SDS as a full record into the HMIRS system with these data elements; SDS or product data sheet, electronic copy of manufacturer GHS label or generate a GHS label in the HMIRS, Logistics and identifier information, chemical ingredient and percentage information, and the Hazardous Characteristics Code (HCC).
- (e) For Navy locally procured (LSN) material; enter SDS as “shell” record into the HMIRS system with these data elements; SDS or product data sheet, Logistics and identifier information, and the Hazardous Characteristics Code (HCC).
- (f) For NSN material managed by another service; enter SDS as “shell” record into the HMIRS system with these data elements; SDS or product data sheet, Logistics and identifier information, and the Hazardous Characteristics Code (HCC). These records will be transferred to the appropriate service focal point for completion.
- (g) Ensure quality assurance practices are in place for consistent hazardous material data entry.
- (h) Forward new Navy Managed NSN HMIRS product records to NAVSUP WSS N3. All WSS N26 established records will be available as “active” on the HMIRS web version.

(2) NAVSUP WSS Transportation and Distribution Code N32 must:

(a) Upon notification from NAVSUP WSS N26 that a Navy-managed HMIRS record was added, NAVSUP WSS (T&D) will prepare and enter transportation data into HMIRS using the procedures and guidelines found in reference (c).

(b) Forward initiated Navy Procured NSN HMIRS product records with completed transportation data to NMCPHC.

d. Navy and Marine Corps Public Health Center (NMCPHC).

(1) NMCPHC will act as the Health and Safety Navy service focal point for HMIRS, coordinate Navy HMIRS health and safety data for Navy managed NSN materials.

(2) Ensure that all complete SDSs are properly disseminated or processed for entry into HMIRS in accordance with the requirements and guidelines specified in reference (c).

(3) Upon receipt of initiated HMIRS records from NAVSUP WSS, perform safety and health review and data entry in accordance with the requirements and guidelines specified in reference (c).

(4) Notify the Naval Sea Systems Command Detachment Radiological Affairs Support Office (NAVSEA DET RASO) of each new Navy-managed HMIRS entry that contains radioactive materials so that HMIRS radiological data can be prepared for the record.

e. Naval Sea Systems Command Detachment Radiological Affairs Support Office (NAVSEA DET RASO). Upon notification from NMCPHC that a Navy-managed record in HMIRS needs radiological data, NAVSEA DET RASO will enter radiological data into HMIRS using the procedures and guidelines found in reference (c).

3. Outputs

a. The DOD HMIRS is an internet-based product. As such, the primary output product for HMIRS is the HMIRS web site. The HMIRS web site allows access to both the proprietary (LR) and non-proprietary (L) versions of HMIRS. Access to the non-proprietary version of HMIRS requires a User Identity (ID). Access to the proprietary version of HMIRS requires both a User ID and a Pass code. DLA issues and manages User Ids and Pass codes for HMIRS. You may request access to the DLA HMIRS system at:

<http://www.dla.mil/HQ/InformationOperations/Offers/Products/LogisticsApplications/HMIRS.aspx>

b. HMIRS Digital Versatile Disc (DVD) – set is produced on an annual basis and contains a subset of information from the HMIRS. The subset contains only recent records (within five years or most recent record) of hazardous materials approved on the Ships Hazardous Material List (SHML) and Submarine Material Control Lists (SMCL). The product is intended for use by ships and submarines that do not have reliable internet access. Ships and submarines should use the web based HMIRS system should when internet access is available. NAVSUP WSS manages the Navy HMIRS DVD distribution list and distributes the DVDs annually to all ships and submarines. Ship and submarine requests for distribution list additions or changes should be forwarded to:

afloathazmat.wss.fct@navy.mil

Additional contact information is available through:

NAVSUP WSS Code N261, 717-605-9144, DSN 430-9144

4. Proprietary Information. The HMIRS outputs and SDSs may contain information that the supplier considers proprietary. To protect both the supplier and the Government, the contract

under which the SDS is obtained from the supplier must contain the "Rights in Technical Data and Computer Software Clause" of reference 7-14. In these outputs, all proprietary information of the supplier that satisfies the definition of limited rights data (i.e., technical data pertaining to items, components or processes developed at private expense) is marked with the "limited rights legend" prescribed in the Rights in Technical Data and Computer Software Clause. All Navy activities must protect this data.

CHAPTER 8

OCCUPATIONAL HEALTH

- Ref:
- (a) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (b) DoD Instruction 4000.19, Support Agreements, 30 Nov 2017
 - (c) DoD Instruction 6055.05, Occupational and Environmental Health (OEH) 11 Nov 2008
 - (d) Title 29 CFR 1910, Occupational Safety and Health Standards
 - (e) Title 29 CFR 1915, Occupational Safety and Health Standards for Shipyard Employment
 - (f) Title 29 CFR 1926, Safety and Health Standards for Construction
 - (g) Handle Censored Industrial Hygiene Data Technical Information Paper No. 55-039-0615
 - (h) Industrial Hygiene Field Operations Manual NMCPHC-TM6290.91-2, latest version
 - (i) AIHA, A Strategy for Assessing and Managing Occupational Exposures, 4th Edition, 2015
 - (j) Title CFR 1910.1020, Access to Employee Exposure and Medical Records
 - (k) Occupational and Environmental Medicine Field Operations Manual NMCPHC TM 6260.9A, Apr 2017
 - (l) Title 5 CFR 339 - Medical Qualification Determinations
 - (m) 8-14. NAVMED P-117, Manual of the Medical Department (MANMED)
 - (n) NMCPHC Technical Manual OM 6260, Medical Surveillance Procedures Manual and Medical Matrix, Aug 2015

B0801. Discussion

a. Navy personnel perform activities and operations which involve potential exposure to chemical, physical and biological hazards which can cause occupational illness and disease if not effectively controlled. The primary objective of the Navy Occupational Health (OH) Program is to ensure a safe and healthful work environment for all Navy personnel, through the identification, assessment, and control of exposure hazards, and through the recognition, diagnosis, treatment, prevention and control of occupational illness and disease caused by exposures to these hazards.

b. Three major disciplines, in the Bureau of Medicine and Surgery (BUMED), comprise the OH program and oversee OH program services at all echelon levels in the Navy and Marine Corps. The disciplines are Industrial Hygiene (IH), Occupational and Environmental Medicine (OEM), and occupational audiology. Occupational audiology encompasses hearing loss prevention, diagnosis, disposition, and Hearing Conservation Program Management. (See Chapter 18 of this manual.) The Occupational Safety professional's role in the OH program is to support commands, units, and activities in establishing exposure abatement or control programs, risk assessment and inspection programs, and training programs. Successful implementation of

the OH Program requires the close and continuing teamwork of Safety and OH personnel. These specialties, working together, form the basis for an active Occupational Health (OH) program. Their integration at the local level provides a valuable tool in preventing, identifying and treating occupational injuries and illnesses. Refer to paragraph B0808 for detailed guidance on the role Occupational Safety in supporting the Navy OH Program.

c. This chapter applies to occupational health efforts at all Naval shore commands, units and activities including those that support Marine Corps commands, units and activities. Reference (a) covers occupational health for forces afloat. Major functional components not included in this chapter are contained in other chapters of this Manual.

d. Priorities for OH support are determined by exposure risk and the availability of the customer or patient. Generally, Department of the Navy (DON) operational and industrial activities have the highest priorities. OH services may be provided to other Department of Defense (DoD) activities and then to other federal activities as resources allow, and if interservice support agreements are established as required by reference (b).

B0802. Industrial Hygiene

a. Navy industrial hygiene personnel anticipate, recognize, evaluate, and make recommendations to control and prevent unacceptable workplace exposures. Exposure assessment of Navy workplaces requires a sound, logical strategy and must be based on references (c) and (d) through (i). The purpose of such a strategy is to accomplish at least four goals:

(1) To assess potential health risks faced by Navy personnel by understanding their exposures, to differentiate between acceptable and unacceptable exposures, and to control unacceptable exposures.

(2) To establish and document a historical record of exposure levels for Navy personnel and to communicate exposure monitoring results.

(3) To ensure and demonstrate compliance with safety and health exposure criteria.

(4) To provide a basis for hazard based medical surveillance examinations.

b. The occupational exposure assessment strategy is the plan for recognizing, evaluating, and documenting all exposures, and for developing controls for occupational exposures that are judged unacceptable. There are five major steps in setting up a functioning occupational exposure assessment program:

(1) Basic characterization

(2) Exposure Assessment

- (a) Define similar exposure groups (SEG)
- (b) Define exposure profiles for each SEG
- (c) Judge acceptability of the exposure profile for each SEG
- (d) Recommend control strategies

(3) Further information gathering

(4) Communications and Documentation

(5) Reassessment

c. All Navy shore commands, units, and activities must have a current comprehensive industrial hygiene exposure assessment of each workplace, in accordance with reference (c), conducted by the BUMED IH, unless the command, unit, or activity receives IH services through a supporting DOD Field Activity or other DOD Agency (e.g., another service under a joint basing agreement). The level of IH services is collaboratively determined by the supporting DOD Field Activity or other DOD Agency and the supported command, unit, or activity.

d. Basic Characterization of the Workplace (Walk-through Survey). The first step in the Navy's exposure assessment strategy is to characterize the workplace, workforce and environmental agents. The cognizant IH must conduct a survey of each workplace to obtain, as a minimum, this information:

(1) A list of equipment used in the workplace that presents significant risk.

(2) Descriptions of operations, tasks and work practices that take place in the workplace (e.g., welding, spray painting). For fixed locations the description may include a layout sketch incorporating relevant aspects of the factors listed, along with the number of persons assigned to the operation or task and the specific work area(s) occupied. For other work locations where similar operations are completed, the IH must account for any changes in the work process that could potentially expose the workers to different or a different level of hazards. The IH must note the frequency and duration of events taking place within all workplaces.

(3) A list of hazardous materials (HM) used in the workplace that present significant risk. The list must include a description of use at each workplace. Reproductive and development hazards as well as carcinogens must be specifically identified.

Note: IH's must have access to a copy of the authorized use list for the workplaces being surveyed.

(4) A list of physical hazards (e.g., noise, ergonomic stressors, non-ionizing radiation, etc.) in the workplace that present significant risk including a brief description of their source(s).

(5) A description of existing controls (e.g., industrial ventilation, fall protection equipment, and personal protective equipment).

e. Exposure assessment. The BUMED IH will assess exposures using all the information available. The outcomes include: groupings of workers having similar exposures, definition of an exposure profile for each similarly exposed group and judgments about the acceptability of each exposure profile.

(1) Define Similar Exposure Groups (SEG) - The BUMED IH will group workers having the same general exposure profile by the similarity and frequency of the tasks they perform, the materials and processes with which they work, and the similarity of the way they perform the tasks.

(2) Define Exposure Profiles for each SEG - The BUMED IH will use all quantitative and qualitative data to determine the degree of personnel exposure (i.e. perform qualitative risk assessment to estimate the exposure intensity and how it varies over time for each SEG). Estimates of the actual exposure levels for the SEG will be made whenever feasible. Exposure monitoring is the primary means of quantifying exposure levels for use in profile acceptability.

(3) Make judgments on acceptability of the exposure profile for each SEG. The BUMED IH must judge the SEG exposure profile as acceptable, uncertain, or unacceptable as defined in reference (c), and (d) through (i).

(4) Make Control Strategy Recommendations - The BUMED IH must make appropriate recommendations regarding the workplace, workforce and environmental agents based on the results of the exposure assessments by using accepted industrial hygiene practices, which comply with appropriate regulatory requirements.

f. Further information gathering. Exposure profiles that are not well understood, or for which acceptability judgments cannot be made with high confidence must be further characterized by collecting additional information. Information needs may be quantitative or qualitative depending on the exposure profile and judgment.

(1) Quantitative Exposure Monitoring - Monitoring the workplace for toxic substances and harmful physical agents is the primary means of assessing:

(a) Personnel exposures

(b) The need to control exposures

(c) The effectiveness of measures directed at reducing or eliminating health hazards. An IH must accomplish these assessments using data gathered from representative sampling programs in the workplace. Analysis and interpretation of the data from this sampling assists in the timely assessment of hazards, in making recommendations for changes to existing conditions, and in recommending medical surveillance of exposed personnel.

(2) Qualitative Exposure Decisions – Judgments or decisions made in the absence of quantitative exposure data. Examples include professional judgment, exposure modeling, or biological monitoring. The BUMED IH must determine the appropriate information needed, gather it, and evaluate it so that an acceptable or unacceptable exposure assessment is reached and appropriate controls and recommendations can be implemented.

g. Communications and Documentation. Exposure assessment reports and records are critical elements of the exposure assessment process. Reports and records are needed to ensure effective communication of workplace findings and successful continuity of the industrial hygiene program.

(1) The cognizant BUMED IH must maintain documentation on:

- (a) Workplace basic characterization
- (b) Exposure profiles
- (c) Exposure assessment judgments and findings
- (d) Health hazard controls
- (e) Recommendations
- (f) Reassessment frequency

(2) The BUMED IH must document assessments, SEGs, which SEGs require medical surveillance, and quantitative and qualitative determinations as specified by BUMED policy guidance and the Industrial Hygiene Field Operations Manual, reference (h).

(3) The cognizant BUMED IH must prepare and implement an exposure monitoring plan to:

- (a) Fulfill regulatory sampling requirements.
- (b) Collect sufficient data to allow statistically valid exposure assessments.
- (c) Track workplace exposures to determine trends.

- (d) Validate professional judgments of unchanged exposure assessments.

The exposure-monitoring plan may be included in the Periodic Industrial Hygiene Survey (PIHS). If the BUMED IH used this methodology, he or she must include the following information:

1. What must be sampled
2. How often the sampling should be performed

If the BUMED IH does not include the exposure-monitoring plan in the PIHS, he or she may use OPNAV 5100/14 Exposure Monitoring Plan or a computer-generated facsimile (i.e., containing data fields of OPNAV 5100/14) for developing the exposure-monitoring plan. When the BUMED IH performs the exposure monitoring, he or she may incorporate the exposure-monitoring results in the PIHS.

IHs (or IH technicians or exposure monitors under the technical direction of an IH) must conduct all exposure monitoring per reference (h). Exposure monitors must successfully complete the industrial hygiene techniques and exposure-monitoring course and a period of on-the-job training as appropriate.

h. Reassessments. Assessments of supported commands, units and activities will occur using a complementary two tier approach: 1) PIHS and 2) shop specific supplement to the PIHS as outlined:

(1) Periodic Industrial Hygiene Survey (PIHS): This periodic survey is intended to provide supported activities with a comprehensive overview and summary of the command's IH and OH program. Each command, unit and activity will be provided with a PIHS that contains the elements outlined in reference (h). The BUMED IH must, at a minimum provide a PIHS for each supported command, unit or activity at these frequencies:

- (a) Category I (High Hazard) commands, units or activities-Annually;
- (b) Category II (Moderate Hazard) shore commands, units and activities-Every 2 years;
- (c) Category III (Low Hazard) commands, units and activities-Every 4 years.

(2) Shop Specific Supplements to the PIHS: The BUMED IH must, at a minimum, conduct periodic exposure assessments of supported command, unit and activity shops, and provide each supported command, unit and activities with a shop specific supplement to the

PIHS that contains the elements outlined in reference (h). Shop surveys must be performed using shop prioritization criteria outline in reference (h) at these frequencies:

- (a) Priority 1 (High Hazard) shops – Annually;
- (b) Priority 2 (Moderate Hazard) Shore shops – Every 2 years;
- (c) Priority 3 (Low Hazard) shops – Every 4 years

(3) Exceptions: All afloat activity shops will be designated as Priority 2 shops and will receive a comprehensive PIHS every 3 years, as outlined in reference (h). All Reserve Center shops will be designated as Priority 3 shops and will receive a singular combined command, unit or activity shop-based PIHS every 4 years. Reserve Centers with industrial process changes, changes to work practices, or other occupational health concerns should contact their supporting industrial hygiene activity for consultation or possible evaluation.

B0803. Retention and Access to Sampling Records (Disposition)

- a. The BUMED IH must forward individual exposure monitoring information to the cognizant OEM staff (or medical department supporting operational commands, units, or activities) for review and placement into the individual's medical record (paragraph B0807 discusses medical records).
- b. BUMED must retain survey, evaluation and sampling records for a minimum of 40 years (except where specific applicable standards require retention for a longer time).
- c. Whenever an employee or designated representative requests access to a record, the supporting medical activity must assure that access is provided in a reasonable time, place and manner as required by reference (j).

B0804. Occupational Exposure Registry and Data Bank. The Defense Occupational and Environmental Health Readiness System-Industrial Hygiene (DOEHRS-IH) information management system is used for documenting longitudinal exposure, recordkeeping, and reporting.

- a. The BUMED IH personnel are required to use DOEHRS-IH to create a comprehensive record of occupational hazards, shop and process information, controls, potentially exposed populations, similar exposure groups (SEGs), sampling/exposure monitoring data, SEG exposure assessments, and recommendations.
- b. The BUMED IH personnel will establish SEGs in DOEHRS-IH. SEGs must be populated with data from PIHS and exposure monitoring to include personnel assignments. SEG personnel assignments must be fully populated, and include a unique personal identifier to track the

longitudinal exposures of individuals and SEGs. In support of this requirement BUMED IH staff is required and authorized to collect and record the name, date of birth (DOB) and personal identifier (i.e. DoD ID number and/or social security number/foreign national number as necessary) for military, civil service, and foreign national employees.

B0805. OEM Program

a. OEM is a critical part of the multidisciplinary approach to the prevention of work-related injuries and illnesses and in the promotion of healthful work practices throughout the Naval workforce. A comprehensive OEM program is defined in references (k) through (m). A comprehensive OEM program includes but is not limited to:

- (1) Treatment and referral (if indicated) of work-related injuries and illnesses;
- (2) Medical surveillance program management including:
 - (a) Validation of personnel identified for medical surveillance programs based on industrial hygiene data and specific functions and job tasks performed by the individual (e.g., forklift operators, sanitation worker, etc.);
 - (b) Medical surveillance examinations in accordance with reference (n) (use form referenced in paragraph B0805.c(1));
- (3) Fitness for duty medical evaluations (e.g., ordered by civilian personnel managers on the basis of observed unacceptable performance); must be performed in accordance with reference (c);
- (4) Medical qualification examinations in accordance with reference (k) ((e.g., pre-placement, job certification, return-to-work, etc.);
- (5) Worksite consultations and non-regulatory inspections;
- (6) Epidemiological assessments of available injury and illness data to assist with prevention efforts and reduction of lost work time;
- (7) Occupational injury and illness case management to restore workers to optimal health and productivity;
- (8) Occupational audiology services in support of the hearing conservation program as outlined in Chapter 18;
- (9) Appropriate immunizations, chemoprophylaxis, and other measures to prevent disease due to occupational exposure; and

b. For more details of program requirements see reference (l).

c. Commands, units and activities must identify personnel requiring medical surveillance, ensure their enrollment in the applicable program(s), and track them in a roster or equivalent database. The workplace supervisors must coordinate with the cognizant medical department representative to enroll personnel performing operations identified in the IH survey as requiring medical surveillance to ensure guidance in references (m) and (n) are followed.

(1) The SECNAV Form 5100/1 Supervisors Medical Surveillance and Certification Exam Referral, provides commands, units and activities a basic means of tracking this information and must be used by commands, units and activities to refer all military and federal civilian personnel with medical surveillance and/or certification requirements to the supporting occupational health clinic.

B0806. Consultative Assistance Teams

To facilitate OH program support, consultative assistance teams (CATs) from BUMED are available to provide timely, high quality, technical and professional assistance to field activities. CATs are available for all aspects of OH including industrial hygiene, occupational medicine, and occupational audiology.

a. The 3 types of CATs are:

(1) Type I. Provides assistance for situations that are beyond the professional capability of local resources and which may threaten or have adverse health effects to naval personnel or their working environment.

(2) Type II. Provides professional and administrative personnel to evaluate program management, effectiveness of program implementation and management of resources.

(3) Type III. Augments local staff to provide required services beyond the capabilities of the requesting activity.

b. Requesting a CAT. Medical activities requiring CAT assistance must submit requests to Navy Medicine command, unit or activity commanders via the chain of command by letter or message. After receiving a request, the command, unit or activity medical commander must contact the requesting activity and determine scope of work and funding. If the request is beyond the scope of the command, unit or activity, the medical commander will forward the request to the next level in their chain of command. In emergency situations, a request by telephone or email is acceptable with a follow-up confirmation letter or message.

c. Limitations. CATs must not conduct pre-Navy Inspector General SOH program oversight reviews. Requesting commands, units and activities are ultimately responsible for all

required sampling and surveys. CATs will not normally conduct thorough routine PIHS, but will assist in evaluating new processes or environments.

B0807. Medical Records. Maintenance, retention, and disposition of occupational medical records must be performed following references (c), (k), and (n).

B0808. Occupational Safety Personnel. Occupational safety personnel are jointly responsible for identifying work areas where workers need medical examinations because of specific hazardous exposures. In coordination with one another, industrial hygienists and safety personnel identify potentially hazardous products and processes to assess risk of exposure hazards and prioritize mitigation of exposure hazards. Safety personnel perform these requirements in support of the Occupational Health Program:

a. Risk Assessment – Safety personnel obtain industrial hygiene exposure assessments provided in PIHS. Based on the results in the PIHS, safety personnel provide an onsite safety risk assessment to prevent harmful employee exposures to recognized exposure hazards associated with workplace operations.

b. Written Programs – Safety personnel develop written compliance and exposure control programs based on the current PIHS. The command’s latest PIHS identifies specific written program requirements, where exposures to specific Occupational Safety and Health Administration (OSHA) regulated substances trigger written program requirements. Examples of written programs requirements are found in the OSHA specific substance standards, HAZWOPER standard, and the Respiratory Protection standard, as shown in the table or reference (n). The table only lists General Industry requirements. Construction and Shipyard specific substance requirements are found 29 CFR 1926 and 29 CFR 1915, respectively. Refer to the latest PIHS for applicable programs.

Lead	29 CFR 1910.1025
Asbestos	29 CFR 1910.1001
Inorganic Arsenic	29 CFR 1910.1018
Benzene	29 CFR 1910.1028
Beryllium	29 CFR 1910.1024
Cadmium	29 CFR 1910.1027
Chromium (VI)	29 CFR 1910.1026
Coke Oven Emissions	29 CFR 1910.1029
Cotton Dust	29 CFR 1910.1043
13 Carcinogens (Suspect)	29 CFR 1910.1003
1,2,-dibromo-3-chloropropane	29 CFR 1910.1044
Acrylonitrile	29 CFR 1910.1045
Ethylene oxide	29 CFR 1910.1047
Formaldehyde	29 CFR 1910.1048

Butadiene	29 CFR 1910.1051
Methylene Chloride	29 CFR 1910.1052
Methylenedianiline	29 CFR 1910.1050
Vinyl Chloride	29 CFR 1910.1017
Noise	CH18 of this Manual
Respiratory Protection	29 CFR 1910.134
HAZWOPER	29 CFR 1910.120
Blood-Borne Pathogens	29 CFR 1910.1030
Hazardous Chemicals in Laboratories	29 CFR 1910.1450

c. Program Evaluation – Safety personnel provide an evaluation of occupational health hazard controls and medical surveillance requirements for DON and OSHA regulated exposure control programs identified in the PIHS to identify compliance gaps and track required corrective action. Refer to the command’s PIHS for medical surveillance requirements.

d. Training – Safety personnel provide support to schedule and conduct occupational health training for supervisory and collateral duty safety officer personnel on occupational health hazards, exposure assessments, and medical surveillance requirements for potentially exposed employees identified in the PIHS. Training includes Occupational Health program guidance on employee enrollment, tracking and medical surveillance compliance reporting. Refer to Chapter 6 of this Manual for specific training requirements.

e. Means of Protection – Safety personnel evaluate compliance status for medical surveillance requirements, and the implementation status of exposure controls identified in the latest PIHS, as determined by risk assessment and annual self-assessment findings.

f. Recordkeeping – Safety personnel document completion of Occupational Health training of supervisors, in accordance with Chapter 6 of this Manual, and monitor status of self-assessment reporting of medical surveillance completion with command leadership.

B0809. Responsibilities

a. Chief, Bureau of Medicine and Surgery (BUMED), through its commands, units or activities as well as echelon 3, 4, and 5 activities, must provide OH support Navy-wide including:

(1) A comprehensive industrial hygiene exposure assessment program as defined in paragraph B0802 including:

(a) A comprehensive IH exposure assessment of each workplace in accordance with reference (c), using guidance in reference (h), unless the command, unit, or activity receives IH services through a supporting DOD Field Activity or other DOD Agency (e.g., another service under a joint basing agreement). The level of IH services is collaboratively determined by the

supporting DOD Field Activity or other DOD Agency and the supported command, unit, or activity;

(b) Exposure monitoring as identified in the exposure monitoring plan, except as noted in 0808.c.

(c) Technical direction of exposure monitoring programs, including training, procedures, sampling and analytical methods, sample analysis and interpretation;

(2) Occupational Health clinic or medical department notification to the employee's supervisor in writing using the form in paragraph B0805.c.(1) or electronic means (email, electronic safety management system, etc.) in these cases:

(a) Medical surveillance examination accomplishment including the due date for the next scheduled medical surveillance examination;

(b) When results of a medical surveillance exam require an individual to be removed or disqualified from a job or assigned duty.

(3) A comprehensive occupational medical program as defined in paragraph B0805.

(4) The establishment, in coordination with each activity appropriate records relating to all OH aspects of the activity's safety program;

(5) Participation in Workers' Compensation Working Group as requested; and

(6) Other consultative occupational health support (e.g., anticipate and prevent hazards through design reviews), as requested by the command, unit, or activity commander, commanding officer, or officer in charge to meet the requirements of this Manual.

(7) Occupational audiology and Hearing Conservation Program services and support as delineated in Chapter 18.

(8) Maintain PIHS electronically. Provide access to these reports to any cognizant command, unit, or activity.

b. Commands, Units or Activities must provide a safe and healthful workplace for their employees and coordinate with the cognizant BUMED IH activity for the provision of the OH services described in this chapter. Commands, units, and activities must:

(1) Ensure their workplaces receives PIHS in accordance with reference (c) and as outlined in this chapter, unless the command, unit, or activity receives IH services through a

supporting DOD Field Activity or other DOD Agency. Results of the exposure assessment should be included in the sites job hazard analysis or equivalent safety risk assessment.

(2) Coordinate exposure monitoring with the cognizant BUMED IH activity to perform the required monitoring identified on the exposure monitoring plan, except as noted in 0809.c. Coordination requires workplace supervisors to track operations identified in the exposure monitoring plan and schedule exposure monitoring with the cognizant BUMED IH activity when operations occur. Completion of exposure monitoring is a shared responsibility between the command, unit, or activity and BUMED.

(3) Implement recommendations from industrial hygiene exposure assessment reports to prevent harmful exposures to employees. Recommendations may include implementing engineering, administrative, and workpractice controls; the use of respirators and personal protective equipment; developing and implementing applicable written compliance programs; and providing applicable employee information and training.

(4) Enroll personnel into the medical surveillance or certification exam who perform operations where these exams are required as identified in the current PIHS. Supervisors must identify and enroll the affected personnel, and track personnel completion of medical surveillance and certification exams in accordance with paragraph B0805(c). Supervisors are responsible to ensure personnel report to the OH clinic for their medical surveillance or certification exams.

(5) Ensure an evaluation of exposure control programs and medical surveillance enrollment and compliance is conducted during safety and occupational health inspections and program evaluations

(6) Monitor medical surveillance using the formula listed in reference (c) to calculate a completion rate of required exams for each medical surveillance program as applicable.

(7) When non-medical activities perform services outlined in this chapter, they will perform those services per, and under the technical oversight of BUMED.

c. Commanders of Naval Shipyards and other industrial command, units, and activities with mission IH support must supplement BUMED programs by assisting in their exposure monitoring programs. The priority for these activities will be to conduct OSHA compliance monitoring identified in the exposure monitoring plan for specific stressors expected to exceed an action level or occupational exposure limit. In coordination with the cognizant BUMED industrial hygiene program office, these activities will provide additional support to assist in the accomplishment of the exposure monitoring plan.

CHAPTER 9

SAFETY ASSURANCE

- Ref:
- (a) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
 - (b) DoD Instruction 5000.02, Operation of the Defense Acquisition System, 23 Jan 2020
 - (c) SECNAVINST 5040.3B, Inspections Within the Department of the Navy, 31 Oct 2019
 - (d) SECNAVINST 5430.57H, Mission and Functions of the Naval Inspector General, 17 Dec 2019
 - (e) Title 29 CFR 1960, Subpart Inspection and Abatement (Conduct of Inspection)
 - (f) Title 29 CFR 1960.28, Subpart Inspection and Abatement (Employee reports of unsafe or unhealthful working conditions)
 - (g) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, And Record Keeping Manual, 7 Jan 2005

B0901. Discussion. Safety assurance (SA) is the process to monitor, measure, and evaluate the performance of programs, goals, processes and systems. SA identifies system deficiencies and opportunities for improvement, identifies new hazards, measures the effectiveness of and the conformity with risk controls, and ensures compliance with regulatory requirements. Safety assurance concentrates on validating operations, processes, or systems through collection and analysis of objective evidence and data. SA is one of the pillars of the Navy's Safety Management System (SMS). Evaluation, review and monitoring data tracking and analysis, and investigations. This assures commands, units and activities of compliance with SMS requirements, and guides continuous improvement efforts. Safety assurance is accomplished using these elements:

- a. Evaluation and Reporting Action. Evaluate SMS conformance and performance through, inspections, assessments and evaluations.
- b. Self-Assessment. The review is for leadership to conduct a strategic and critical evaluation of the conformance and performance of their SMS and to recommend improvements. Results and action items from this review must be documented, prioritized, communicated to affected organizations and tracked to completion.
- c. Monitoring. Commanders, Commanding Officers, and Officers in Charge will determine whether the system is performing effectively and meeting regulatory requirements by monitoring the status of corrective and preventive actions, injury or illness metrics, findings of incident investigations (including mishaps), inspections, assessments, audits, performance measures and trend analysis.

B0902. Evaluations (Inspections and Assessments)

a. Safety evaluations assess echelon 2 program management compliance and oversight of subordinate organizations' safety programs, providing an independent perspective of the effectiveness and efficiency of the evaluated organization's safety program.

(1) Naval Inspector General (NAVINSGEN) will conduct safety evaluations of headquarters staffs at intervals not to exceed 60 months. A written report will be prepared by the IG for each evaluation and sent to the commander and the safety staff of the echelon 2 being evaluated.

(2) President, Board of Inspection and Survey (PRESINSURV). PRESINSURV is responsible for the oversight inspections of forces afloat and must maintain close liaison with the NAVINSGEN for matters of common interest concerning the program.

b. Safety Management System (SMS) Program Evaluations. The frequency of evaluations for safety management conformance and performance should be data-driven and informed by the risks identified within the individual command, unit, or activity. At a minimum headquarters commands will conduct evaluations of subordinate commands and field activities at least once every four years. Whenever possible, these evaluations will be part of a command inspection. The evaluation must incorporate a continuous evaluation methodology that reviews all aspects of the SMS.

(1) The headquarters commands at all levels must ensure that appropriate evaluations of program effectiveness are conducted at subordinate commands, units and activities at a minimum of every 48 months in accordance with reference (a).

Submissions to the management review process must include, among other information:

- (a) Progress in the reduction of risk;
- (b) Effectiveness of processes to identify, assess, and prioritize risk and system deficiencies;
- (c) Effectiveness in addressing underlying causes of risks and system deficiencies;
- (d) Submissions from personnel for self assessment, OSHA recording and reporting information, medical surveillance, and program management review information;
- (e) Status of corrective and preventive actions and changing circumstances;
- (f) Follow-up actions from SMS audits, inspections and previous management reviews;

(g) The extent to which objectives have been met; and

(h) The performance of the SMS relative to expectations, taking into consideration changing circumstances, resource needs (staffing. Competencies of SOH personnel staffing, competencies of SOH personnel), alignment of the business plan and consistency with the Safety and Occupational Health policy.

(i) SMS management evaluations must also:

1. Evaluate the results of mishap prevention efforts;
2. Include a quality assessment of the safety services provided by commands, units or activities;
3. Review compliance with program requirements, including this Manual; and
4. Evaluate mishap trends.

(j) Evaluate effectiveness of safety support services if received by subordinate commands.

c. Additional guidance is available on the Naval Safety Center Web site at:
<https://www.public.navy.mil/NAVSAFECEN/Pages/index.aspx>

B0903. Acquisition Program Assessment and Reviews. Acquisition programs are required to develop programmatic safety, environmental evaluations (that are summarized in the acquisition strategy) and evaluated by external program reviewers. System safety plans and hazard tracking are required by references (b), (c) and (d).

B0904. Workplace Inspections. Commanders, commanding officers (CO), and officers in charge (OIC's) must ensure that workplace inspections are conducted by trained and competent safety inspectors and the cognizant medical activities provide occupational health support as necessary. Refer to Chapter 3, paragraph B0305 of this Manual regarding execution of safety. Day to day SOH inspections and surveillances may be conducted by line managers, supervisors, or other collateral duty personnel.

a. All workplaces must be inspected by trained and competent safety inspectors at least annually. They must inspect high hazard areas more frequently based upon an assessment of the potential for injuries, occupational illnesses, or damage to Navy property.

b. Safety and health inspectors will be qualified in accordance with Chapter 6 and reference (e). Inspectors must thoroughly familiarize themselves with the equipment and work practices at

the workplace. The term “safety and health inspector” means a safety and or occupational health professional who has met the Office of Personnel Management (or military equivalent) standards, and who has the equipment and competence to recognize safety and or health hazards in the workplace. The Navy must base qualifications for inspectors on the degree of hazard and complexity of the inspection areas or operations. Inspectors must examine who, what, where, when and how; with particular attention to items most likely to develop unsafe or unhealthful conditions because of stress, wear, impact, vibration, heat, corrosion, chemical reaction or misuse. Inspect the entire workplace area each time. Include areas where no work is done regularly, such as parking lots, rest areas office storage areas and locker rooms. Inspectors will look at all workplace elements the environment, the equipment and the process. The environment includes such hazards as noise, vibration, lighting, temperature, and ventilation. Equipment includes materials, tools and apparatus for producing a product or a service. The process involves how the worker interacts with the other elements in a series of tasks or operations.

c. Types of workplace hazards include:

- (1) Physical hazards
- (2) Biological hazards
- (3) Chemical hazards
- (4) Ergonomic hazards.

d. At shore installations, the BOS safety service provider will inspect all workplaces unless there are commands, units and activities with adequate organic safety professional staff as outlined in Chapter 3. Inspectors must be provided with appropriate technical test equipment, where required, from commands, units and activities.

e. Inspectors must conduct inspections in a manner to preclude unreasonable disruption of the operations of the workplace. Inspections must be consistent with the operational concepts of the Navy commands, units and activities. Commands, units and activities may conduct these inspections with or without prior notice.

f. Inspectors may deny the right of accompaniment to any person whose participation interferes with a fair and orderly inspection or who lacks the required security clearance.

g. Inspectors must discuss matters affecting safety and health with employees or employee representatives and offer them the opportunity to identify unsafe or unhealthful working conditions while remaining anonymous.

h. When an inspector discovers an imminent danger situation during an inspection, he or she must immediately notify affected employees and the command, unit, or activity CO in

accordance with reference (f). All commands, units and activities must initiate immediate abatement action or terminate the operation.

i. Inspectors must provide deficiency notices to the official in charge of the operation within a reasonable time, but not later than 15 working days after the inspection. Inspectors must provide a written report of the inspection, including administrative findings and recommended corrective actions to the official in charge of the operation within 15 calendar days of completion of the inspection. For notification purposes, they must use OPNAV 5100/12 Safety and Occupational Health (SOH) Deficiency Notice or computer generated equivalent. Inspectors can group multiple identical deficiencies in the same organization (jurisdiction of the same supervisor) or worksite into a single notice. Inspectors will conduct follow up inspections to ensure deficiencies have been corrected.

j. Commands must correct valid violations of standards and other deficiencies found during inspection.

k. Assign risk assessment codes to inspection deficiencies and the control and abatement of deficiencies in accordance with Chapter 12.

l. Commands, units and activities must conduct follow-up workplace inspections to verify that completed corrections have been made or that actions addressing specific problem areas were taken. When deficiency notices have been prepared, commands, units and activities must use section C of OPNAV 5100/12 or equivalent computer database to document follow-up inspections. They must develop procedures for correcting unsafe or unhealthful working conditions that include a follow-up, to the extent necessary, to determine whether the correction was made.

m. Commands, units and activities must retain inspection records for a period of 3 years from the date of inspection.

B0905. Self-Assessments and Improvement Plans. All commands must perform a self-assessment of the commands Safety and Occupational Health program at least annually using self-assessment guidance developed by their headquarters command. Alternatively, commands, units and activities that hold or are seeking Voluntary Protection Programs (VPP) certification may use the annual program evaluation processes outlined in OSHA VPP guidance. Additional guidance can be found on the Commander, Naval Safety Center Web site at: <https://intelshare.intelink.gov/sites/navsafe/Pages/SMS.aspx>

a. The self-assessment must include, as a minimum, mishap statistics, inspection records, hazard reports and risk assessments, evaluations of compliance posture, and the industrial hygiene exposure assessment reports outlined in Chapter 8 of this Manual. Further background information on self-assessments is available at: <https://intelshare.intelink.gov/sites/navsafe/Pages/safetyassessments.aspx>

b. Commands, units and activities will develop specific improvement strategies for each area identified as needing improvement. For each strategy, commands, units and activities must define performance or measurement standards and establish target completion dates. The command, unit and activity safety council, where established, will review the progress achieved in implementing improvement actions at least annually. For commands, units and activities not requiring a safety council, the commander, CO, or OIC will review and approve the annual self-assessment and improvement plans.

c. Headquarters commands will review subordinate command; unit or activity self-assessments plans of action to develop improvement plans for their overall chain of command's safety program.

d. The self-assessment schedule and summary elements for all commands, units and activities including headquarter commands, are as listed:

(1) The Safety Quality Council (SQC) will establish what will be rolled up annually.

(2) Commands, units, and activities must complete their annual self-assessments by 31 December using previous fiscal year data. In an effort to leverage risk management as a resource, ORM will be broken out clearly in the annual self-assessment to include risk to mission and risk to force and provide clarity concerning gaps and seams that require intervention/guidance to resolve. Commands, units and activities must formulate improvement plans as a part of the self-assessment process and must take all necessary steps to correct hazards and deficiencies when discovered. Additionally, commands, units, and activities must roll up at each command, unit, and activity level in the chain of command up to the echelon 3 commander. echelon 3 commands must consolidate input from subordinate commands.

(3) Echelon 2 commands must consolidate this information and forward submissions to the Navy Executive Safety Board (NESB) via the Safety Quality Council (SQC) no later than 1 May.

(4) The SQC must evaluate and consolidate echelon 2 reports and prepare a written report and brief for the next scheduled NESB meeting. The report will focus on actionable information gained from echelon 2 submissions and recommend appropriate actions.

B0906. Monitoring. Navy commands, units and activities will conduct mishap reporting, investigation, and record keeping in accordance with reference (g). This paragraph contains additional requirements related to mishap review and analysis that is fundamental to the safety assurance pillar of the SMS.

a. All commands, units, and activities need a plan with recommended checklist to follow when a mishap occurs, with which key personnel are familiar. A mishap plan describes the steps

that must be taken when a mishap occurs. Anticipate all reasonable eventualities and devise measures to cope with them. Deficiencies may be identified through periodic drills designed to ensure the plan's smooth execution when a mishap occurs. A copy of the commands, units, or activities plan and this Manual should be available to all investigators. This plan may also be included in the command, unit, or activities anti-terrorism/force protection plan or disaster preparedness plan.

b. Commanders, commanding officers and officers in charge, or their respective deputies, chiefs of staff, or executive officers, must review mishaps. The command, unit or activity head, or his or her designee, with the safety manager must decide which mishaps to review. At a minimum, commands, units and activities must review any mishap that requires submission of a mishap investigation report (MIR) in accordance with reference (g). The specific review mechanism is left to the command's discretion and can take many forms. This review will include the cognizant first-line supervisor and/or next level of management, and the injured employee if needed for amplifying information. The review must involve safety, medical, compensation, and other management personnel, as appropriate. The object of the review is to identify the underlying cause(s) of the mishap and take corrective action to prevent recurrence.

c. Commands, units and activities must conduct detailed analyses of their mishap experiences and develop annual fiscal year (FY) or calendar year (CY) mishap reduction goals. The safety department is to analyze mishap data, including "near miss" data, on a regular basis to identify significant trends and utilize these trends to adjust safety program efforts, training requirements as well as identify goals, accountability issues, and potential failures of command, unit, and activity infrastructure. They must include these goals in command goals and specific strategies and measurement standards and develop actions for goal attainment.

CHAPTER 10

EMPLOYEE REPORTS OF UNSAFE AND UNHEALTHFUL WORKING CONDITIONS

- Ref: (a) Title 29 CFR 1960.28, Subpart Inspection and Abatement (Employee reports of unsafe or unhealthful working conditions)
(b) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014

B1001. Discussion

- a. This chapter provides guidance on establishing a channel of communication between Navy employees, both military and civilian, and those supervisory personnel responsible for safety and health matters for the purpose of ensuring prompt response to, and analysis of, reports of alleged unsafe or unhealthful working conditions.
- b. Identifying and reporting potentially unsafe or unhealthful working conditions is the responsibility of all Navy employees. The employee has the right to decline a task because of a reasonable belief that there is an imminent risk of death and insufficient time for normal hazard reporting and abatement actions.

B1002. General Policy. Navy commands, units and activities will establish a program for employee reporting of unsafe or unhealthful working conditions meeting the requirements of reference (a). This chapter contains additional Navy requirements that must also be met. The submission of an “Anymouse,” or other established process for reporting unsafe or unhealthful working conditions may trigger the requirements of this chapter.

B1003. Hazard Reporting. Detecting unsafe or unhealthful working conditions at the earliest possible time and making prompt corrections of these hazards at the lowest possible working level are essential elements of the safety and occupational health (SOH) program. Commands, units and activities will use these procedures for submission of employee reports of unsafe or unhealthful conditions in the workplace in accordance with references (a) and (b).

- a. Immediately report unsafe or unhealthful working conditions. Since many safety and health problems can be eliminated as soon as they are identified, commands, units and activities will encourage all Navy employees to fix on the spot any hazards found that is within the finder’s ability and authority to do. The employees must also orally or electronically report unsafe or unhealthful working conditions to their immediate supervisors who will promptly investigate the situation and take appropriate corrective actions. Supervisors will contact the activity occupational safety office for assistance, as necessary. Supervisors will inform the reporting employee of all action taken on oral reports.

b. Submit a report of unsafe or unhealthful working condition. Any Navy employee (or employee representative) may submit a report of an unsafe or unhealthful working condition directly to the activity safety office. OPNAV 5100/11 Navy Employee Report of Unsafe or Unhealthful Working Condition may be used for this purpose. Commands, units and activities will post blank copies of this or a similar form and procedures for its use in areas convenient to all workplaces (e.g. official bulletin boards, time clocks, web-sites, etc.). The form used will include a provision for an employee to indicate his or her desire to remain anonymous, should he or she wish. In addition to the paper form, other electronic means may be used to enter reports. Employees may make an oral or email report to the safety office instead of a written report. In these cases, the safety office will transcribe the information into a written report or log.

c. Maintain records of all reports filed. The safety office will maintain records of all hazard reports received for a period of five years. Records will include: date, time, identifying reference number, location of condition, brief description of condition, hazard classification (imminent danger, serious, or other), and the date and nature of action taken. When necessary, the safety office will contact the employee making the report and or advise the cognizant supervisor that a hazard has been reported.

d. Promptly investigate all reports. The safety office will investigate all reports brought to its attention (alleged imminent danger situations within 24 hours, potentially serious situations within three days, and all other situations must be investigated within 20 working days). If the reported situation involves a health or environmental hazard, as opposed to a safety hazard, the safety office will refer the report to the cognizant medical or environmental activity for investigation as necessary.

e. Provide an interim response to the report originator. The safety office will provide an interim or complete response in writing to the originator of a written report within 15 working days of receipt. Interim responses will include the expected date for the complete response. If the investigator validates the reported hazard, the complete response will include a summary of the action taken for abatement. If no significant hazard is found to exist, the reply will include the basis for the determination.

f. Encourage the originator to follow through if he or she is dissatisfied. The complete response will encourage, but not require, the originator to informally contact the safety office if he or she desires additional information or is dissatisfied with the response. Complete responses will indicate that formal appeals can be made and will state or provide the reference for procedures for making appeals and appeals levels.

g. Handle grievances separately from hazard reporting. A hazard report is not a grievance. In the event that a hazard report also involves a grievance action, the safety office will notify the complainant that the processing of the hazard report will be separate from the grievance response. In no case will a grievance action delay a safety office response to a report of an unsafe or unhealthful working condition.

B1004. Appeals

a. If the originator of a report is dissatisfied with the assessment made by the command, unit or activity safety office of the alleged hazard or with action taken to abate a confirmed hazard, the command, unit or activity safety office will encourage the employee to discuss the matter further. If the originator remains dissatisfied after such discussion, he or she may appeal up the chain of command. The written appeal will contain at a minimum:

(1) A description of the alleged hazard including its location and standards violated, if known (a copy of the original hazard report will suffice).

(2) How, when, and to whom the original report of the alleged hazard was submitted.

(3) Actions (if known) taken as a result of the original report.

(4) A statement explaining why the actions taken as a result of the original report were unsatisfactory and are being appealed.

b. The next higher level of command will respond to the originator of the appeal within 10 working days. The response will contain the office and address of the next higher level of appeal.

c. If the employee is still dissatisfied or has not received a response within 20 working days, he or she may appeal to the next higher level of command. The originator may submit subsequent appeals if still not satisfied with the action taken as a result of the previous appeal. The sequence of appeals will be through echelon 4, 3, or 2, the Office of the Chief of Naval Operations Special Assist for Safety Matters (CNO N09F), the Deputy Assistant Secretary of the Navy, (DASN(S)), and the Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health). Each appeal will include the information prescribed in paragraphs B1004a (1) through (4) of this Manual with emphasis on the actions taken by the reviewing authority on the previous appeal and reasons why the originator is still not satisfied. Paragraph B1004b of this Manual prescribes each response by the reviewing authority.

d. The final appeal authority for military personnel is the Deputy Under Secretary of Defense (Installations and Environment) DUSD (I&E). In the event that a civilian employee is not satisfied with the response from DUSD (I&E); he or she may contact the Office of Federal Agency Safety Programs, U.S. Secretary of the Navy, Washington, DC 20210.

B1005. Reports to the Occupational Safety and Health Administration (OSHA). Paragraph B1003 of this Manual provides a mechanism for all Navy employees to report unsafe and unhealthful working conditions to the appropriate authority for in-house resolution. Navy civilian employees may, at any time, submit complaints alleging workplace hazards directly to the Secretary of the Navy (SECNAV) (OSHA). Navy civilian employees do not have to exhaust their chain of appeal before reporting a hazard to their cognizant federal OSHA office; however,

the Secretary of Labor encourages employees to use the Navy in-house hazard reporting procedures as they are usually the most expeditious means to achieve abatement. Reports to the DOL OSHA may serve as the basis for investigations or inspections by OSHA officials. See Chapter 11 of this Manual for guidance concerning such investigations or inspections.

B1006. Responsibilities

a. Command, unit and activity commanders, commanding officers, or officers in charge will:

(1) Publicize (e.g., posting the employee report forms and instructions, training) the existence of the employee hazard reporting program and notify employees regarding their rights and obligations in regard to reporting hazardous situations.

Note: Posting the Occupational Safety and Health Protection Program for Department of Navy employees, alone is not sufficient notification to employees of the existence of the employee hazard reporting program, nor is it sufficient explanation of their right to participate.

(2) Maintain the anonymity of employees making a report or named in a report if requested by the reporting or named employee.

(3) Encourage the submission of oral reports to supervisors as the quickest and most effective method of hazard identification and correction.

(4) Ensure that standardized hazard reporting forms and procedures are available to all employees.

(5) Include safeguards to ensure that the command, unit or activity does not subject Navy employees to restraint, interference, coercion, discrimination, or reprisal by virtue of their participation in the command, unit or activity's safety program.

Note: Employees will file allegations of reprisal for such participation under existing grievance procedures.

(6) Maintain adequate recordkeeping practices and retain records for at least five years following the end of the calendar year in which final action on a report was undertaken.

CHAPTER 11

INSPECTIONS AND INVESTIGATIONS OF WORKPLACES BY FEDERAL AND STATE SAFETY AND OCCUPATIONAL HEALTH OFFICIALS

- Ref: (a) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
(b) SECNAVINST 5510.30C, Department of Navy (DON) Personnel Security Program, 24 Jan 2020
(c) SECNAVINST 5510.36B, Department of Navy (DON) Information Security Program (ISP) Instruction, 12 Jul 2019
(d) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, And Record Keeping Manual, 7 Jan 2005
(e) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019

B1101. Background and Discussion

a. In accordance with reference (a), Navy facilities are subject to inspections by Safety and Occupational Health Officials from other federal and state agencies, with few exceptions, which are described in paragraph B1102 b. These agencies include, but are not limited to, the Occupational Safety and Health Administration and the Mine Safety and Health Administration.

b. In addition, with few exceptions, contractor operations at commands, units and activities are also subject to the same inspections. Liaison between the contractor and the contracting agent will help ensure that all responsibilities and procedures for the inspections of contractor workplaces are clearly understood. Some contracts include the provisions of certain Defense Acquisition Regulations (DARs) (e.g., DAR 7-602.42 (NOTAL) for construction contracts) to ensure this liaison. Other contracts must provide a method for the liaison as well as requirements to protect Navy personnel from contractor operations.

c. The provisions that follow apply to the actions of federal and state safety and occupational health (SOH) officials while inspecting Navy shore installations, ships and Navy civilian workplaces. The inspection authority of federal and state SOH officials is summarized in appendix B11-A.

B1102. Exceptions for SOH Inspections

a. The Secretary of Labor has no authority over nuclear safety and health or explosive safety aspects of operations specifically covered by:

(1) Any state nuclear safety or health standard or regulation implementing 42 United States Code (U.S.C.) Sections 2021 and 2121(b), or section 2201(b).

(2) Any explosive safety or health standard or regulation implementing 10 U.S.C. 172.

NOTE: This does not circumvent the Secretary of Labor's authority over other health and safety matters in the same operations. For example, a workplace in a munitions depot subject to DoD explosives safety standards is subject to OSHA jurisdiction for matters relating to machine guarding, noise, etc.

b. State Safety and Occupational Health officials can only inspect contractor workplaces. A state may exercise jurisdiction over SOH matters involving a contractor workplace at a Navy shore installation provided the state has a plan approved by the Secretary of Labor. Authorized safety and health officials from states without OSHA-approved plans may, subject to exceptions noted elsewhere in this chapter, exercise jurisdiction over safety matters involving contractor workplaces on Navy shore installations only when there are no relevant OSHA standards in effect. Prior to authorizing an inspection or investigation, installation commanders, commanding officers or officers in charge must request the State to provide confirmation that there is no relevant federal OSHA standard applicable to the contractor workplace.

c. Under reference (a), only federal OSHA officials may perform inspections in DoD contractor workplaces situated in areas where the United States holds exclusive federal jurisdiction.

B1103. Type or Scope of SOH Inspections. The OSH Act provides for the development, issuance and enforcement of standards. Under the provisions of reference (a), federal SOH officials, acting as representatives of the Secretary of Labor, may conduct announced or unannounced inspections at all Navy workplaces except military unique workplaces, workplaces staffed exclusively with military personnel, or workplaces located in foreign countries. These inspections may also be solely at the discretion of the Secretary of Labor.

a. Such inspections may be in response to a complaint from a Navy civilian employee or employee representative or requests for information following an injury.

b. DoD contractors, operating from DoD or privately-owned facilities located on or off Navy shore installations, are employers as defined in the Act and are subject to enforcement authority by federal and certain state safety and health officials. These inspections may be routine or based on reports of unsafe or unhealthful conditions, specific complaints, accidents or illnesses of contractor employees.

c. The inspections and investigations for DoD civilian or DoD contractor personnel may also occur aboard Navy ships in port or located at associated facilities (e.g., repair operations) at workplaces or locations where equipment is stored or used.

d. They may schedule these inspections as part of DOL's targeted inspection program or as part of an evaluation of the DoD safety program. Under federal agency program requirements,

OSHA maintains a targeted inspection program for federal installations. Each fiscal year, OSHA targets federal installations for inspections based on the frequency rate of their occupational injury and illness cases. If a rate is above the threshold established by OSHA (usually the average federal agency lost time case rate), OSHA would target the activity for inspection. Rate data is taken from Federal Employee Compensation Act (FECA) claims records. As part of the targeting program, OSHA requires each activity targeted for inspection to develop a targeting plan. The targeting plan will identify high injury frequency work areas and specify actions to reduce mishap experiences. OSHA will notify commands, units and activities targeted, by letter, at the beginning of the fiscal year and request that they prepare targeting plans. Commands, units or activities may use self-assessment improvement plans, as discussed in Chapter 9 of this Manual, as a substitute for the targeting plans.

e. Other Federal and State Agencies. Agencies such as the Department of Transportation (Federal Highway Administration; Federal Motor Carrier Safety Administration etc.); or state agencies inspecting hazardous material storage /disposal sights beyond routine schedule inspections as required by law the commander, commanding officer, or officer in charge must respond to these inspections in the same way he or she would respond to a Federal SOH inspection.

B1104. Notification Requirements

a. Upon initial notification and the arrival or request for information of a federal or state SOH official at a Navy installation for the purposes of inspection, investigation, Rapid Response Investigation (RRI), etc. the commanding officer or designee must make a report of an OSHA visit to COMNAVSAFECEN via e-mail (safe-oshfdbk@navy.mil) or telephone (757)444-3520, ext. 7820, and the installation safety office and their echelon 2 safety office.

b. The commander, commanding officer, or officer in charge of the commands, units or activities being inspected or investigated must notify the respective bargaining unit of the respective organization(s) as well as invite them to any inspection activities including scheduled opening or closing meetings.

c. Targeted commands, units and activities must notify the chain of command, CNO N09F, and COMNAVSAFECEN of inspection dates, and provide copies of all reports received from federal or state SOH officials and all replies to those reports.

d. The command, unit or activity commander, commanding officers, or officers in charge must immediately forward requests to inspect or investigate a workplace, on a Navy shore installation involving handling or storage of ammunition or explosives, or request to inspect nuclear facilities or nuclear weapons by message to Commander, Naval Sea Systems Command (COMNAVSEASYS COM)(SEA-00V) with copies to the Chief of Naval Operations (CNO) (N4), Commander, Naval Safety Center (COMNAVSAFECEN) and the cognizant echelon 2 command. All such requests must identify the workplace involved and furnish all other

immediately available details. Installation commanders must withhold access pending receipt of a reply. Where granted, access must be subject to the requirements of this Manual and any conditions contained in the COMNAVSEASYSCOM reply. COMNAVSEASYSCOM must furnish a reply as quickly as possible after receipt of the request. The contracting office/officer should also be notified as any type of safety violation may also be subject to some type of adverse contractual action.

e. The command, unit or activity commander or commanding officers must immediately forward requests to inspect or investigate a workplace involving nuclear-propulsion plant spaces on nuclear powered ships, related nuclear shipyard facilities ashore or afloat, shipboard nuclear support facilities or nuclear weapons areas, commanding officers must forward the request for access by message and by telephone to COMNAVSEASYSCOM (SEA 08 and SEA 04R) with a copy to CNO N09F and COMNAVSAFECEN. All message requests must identify the contractor workplace involved and furnish all other immediately available details. Commanding officers must withhold access pending receipt of the reply. Where granted, access must be subject to the requirements of this chapter and any conditions imposed in the COMNAVSEASYSCOM (SEA 08) reply. COMNAVSEASYSCOM (SEA 08) must furnish a reply expeditiously, and, if possible, within a period of three working hours from receipt of the request.

B1105. Overall Security Requirements for Access. Federal and State SOH officials must initially report to the Navy installation commander or his or her authorized representative, present identification credentials, and state the purpose of the visit. Commands, units or activity commanders or commanding officers must admit these officials to conduct inspections of authorized Navy workplaces without delay, at reasonable times, and in a reasonable manner. Commands, units and activities need to pay particular attention to ensure that Navy regulations and federal statutes governing the control and protection of classified and sensitive unclassified information are properly enforced while avoiding any interference with the legitimate regulatory purpose being served. Commanders of Navy commands, units and activities must use these guidelines:

a. Navy afloat activities must permit federal SOH compliance officials to be taken aboard U.S. Navy ships in port to conduct safety and health inspections and investigations of DoD civilian or DoD contractor workplaces. Commanding officers must not grant state SOH official's access aboard Naval ships and service craft or in areas of exclusive federal jurisdiction.

b. Navy installation commanders must require federal inspectors to show appropriate security clearances if they require entry into closed areas under reference (b). Limit such access to classified information required to resolve the matter at hand. Federal officials must verify all security clearances. Navy personnel must take any photographs these officials request in these areas as outlined in paragraph B1107.

c. When federal or state safety and health officials require entry into a closed area to accomplish the purpose of their visit, and they cannot effectively be prevented from access to classified material by means such as covering the material to deny visual access, the listed procedures apply:

(1) The Navy shore installation commander must immediately notify the federal SOH official and the Navy command, unit or activity exercising security supervision over the workplace of the need for a personnel security clearance to enter the closed area.

(2) In the case of state safety and health officials, for contractor operations, the Navy security activity, after verifying the need for a personnel security clearance, must in coordination with the state official, request the cognizant security office to contact the nearest OSHA regional or area office for a cleared federal SOH official to conduct the necessary inspection of the closed area.

(3) In the case of federal SOH officials, the Navy security activity, after verifying the need for a personnel security clearance, must contact the appropriate cognizant security office and request:

(a) Verification of the federal SOH official's personnel security clearance.

(b) Expedient processing of the visit request under references (b) and (c). If the official's name is not on the list of cleared federal SOH personnel maintained by the cognizant security office, the Navy security activity must request the cognizant security office to contact the OSHA regional or area office and request an appropriately cleared federal SOH official.

d. Installation commanders, commanding officers, or officers in charge must not provide DoD contractors with advance notice of inspections by federal or state SOH officials except:

(1) In cases of apparent imminent danger to Navy or contractor employees.

(2) When specifically requested by federal or state SOH officials.

NOTE: For Inspections by OSHA officials in accordance with 29 CFR 1903.6(c), any person who violates the foregoing is subject to a fine of not more than \$1,000 or to imprisonment for not more than 6 months, or both.

B1106. Escort and Inspection

a. Commands, units and activities must designate a coordinator with whom federal SOH officials may interface for inspection or investigation purposes. Installation safety offices must accompany federal and state SOH officials on inspections and investigations for all commands, units and activities which they provide safety services.

b. Representatives of the Navy shore command, unit or activity commander, Navy ship commanding officer (if appropriate), and the Administrative Contracting Officer (ACO) (if appropriate), must accompany federal and state SOH officials on inspections and investigations at all times. Representatives of the contractor may accompany these officials after requisite security clearances have been verified. Employee representatives for both DoD civilians and DoD contractors with appropriate clearances are also authorized to accompany the Federal SOH officials as well as participate in all inspection or investigation activities where bargaining unit personnel are involved.

c. Compliance officials may privately question DoD civilians, DoD contractors, or their authorized representatives during their inspection. Supervisory personnel including active duty personnel in leadership positions may also be questioned.

B1107. Photographs and Sampling

a. Federal or state SOH officials or other state safety and health officials are prohibited from taking photographs or videos on any Navy shore installation. Only Navy personnel or cleared contractor personnel are authorized to take photographs or videos requested by any such officials. Navy or contractor personnel must not deliver photographs or videos to the requesting official until all film, negatives, recording media, photographs, and videos have been fully screened and classified by proper Navy authority, as appropriate, in the interest of national security. Commands, units and activities must forward further requests, by such officials, for documented data, sketches of military installations and equipment, reports or design information (e.g., noise sound levels, profiles, etc.) to the appropriate screening official for similar action. Screening officials will normally complete this process within a period of 15 working days from receipt of the material.

b. Inspecting officials are prohibited from taking photographs or readings/sampling of any kind on Navy ships or submarines. Navy personnel must take any photographs or conduct sampling requested by the inspecting officials. Commanders, commanding officers, and officers in charge must tentatively classify these photographs as confidential, and must not deliver them to OSHA compliance officials until all film, negatives, and photographs have been sent to COMNAVSEASYSCOM (04R) and fully screened and censored, as appropriate, in the interest of national security. Commanding officers must forward any design or system performance data (e.g., recordings of noise sound level profiles, etc.) to COMNAVSEASYSCOM (04R) for screening, prior to release. COMNAVSEASYSCOM (04R) must complete this process within a period of 15 working days from the receipt of material.

B1108. Records Release

a. Upon request, Navy command, unit or activity commanders, commanding officers, and officers in charge must grant federal officials access to available safety and health information related to Navy civilian employees in coordination with appropriate releasing officials.

Examples are data on hazardous materials, copies of recent inspection reports, employee hazard reports and information on the status of abatement projects, provided such information is not specifically required by executive order to be classified in the interest of national defense or foreign policy and is otherwise releasable. Command, unit or activity commanders must also grant federal officials access to and release copies of records and reports pertinent to specific accident investigations involving Navy civilian employees, provided such release is consistent with the Privacy Act and other applicable laws and regulations. With respect to the release of records pertinent to specific accident investigations involving Navy civilian employees, Navy installation commanders, commanding officers, and officers in charge must:

(1) Refer requests for copies of Judge Advocate General (JAG) investigative reports to the JAG (Code 35).

(2) Refer requests for copies of mishap investigation reports to COMNAVSAFECEN (staff attorney), in accordance with reference (d).

b. During contractor inspections or investigations, Federal or state SOH officials may have access to, and be provided with, copies of records and reports pertinent to specific Navy contractor accident investigations, upon request, unless prohibited from release by the Privacy Act or exempted from release under the Freedom of Information Act. When the cognizant command, unit or activity facilities engineering command of the Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) has defined the boundaries, Navy shore installation commanders, commanding officers, and officers in charge should advise the applicable state OSHA office in writing of any areas on the installation that are located within an area of exclusive federal jurisdiction.

c. Navy commands, units, and activities handle a considerable amount of sensitive unclassified information controlled under Navy security regulations, federal export control regulations and other Government-wide requirements. While access to this information does not require a security clearance, it is important that the holder and recipient of the information comply with applicable security regulations governing dissemination and protection of the information.

(1) Place emphasis on the fact that classified or unclassified sensitive information must be controlled. Thus, if the recipient of controlled Navy information prepares reports or other documents based on the information, advise the recipient to seek advice from qualified Navy security personnel to ensure compliance with federal laws and Navy regulations.

(2) Classified or sensitive unclassified information produced during litigation or administrative proceedings also requires protection. Seek advice from the Office of the Navy JAG or cognizant Office of General Counsel to ensure the classified or sensitive unclassified information is properly protected in accordance with reference (c).

B1109. Notification of Citations, Notices, and Requests for Rapid Response Investigations

- a. If federal officials request for a Rapid Response Investigation (RRI) or issue reports or notices of unsafe or unhealthful working conditions discovered during their inspections, including those for Navy contractors based on DoD-furnished equipment, facilities or other property, the commander, commanding officer, or officer in charge of the inspected command, unit or activity on behalf of the inspected Navy activity, along with responsible ACO (if appropriate) must forward a copy of such citations, notices, or RRI requests immediately to CNO N09F and COMNAVSAFECEN. The commanding officer must also provide information copies to the chain of command having management cognizance. The commander, commanding officer, or officer in charge must treat deficiencies discovered during such inspections in the same manner as deficiencies noted during internal Navy inspections.
- b. If reports of inspections or notices of unsafe or unhealthful conditions by federal officials require a response or RRI is received, the commander, commanding officer, or officer in charge of the inspected Navy command, unit or activity must coordinate a response with installation commander, commanding officer, or officer in charge if installation provides BOS services, such responses must be adhered to within established time frames assigned by the inspecting agency. Commands, units or activities may participate in informal conferences with federal officials, and utilize established review and appeal procedures for federal agencies in developing final resolutions to issues raised in federal inspections. Parent commands may require headquarters' coordination prior to such responses. The command, unit or activity commander, commanding officer, or officer in charge must provide copies of such responses to COMNAVSAFECEN and to the chain of command having management cognizance. Unresolved conflicts may require interagency resolution via DoD and Federal Agency channels.
- c. DoD policy states that the contractor is responsible for resolving issues related to citations and initiating requests for delays in compliance with variations, tolerances, or exemptions from applicable standards.
- d. Command, unit or activity commanders must advise CNO N09F, via the chain of command, of any situation resulting from compliance with these procedures that could impair the Navy's ability to properly carry out its mission in support of the national defense or adversely affect the national security.
- e. Ship commanding officers must report full information regarding any SOH inspection and or investigation or request for inspection aboard ship in writing to the ship's chain of command with copies to CNO N09F, and COMNAVSEASYSKOM (SEA 04R). See reference (e) for more detailed information.

B1110. Procedures for Federal Agencies to Appeal Inspection “Notices of Unsafe or Unhealthful Work Conditions

a. Inspection notices should first be addressed and resolved between the command, unit or activity and the OSHA area office during an informal conference.

(1) Notices unresolved between an OSHA Regional Office and DASN (Safety) may subsequently be appealed to the OSHA National Office within 10 working days by “The Appealing Command Designated Command Safety and Health Official.”

Note: The Department of the Navy Designated Agency Safety and Health Official (DASHO), is the Assistant Secretary of the Navy for Energy, Installations and Environment.

(2) Echelon 2 commands will send the Naval Safety Center reports or notices of unsafe or unhealthful working conditions as well as unresolved issues from informal conferences.

(3) Naval Safety Center will maintain records of OSHA inspections including details of notices issued, submit to DASN (Safety) appeals of OSHA Citations, and review other service citations and notify Naval Enterprise of any that have the potential to set precedent for the Navy.

(4) DASN (Safety) will review all OSHA notices for all Navy commands, units and activities, submit appeals to OSHA Regional Offices, and coordinate appeals between Department of the Navy DASHO and the OSHA National Office.

B1111. Tracking OSHA Citations. COMNAVSAFECEN must maintain a database of all SOH citations. Each citation will be tracked to completion.

APPENDIX B11-A

INSPECTION OF DEPARTMENT OF NAVY WORKPLACE BY FEDERAL AND STATE REPRESENTATIVES

	SHORE			AFLOAT		
	Contractor Workplaces	Civilian Employees' Workplaces	Exclusively Military Unique Workplaces	Contractor Workplaces	Civilian Workplaces	Exclusively Military Unique Workplaces
Federal SOH Representatives	YES 2,4,5	YES 4,5	NO	YES 3,4,5	YES 3,4,5	NO
State SOH Representatives	YES 1,2,4,5	NO	NO	NO	NO	NO

NOTES:

1. State SOH plan must be approved by the DOL. If state plan is not approved, access may be denied. However, states without approved OSH plan may inspect contractor worksites only if there is no relevant federal OSHA standard applicable to the contractor workplace.
2. If the Navy facility is in an area of exclusive federal jurisdiction, state OSH representatives have no legal authority on the station and may be denied access to the facility.
3. Ships or service craft must be in port; Navy Department will not transport federal OSHA representatives to ships or service craft that are underway.
4. Federal and state SOH representatives have no jurisdiction over military unique operations or equipment; or, non-military unique workplaces staffed exclusively by military personnel. In addition, these officials are not authorized to inspect workplaces or operations for compliance with any standard implementing 10 U.S.C 172 (explosive safety) or 42 U.S.C. Section, 2012, 2021, or 2022 (nuclear

safety). Refer to Chapter 11 of this Manual for military unique guidance and a discussion of SOHA's authority regarding the SOH aspects of these workplaces.

5. Inspections may be announced or unannounced.

CHAPTER 12

MISHAP PREVENTION, HAZARD CONTROL AND HAZARD ABATEMENT PROGRAM

- Ref:
- (a) DoD Instruction 5000.02, Operation of the Adaptive Acquisition Framework, 23 Jan 2020
 - (b) OPNAVINST 11010.20H, CH-1, Facilities Projects, 24 Jun 2015.
 - (c) DoD Directive 5000.01, The Defense Acquisition System, 20 November 2007
 - (d) DOT/FAA/AM-00/7 The Human Factors Analysis and Classification System—HFACS, Feb 2000
 - (e) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014

B1201. Discussion

a. Section 19(a) of the Occupational Safety and Health Act requires government activities to provide all federal employees with a safe and healthful place of employment. To fulfill this requirement, the Chief of Naval Operations (CNO) directs each level of command, unit and activity to establish and maintain an effective hazard control program. The Navy incurs significant costs every year as a result of injuries, illnesses and property damage resulting from workplace hazards.

b. Exclusions. Guidance contained herein does not apply to:

(1) Government-owned contractor-operated (GOCO) facilities. Policy for these facilities is set forth in the Federal Acquisition Regulations (FAR).

(2) The correction of deficiencies associated with design or operation of uniquely military workplaces (such as weapon systems), aircraft engineering change proposals to improve safety of flight, or ship alterations to improve fire protection or damage control. These processes follow the engineering change processes governed by the cognizant Systems Commands (SYSCOM).

(3) Deficiencies involving other Department of Defense (DOD) components or other Federal agencies. Correction of deficiencies that are the responsibility of another DOD component, Federal agency, or private organization will be brought to the attention of the appropriate party for corrective action. The Federal Property Management Regulations describe procedures to follow with the General Services Administration (GSA). Executive Order (EO) 12196 makes the GSA responsible for abating hazardous conditions in GSA leased facilities. Commands, units and activities will refer problems that cannot be resolved to Deputy Under Secretary of Defense (Environmental Security) (DUSD (ES)) through the appropriate chain of command.

c. Hierarchy of Controls. Controlling exposures to occupational hazards is the fundamental method of protecting personnel. Traditionally, a hierarchy of controls has been used as a means of determining how to implement feasible and effective controls. One representation of this hierarchy can be summarized as listed:

- (1) Elimination
- (2) Substitution
- (3) Engineering controls
- (4) Administrative controls
- (5) Personal protective equipment

The control methods reflected at the top of the hierarchy are potentially more effective, protective and less costly than those at the bottom. Beyond elimination, control measures are not mutually exclusive and may in many cases be used in conjunction with other controls lower in hierarchy, i.e. Substitution will need to be utilized with Administrative Controls to manage the less dangerous substitute material. Following the hierarchy normally leads to the implementation of inherently safer systems, ones where the risk of illness or injury has been substantially reduced.

B1202. Application of Hazard Control Principles

a. Interim Hazard Abatement (HA) Measures. Commands, units and activities will use immediate, temporary HA measures during the time needed to design and implement permanent hazard control measures. Where engineering controls are not immediately applicable, administrative controls and or PPE are appropriate for use as interim HA measures.

b. Permanent HA. If elimination or substitutions are not possible, engineering controls are the preferred method of hazard abatement, followed by administrative controls, and PPE. Commands, units and activities will use feasible engineering controls to reduce hazardous exposure, even when only partial reduction of exposure is possible through engineering methods. They will apply two criteria to determine whether engineering controls are feasible. First, a control is technologically feasible if it is available off-the-shelf or if technology exists which can be adapted to the hazard in question. Second, a control is economically feasible if it can be shown that the cost of the control is justified by the benefit it produces. On the other hand, if the expected reduction of the hazard through implementation of an engineering control is insignificant in terms of increased protection and the cost of implementing the control is great, then the control is economically infeasible.

c. Development of Hazard Control Recommendations. Acquisition PMs, commands, units and activities will consider the following possible actions when recommendations are developed for prevention or reduction of hazards:

(1) Avoiding, eliminating, or reducing deficiencies by engineering design, material selection, or substitution.

(2) Isolating hazardous substances, components, and operations from other areas, personnel, and incompatible materials.

(3) Incorporating fail-safe principles to prevent a catastrophic injury to personnel, damage to equipment, or inadvertent operation of critical equipment.

(4) Relocating equipment and components so that personnel access during operation, maintenance, repair, or adjustment does not result in exposure to hazards such as chemical burns, electrical shock, electromagnetic radiation, cutting edges, sharp points, or toxic atmospheres.

(5) Providing suitable warning and notes of caution concerning required personnel protection during operation, assembly, maintenance, and repair instructions.

(6) Providing distinctive markings on hazardous components, equipment, or facilities.

(7) Requiring use of PPE when other controls do not reduce the hazard to an acceptable level.

(8) Monitoring exposure to ensure that engineering controls effectively reduce the hazard.

(9) Training employees to recognize hazards and take appropriate precautionary measures.

(10) Establish and sustain good housekeeping and hygiene practices in accordance with reference (a).

(11) The command, unit and activity safety council, where established, will review and concur with self-assessments and improvement plans and will review the progress achieved in implementing improvement actions at least annually. For commands, units and activities not requiring a council, the commander, commanding officer, or officer in charge will review and approve the annual self-assessment and improvement plans.

B1203. Hazard Abatement Processing and Tracking. Hazards can be identified through annual inspections, industrial hygiene surveys, employee hazard reports, other inspections and as recommendations resulting from mishap investigation reports. Command, unit or activity SOH

offices are responsible for managing hazard abatement. For hazards that are work process-related, the owner of the work process manages hazard abatement. For hazards that are facility-related, the owner of the facility manages hazard abatement. Regardless of the hazard identification method, hazards should be processed as listed:

a. Risk Assessment. The command, unit or activity SOH office will assign each identified/validated hazard that cannot be corrected immediately a risk assessment code (RAC). The RAC represents the degree of risk associated with the hazard and combines the elements of hazard severity and mishap probability taking into account potential health effects from the hazard in accordance with reference (b).

b. SOH Deficiency Notice. The SOH office will describe workplace hazards with a RAC of 1, 2, or 3 that cannot be corrected immediately, in Section A of OPNAV 5100/12. (See Chapter 9 paragraph B0904 of this Manual). The SOH office will forward a copy of the notice to the official in charge of the operation where the hazard exists. The workplace supervisor will post a copy of the notice in the area of the hazard until the hazard has been corrected. The SOH office will update the posted notice, as necessary, to accurately reflect the status of the abatement action and required interim controls. The workplace supervisor will post a copy of the notice in the area of the hazard until the hazard has been corrected.

NOTE: The SOH office may distribute and post a computer-generated form that includes all the information required by OPNAV 5100/12. The SOH office will transcribe RAC 1, 2 and 3 hazards reported by higher echelon SOH personnel (Oversight and Command Inspections) or the Occupational Safety and Health Administration (OSHA) to NAVSOH Deficiency Notices. The SOH office may also use the notices for documenting the correction of RAC 4 and 5 hazards as deemed appropriate.

The official in charge of the operation will take prompt action to correct the hazard and within 30 days of the date of the notice, he/she will complete Section B of the SOH Deficiency Notice and return a copy to the SOH office. Command, unit or activity will implement interim protective measures pending permanent abatement and list interim corrections on the notice. The notice will also indicate the status of the hazard including whether or not the hazard has been corrected and specific abatement action taken.

c. Abatement Plans. Hazards assigned RACs 1, 2, or 3 that require more than 30 days for correction must be recorded in a formal HA plan. This plan will include the listed standard data for each hazard (or logical grouping of similar hazards):

- (1) Dates of hazard identification
- (2) Location of the hazard(s)
- (3) Description of the hazard(s) including reference to applicable standards

(4) Calculated RAC or estimated RAC (with hazard severity, probability of single occurrence, and annual personnel exposure cited separately). Hazards with an assigned RAC will remain at the originally assigned RAC throughout the period of abatement (e.g., not reduced to a lower RAC following implementation of interim measures or elevated to a higher RAC draw attention to the hazard) until such time as permanent abatement is complete.

(5) Interim control measures in effect

(6) Description of the abatement action, including estimated cost and completion date

(7) Abatement priority (see paragraph B1207)

(8) Closeout statement, indicating completed abatement action and cost, with date of completed action; or process discontinued or worksite vacated. A computerized file is acceptable, vice the hard copy, as long as it contains all of the required closeout information. The SOH office will make the HA plan available for review locally by recognized employee organizations, where applicable.

NOTE: The SOH office may use a file of SOH Deficiency Notices, appropriately completed, as the abatement plan. SOH offices with fewer than 50 annual deficiencies or projects that will take more than 30 days to correct may use this approach. SOH offices with more than 50 deficiencies or projects annually that will take more than 30 days to correct will develop a formal HA Plan and establish priorities for each project listed.

B1204. Interim Controls. Commands, units or activities may be unable to immediately abate deficiencies under normal working conditions, and some hazards may require temporary measures to protect employees from harmful exposure. Therefore, appropriate interim controls will be established as soon as unsafe or unhealthful exposures are identified. SOH Offices will document such controls on OPNAV 5100/12. The SOH office will review and approve interim protective measures in effect for more than 30 days and revise, as appropriate.

B1205. Hazard Abatement Project Development. The identification of a hazardous condition and the development of a deficiency abatement project require the close cooperation of the commands, units or activities staff, exposed personnel, facilities management and SOH personnel. Commands, units or activities can obtain specific engineering assistance from the cognizant Naval Facilities Engineering Command (NAVFACENGCOM) Facilities Engineering Command (FEC) via an Engineering Service Request. The proposed project should remove, control or fully correct the hazardous exposure in the most effective manner.

a. Local Funding. Navy programming and budget directives (e.g., Navy Comptroller (NAVCOMPT) Manual) provide general guidance for preparation and submission of budgets, via the chain of command. Command, unit and activity budgets will include items for correction

of SOH deficiencies within the local commander, commanding officer or officer in charge funding authority.

b. Centrally Managed SOH Funding. Commands, units and activities may submit projects to correct hazards that are beyond the funding capability of the local commander. Commands, units and activities will submit projects to NAVFACENGCOCM and their budget submitting office, in coordination with their facilities manager and/or command, unit or activity engineer, utilizing the web-based HA Program via Enterprise Safety Applications Management System (ESAMS). In the inspection module when a deficiency is created there is an option for a command, unit or activity to request Mishap Prevention (MP) and HA support. For those commands, units and activities without ESAMS access they may go to “http://www.navfac.navy.mil/products_and_services/sf/products_and_services/hazard_abatement.html” and follow guidance to request support.

B1206. Mishap Prevention & HA Program. NAVFAC is the executive agent of the Mishap Prevention and Hazard Abatement (MPHA) program. This program provides funding and expertise on the Mishap Prevention or proactive efforts and the HA for reactive efforts. The MPHA program functions under the NAVFAC Safety Program Manager. In this role the NAVFAC Safety Program Manager is either dual hatted as or supported by the NAVFAC Safety Technical Warrant Holder (TWH). NAVFAC Safety TWH coordinates with other TWHs as required. The primary areas of focus under the MPHA program are Fall Protection, Ergonomics, and Electrical Safety. MPHA Program also leverages the capabilities of commands, units and activities Navy Crane Center (NCC), Expeditionary Engineering Warfare Center (EXWC) and Capital Improvements (CI) and Public Works (PW) Business Lines for abatement of weight handling, Industrial ventilation, fire protection and Base Vehicle Support Equipment hazards respectively. The program also responds to emerging trends regarding new hazards and provides some funding for mishap prevention efforts through education and collaboration. To this end, NAVFAC must provide technical assistance and industrial ventilation training for SOH personnel. This collaboration supports the SOH program, and directly supports ongoing efforts to monitor and evaluate industrial ventilation system performance and implement necessary corrective actions to ensure installed health hazard controls remain effective.

a. Since Operation and Maintenance, Navy (O&M, N) funds will be used for minor construction, repair and construction/procurement of installed equipment, advice and training as defined in reference (b). Dollar range limitations for projects eligible for centrally managed HA funds are as listed:

(1) Abatement: \$50,000 to \$1,000,000.

(a) Command, units and activities may only submit projects correcting deficiencies with a RAC of 1, 2, or 3.

(b) Projects must be for the protection of safety and health vice prevention of property damage.

(c) HA funds will pay for asbestos abatement projects only if the asbestos is friable, accessible and damaged or the asbestos is in an occupied location where it is subject to frequent damage even though immediately repaired by temporary emergency actions.

(d) Ergonomics: equal to or greater than \$10,000

(2) Mishap prevention and mitigation: \$2500 to \$1,000,000.

(a) Commands, units or activities can submit upgrading projects if they are to avoid creating hazardous conditions.

(b) Process improvement initiatives that have potential to reduce probability or severity of incidents affecting personnel. Most Mishap Prevention efforts will focus on advice assistance in project development and training support. This includes reach back support for discipline specific questions as well as support for NAVSAFENVTRACEN Professional Development Symposium (PDS), and other emergent, targeted, training when requested.

(3) Project Submissions. Projects will be submitted through ESAMS via Inspection, Deficiency, and Abatement Tracking System (IDATS) module and selecting request for support.

(a) Prior to submitting an application, the command, unit or activity SOH office will consult the command, unit or activity facilities manager and receive endorsement from the echelon 2 SOH director. They will coordinate the submission of projects with local activity facilities managers, but submission is, nonetheless, the responsibility of the command, unit or activity.

(b) In their project requests, SOH managers will fully describe and document the problem and provide all information necessary for prioritization. Project descriptions must show a clear violation of SOH standards. It must also cite the standard(s) violated and describe the hazard the project will abate.

NOTE: Mishap Prevention requests will also be submitted via ESAMS in the same fashion but should be noted as "Mishap Prevention Efforts" and will have a business case attached identifying the return on investment of effort.

(4) Prioritization

(a) MPHA Program office will confer with echelon 2 safety offices to ensure projects are supporting claimancy needs.

(b) MPHA Program office will consolidate project submission requirements and develop 5-year requirements and execution plan. Prioritization will be dictated by cost effectiveness index (CEI) identified in reference (c). Ease of execution will consider available resources and methods to perform mitigation.

(c) The MPHA Program Office will manage Program fund allocations so that approximately 25% of available resources are apportioned to Mishap Prevention efforts while the remaining 75% is for Hazard Abatement Projects. Other than minor variations of this division will be briefed to the DON Safety Quality Council.

(d) 5-year plan will be updated annually and sent back to Navy Safety Quality Council (SQC) for echelon 2 review.

(5) Execution

(a) Project execution may work through a variety of avenues. Technical advice, training support, research and development, Execution via public works department (PWD) and Facilities Engineering and Acquisition Division (FEAD), Multiple Award Construction Contract (MACC), indefinite delivery/ indefinite quantity (IDIQ), purchase card, direct funds, partnerships with NAVSAFENVTRACEN, other Systems Commands and warfare centers.

(b) MPHA Program Office will periodically and upon request update the Safety Quality Council during regularly scheduled meetings to review progress and performance. The SQC, as outlined in Chapter 4, paragraph B0403 of this Manual serves as an oversight mechanism for MPHA projects.

(c) Emergent issues, updates to hazardous conditions and potential reprioritizing projects may be discussed during monthly telecom.

(d) The NAVFAC Safety Manager will provide a quarterly update on MPHA execution for the current fiscal year (FY) and discuss emerging projects and issues regarding program execution. The July meeting each year will be a presentation of the next FY proposed execution. Consensus will be sought among echelon 2 Safety Leadership for the execution plan. Disagreement between competing project prioritizations will be adjudicated between affected parties and the associated CEIs will be resubmitted to reflect that prioritization agreement.

(e) The NAVFAC Safety Manager will present an annual report to the SQC for review and comment.

b. Lessons Learned. Projects will generate a tremendous number of lessons learned that can influence or guide other mitigation efforts across navy as well as better inform future requirements and acquisition efforts. MPHA program will work with Navy Safety Center in determining appropriate catalog of lessons learned.

When a hazardous condition is applicable to more than the submitting command, unit or activity hazard report will be coordinated with the supported command, unit or activity submitted by MPHA program staff without identifying command, unit or activity in accordance with reference (m). When feasible, hazardous conditions will be categorized with Human Factors Analysis and Classification System coding in accordance with reference (d) for submission of hazard reports.

c. Additional info on MPHA is available at:
“https://www.navfac.navy.mil/products_and_services/sf/products_and_services/hazard_abatement.html.” Questions concerning MPHA program will be referred to NAVFAC Technical Warrant Holder for Safety or “mpha.fct@navy.mil.”

B1207. Prioritization of Hazard Abatement Projects. In any given year, the backlog of deficiencies may exceed the centrally managed funds available for SOH projects. It is, therefore, necessary that the Navy employs a consistent and systematic methodology for the prioritization of these projects. In order to ensure that projects of highest importance receive first consideration, the Navy prioritizes projects as listed:

a. **Locally Funded Projects.** The command, unit or activity SOH offices will prioritize projects that do not meet the criteria for centrally managed funding under the SOH MPHA program based on the RAC assigned to each identified hazard. See paragraph B1203a for RACs. If several projects for correction of hazards with identical RACs exist, then the activity SOH office will assign priorities based on the number of persons potentially exposed to the hazard and the total cost. All NAVFACENGCOM commanding officers and activity facility engineers will ensure that SOH projects receive full consideration and are appropriately prioritized for execution.

b. **Centrally Funded Projects.** MPHA Program Office will validate all projects and will assign an abatement priority number (APN) in accordance with reference (e) for all proposed SOH MPHA projects submitted. The APN which comprises the RAC and CEI will be used in determining abatement priorities.

B1208. Responsibilities. The control of hazards is the inherent responsibility of each command, unit and activity with specific responsibilities to apply controls assigned to the command's supervisory levels. The assigned responsibilities for directing and supervising effective health hazard controls.

a. Chief of Naval Operations, Shore Readiness Division (CNO N46), as resource and assessment sponsor for the MPHA Program will:

(1) Provide programmatic and management guidance to COMNAVFACENGCOM (executing agent).

(2) Provide oversight to ensure that the executing agent is delivering the programmed output/services.

(3) Validate programming/budgeting requirements during programming/budgeting cycle.

b. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM), as budgeting submitting office/execution agent will:

(1) Consolidate requirements during the programming/budgeting cycle and submit to CNO (N46), a proposed SOH MPHA Program Project Execution Plan in accordance with paragraph B1206a for the following fiscal year.

(2) Develop, prepare and submit, via the chain of command, budget documentation during the budget cycle SOH MPHA program.

(3) Provide engineering review of all SOH MPHA projects approved by budget submitting offices.

(4) Manage the design and construction of SOH MPHA projects in accordance with established procedures.

(5) Appoint Technical Warranted Authority over Fall Protection and Ergonomics and maintain reach back capability for Fall Protection and Ergonomics.

(6) Ensure lessons learned from MPHA projects are incorporated into appropriate criteria or routed to appropriate criteria managers. Share lessons learned with larger safety community.

(7) Ensure that facilities are designed to meet applicable Navy, UFC and building code regulations. Hazards should be eliminated or controlled through engineering measures. Occupant safety and health should be considered during the design and renovation planning process. Application of system safety engineering principals and techniques will be based on an assessment of potential hazards to personnel safety, on mission continuity, and on property protection from loss.

(8) Solicit from echelon 2 command safety priorities during quarter 3 to shape MPHA Program priorities for following fiscal year.

(9) Provide End of Year Performance Report during Q1.

c. Command, unit and activity Commanders/Commanding Officers will:

(1) Identify and correct hazards and maintain a current HA Plan with priorities established for each project listed. If the HA plan is maintained by the command, unit or activity

SOH office, it will be done in such a manner that specific activity information (or plan) is readily available.

(2) Forward projects via the prescribed submission chain for hazards that cannot be corrected through local resources.

(3) Review, prioritize, and maintain current active projects.

d. Chief, Bureau of Medicine and Surgery (BUMED) will assist the Office of the Chief of Naval Operations Special Assistant for Safety Matters (CNO N09F) in carrying out program responsibilities in matters of health hazard control.

e. Commanders of Headquarters Commands will:

(1) Assist CNO N09F and Commander, Naval Safety Center in carrying out responsibilities in the area of hazard control.

(2) On a continuing basis, identify and evaluate, in coordination with BUMED, SOH exposure in naval systems, equipment, and material affecting the safety and health of Navy employees ashore.

(3) Provide technical and managerial assistance to commands, units and activities on hazard control measures.

(4) Provide mishap data information from legacy systems and appropriate recommendations formulated from mishap investigations.

CHAPTER 13
FALL PROTECTION PROGRAM

- Ref: (a) Title 29 CFR 1910, Subpart D, Walking-Working Surfaces
- (b) Title 29 CFR 1915, Occupational Safety and Health Standards for Shipyard Employment
- (c) Title 29 CFR 1926, Subpart M, Fall Protection
- (d) Title 29 CFR 1918, Safety and Health Regulations for Longshoring
- (e) DON Fall Protection Guide (latest version)
- (f) Title 29 CFR 1926, Safety and Health Regulations for Construction
- (g) American National Standard Institute/American Society of Safety Professionals (ANSI/ASSP) Z359 Fall Protection Code
- (h) Title 29 CFR 1915, Subpart I, Personal Protective Equipment
- (i) Title 29 CFR 1910.140, Personal Fall Protection Systems
- (j) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting And Record Keeping Manual

B1301. Discussion. This chapter provides requirements to establish a managed fall protection program to protect Navy civilians and military personnel from the hazards of falling from heights at Navy commands, units and activities.

B1302. Background.

a. At height falls (falls from a different level) are a leading cause of work-related injuries and fatalities. The Navy continues to experience serious fall related mishaps, which lead to reduced readiness and productivity, as well as high medical and compensation costs resulting from these mishaps.

b. Mishaps involving falls are generally complex events frequently involving a variety of factors. Consequently, requirements for fall protection involve both work procedures and equipment-related issues in order to protect workers from recognized hazards.

B1303. Policy. Fall protection must be provided to Navy personnel exposed to fall hazards on any elevated walking-working surface with unprotected sides, edges, roofs, holes or openings,

from which there is a possibility of falling four feet or more to a lower level; or where there is a possibility of a fall from any height onto dangerous equipment, into a hazardous environment or onto an impalement hazard. The Navy has adopted the Occupational Safety and Health Administration (OSHA) threshold heights for fall protection. Therefore, the threshold height requirement is four feet for general industry work under reference (a), five feet for ship repair operations under reference (b), six feet for construction under reference (c), eight feet for longshoring operations under reference (d) and as applicable according to other specific OSHA standards.

a. The Navy Fall Protection Working Group will serve as the technical advisor for fall protection policy and manage revisions to the DON Fall Protection Guide, reference (e). The Fall Protection Working Group will report directly to the Navy Safety Quality Council and meet on a recurring basis, as directed. Working group membership will consist of a primary and alternate representative selected from Echelon 2 commands with personnel exposure to at-height falls at either their Headquarters or subordinate commands.

b. Naval Facilities Engineering Command is the designated Technical Warrant Holder (TWH) for fall protection Engineering affecting Facilities Design and Construction, Unified Criteria and Guide Specifications for Commands, Units and Activities.

c. Naval Sea Systems Command SEA 04RS is designated the TWH for safety and occupational health under which fall protection is covered. The scope covers shipboard and at ship repair activities. Furthermore, there are other designated TWHs across SEA05 for specific fall protection subsystems and components.

d. For aviation, TWHs are spread across various Program Management Activities under Naval Air Systems Command, based on equipment and type/model/series of aircraft.

Note 1: The OSHA threshold height requirements can be found in references (a), (b), (c) and (d).

Note 2: Shore-based training platforms designed to mirror the operational shipboard environment may follow the 5 feet threshold height requirement for fall protection.

B1304. Basic Program Requirements.

a. Each Navy command, unit or activity, which has personnel working at heights or exposed to fall hazards, is required to establish a written fall protection program. The latest version of the *DON Fall Protection Guide*, reference (e), provides overarching technical direction for a comprehensive fall protection program and reflects the minimum mandatory requirements for all commands, units or activities implementing a fall protection program. The written program requirement is met either through management of a standalone command fall protection policy or issue of a policy statement communicating a decision to solely use reference (e) as the

command's written plan. The standalone policy or policy statement must be signed by the Commanding Officer, Director, Officer-In-Charge or equivalent. A written fall protection program includes:

- (1) Command, unit or activity policy or instruction.
- (2) Duties and responsibilities.
- (3) Workplace surveys and assessment of fall hazards.
- (4) Fall hazard prevention and control, including the preparation of fall protection and prevention plans.
- (5) Training.
- (6) Inspection, storage, care and maintenance of fall protection equipment.
- (7) Rescue plan and procedures.
- (8) Fall mishap reporting.
- (9) Audits and evaluation.

b. Navy commands, units and activities being supported by a Regional or Installation Safety Office can be included as part of the Region or Installation fall protection program, if it is noted officially in writing.

c. For aviation units and aviation training units, Naval Air Systems Command (NAVAIRSYSCOM) will support Fleet Readiness Centers Navy and Marine Corps type model wings (with type model program office assistance) with type model series (T/M/S) specific fall protection program, which include identification and elimination, prevention or control of Fall Hazards. This is to be accomplished through a T/M/S specific Fall Hazard Survey and assessment and a T/M/S site specific Fall Protection and Prevention Plan. Navy and Marine Corps commands, units and activities are responsible for identifying site-specific fall hazards relating to their environment, facilities and equipment as well as providing prevention and control measures for those specific hazards. Each aviation command, unit or activity is also responsible for assigning responsibilities; training of personnel; proper installation and use of fall protection systems; inspecting the equipment; the availability of rescue equipment with accompanying rescue procedures and auditing and evaluation.

d. The steps for how to establish, manage and implement a fall protection program are listed in appendix B13-A.

B1305. Command, Unit or Activity Policy. Each command, unit or activity may prescribe supplementary requirements for special conditions above and beyond the fall protection policy set out in this Chapter.

B1306. Workplace Surveys and Assessment of Fall Hazards.

a. Each Navy command, unit or activity must ensure a survey of the workplace is conducted to identify potential fall hazards for exposed employees according to reference (e) and chapters 5 and 9 of this Manual.

b. Commands, units and activities must determine if the walking-working surface on which employees are to work have the strength and structural integrity to safely support the workers. Employees must not be permitted to work on those surfaces until it has been determined that the surfaces have the requisite strength and structural integrity to support the workers and equipment related to their tasks. Once it has been determined that the surface is safe for employees to work on, then it should be determined if a fall hazard exists at the work location. In cases where employees from multiple activities are exposed to the same fall hazard, the installation must take the lead in coordinating the survey to ensure redundant surveys do not waste resources.

c. A fall hazard survey and assessment must be validated annually for comparison purposes.

d. When conducting inspection, investigation and assessment work of existing roof systems including workplace conditions (e.g., Inspecting mechanical equipment) or conducting fall hazard surveys, Navy personnel must perform their work in a safe manner. Navy personnel must receive the proper training prior to accessing the roof and understand all the required safety precautions and requirements for conducting their work safely.

e. After conducting the survey, a fall-hazard analysis must be performed to determine the hazard severity and fall mishap probability as outlined in Chapter 12 of this Manual. This will help in prioritizing the hazard ranking and selecting the most viable fall protection solutions.

B1307. Fall-Hazard Prevention and Control Measures.

a. Competent persons, end users and other personnel involved in a fall protection program must always target fall prevention before enacting control measures to minimize injury or damage after a fall occurs. The hierarchy of controls for fall protection slightly differs and compliments the standard hierarchy for general safety and occupational health hazards. Specifically for fall protection, it is possible that a lower solution on the generally recognized hierarchy provides the optimal control measure for a specific evolution or job task. Recognizing this important distinction, the preferred order of control measures for fall hazards are:

(1) Elimination - Removing the hazard from a workplace. This is the most effective control measure (e.g., lower various devices or instruments installed at high locations, such as

meters or valves to the height level of the individual, instead of servicing such devices or instruments at heights).

(2) Prevention - Isolating or separating the hazards from the general work areas (e.g., same level barriers such as guardrails, parapets, walls or covers).

(3) Engineering Controls - If the hazard cannot be eliminated or prevented, an engineering control is the next-preferred measure to control the risk (e.g., design change or use of different equipment or techniques such as aerial lift equipment or stationary and movable work platforms).

(4) Administrative Controls - These include unconventional fall protection measures and the introduction of new work practices that can reduce the risk of a person falling (e.g., erecting warning lines, designated areas or restricting access).

NOTE: Not all listed examples are allowed or acceptable for every operation. See reference (e) for details.

(5) Personal Protective Systems and Equipment - These must be used after other control measures (such as eliminating or preventing a fall hazard) are determined to be impractical or when a secondary system is needed (e.g., when it is necessary to increase protection by employing a backup system).

NOTE: Control measures are not mutually exclusive. There are often situations when multiple control measures are used to reduce the overall fall risk.

b. Commands, units and activities must select fall protection measures compatible with the type of work being performed. If fall hazards cannot be eliminated, fall protection can be provided with the use of:

(1) Guardrail Systems. Guardrails consist of top and mid-rails, posts and toe boards (toe boards as applicable). Guardrails are used to protect personnel on a walking-working surface with unprotected sides or edges from exposure to a fall hazard. The specifics on guardrail systems can be found in references (a), (b), (c), (d) and (e).

(2) Work Platforms. When working from elevated work platforms, four feet or higher, the work platforms must be equipped with a standard guardrail or other fall protection system. The specifics on work platforms can be found in references (e) and (f).

(3) Safety Net Systems. Safety nets must be installed as close as possible under the walking-working surfaces with an unprotected side or edge or when working over water or other surfaces where the use of guardrails are impractical. The specifics on safety net systems can be found in references (c) and (e).

(4) Personal Fall Arrest System (PFAS). A system used to arrest a person in a fall from a working level. It consists of an anchorage system, connecting means, which may include energy absorbing lanyard, retracting device, fall arrester or suitable combination of these and body support (full body harness). A PFAS must be rigged so that employees will not free-fall more than six feet, nor contact a lower level or object. See paragraph B1310 for the requirements for tie-off points (anchorage) used for fall arrest systems. Safety belts (body belts) must not be used as a body-holding device. The free fall distance of six feet can be exceeded if the proper energy-absorbing lanyard is used. The specifics on fall arrest system can be found in references (a), (c), (d), (e), (g) and (h).

(5) Positioning System. A combination of equipment including a full-body harness and a fixed or adjustable positioning lanyard and components rigged to allow a person to work with both hands free while being supported on an elevated vertical or inclined work surfaces. Although positioning systems may use the same equipment as a fall protection system (such as a harness), a positioning system used alone does not constitute fall protection. While positioning, a person remains exposed to a fall hazard and is required to use a separate system that provides backup protection from the fall. See paragraph B1310 for the requirements on tie-off points (anchorage) for a positioning system. The specifics on positioning system can be found in references (c), (e), (g) and (i).

(6) Restraint System. A system consisting of equipment including a full body harness and fixed or adjustable lanyard and components connected together designed to restrain a person from reaching a fall hazard. The specifics on restraint system can be found in references (c), (d), (e), (g) and (i).

(7) Climbing Ladder Fall Arrest System (Ladder Safety System). A vertically oriented system consists of assembly of components whose function is to arrest the fall of a user. The system includes a flexible or rigid carrier and its associated carrier mounting brackets and, the carrier sleeve. The carrier is securely attached to the climbing ladder or to the immediately adjacent structure. The system must permit the employee wearing a full body harness to ascend or descend fixed ladder or structure without continually having to hold, push or pull the carrier sleeve, leaving both hands free for climbing or descending. See references (a), (e) and (g).

(8) Other Engineered Fall Protection Systems. Commercially available engineered or integrated systems are recognized as effective fall protection and may be used. These are systems not addressed in references (e) or (g). Commercially available engineered or integrated systems must be designed, installed, certified and used only under the supervision of Qualified Person (QP) for Fall Protection and used per manufacturer instructions and recommendations. The Competent Person (CP) for Fall Protection may (if deemed appropriate by a QP), supervise the assembly, disassembly, use and inspection of the engineered system, under the direction of the QP. The design must include drawings, required clearance, instructions on proper installation, use and inspection requirements.

(9) Covers. Strong protective surfaces placed over a gap or open space (holes) in a horizontal walking-working surface. Covers must be capable of supporting, without failure, at least twice the combined weight of any personnel, equipment and materials that may be imposed on the cover at any one time. They must also be secured in place to prevent accidental displacement.

Note 1: A guardrail, travel restraint or fall arrest system must be used to protect personnel from tripping into or stepping into or through holes, when covers are removed. See references (a), (c) and (e).

Note 2: For fall protection solutions to specific work situations or military-unique work applications see reference (e).

B1308. Personal Fall Protection System and Equipment Selection Criteria.

a. Commands, units and activities will only use personal fall protection systems and equipment (to include fall arrest, positioning, restraint and all associated components) where the manufacturer can substantiate through a third-party testing organization that it is designed, selected and approved by a QP for Fall Protection and meets the requirements addressed in references (e) and (g). The CP for Fall Protection is responsible for selecting appropriate personal fall protection systems and equipment. Newly acquired equipment must meet the latest applicable product standard under reference (g). Currently owned or maintained fall protection equipment not meeting at least ANSI/ASSE Z359.1-2007 is not authorized for use. See appendix B13-B and references (a), (c), (d), (e), (g) and (i).

b. The capacity range for users of personal fall protection systems and equipment approved under reference (g) is 130 to 310 pounds (including clothing and tools). Additional risk is present for end users outside this capacity range. Commands, units and activities that permit personnel outside of the recognized capacity range to use personal fall protection equipment must take additional precautionary measures to ensure the engineered system remains capable of safely protecting these workers. These additional measures include, but are not limited to, a health risk assessment of the fall-related occupational stressors by a cognizant medical authority, use of a specially engineered and manufactured system by a QP for Fall Protection, coordination between the cognizant QP and CP for Fall Protection and revision or confirmation of the adequacy of rescue plans and procedures. See B1307.b(8) of this chapter and reference (e) for more details.

B1309. Training.

a. Training. Navy civilians and military personnel using Personal Fall Protection equipment or other personnel involved in the fall protection program must be trained as outlined in appendix B13-C. Training requirements for Navy personnel not listed in the appendix and who are involved in the fall protection program, must be determined by the Fall Protection Program

Manager. The CP for Fall Protection must determine which personnel require fall protection awareness training. All fall protection training must follow the requirements of Navy Instructions and Guidelines and the training requirements addressed in references (a), (c), (e) and (g).

b. Retraining. Retraining in relevant topics must be provided to the End User of Fall Protection when:

- (1) The End User has been observed using fall protection equipment in an unsafe manner,
- (2) The End User has been involved in a mishap or a near-miss incident,
- (3) The End User has received an evaluation that reveals that he or she is not using the personal fall protection equipment properly,
- (4) The End User is assigned a different type of fall protection equipment,
- (5) A condition in the workplace changes in a manner that could affect the safe use of the personal fall protection equipment that the End User is to utilize.

c. Refresher or update training for end users. Personnel working at heights, exposed to fall hazards and using personal fall protection equipment must receive refresher training on the safe use of fall protection equipment at an interval once every two years.

d. Refresher or update training for other personnel. Other personnel with specific roles under the fall protection program must meet the training requirements in appendix B13-C and references (c), (e) and (g).

B1310. Anchorages for Personal Fall Protection Equipment.

a. Fall arrest, positioning, restraint, horizontal lifeline and rescue anchorages criteria. See references (c), (g) and (i).

(1) Fall arrest anchorages must be capable of supporting a minimum force of 5,000 pounds per person attached; or must be designed, installed and used under the supervision of a QP for Fall Protection as part of a complete personal fall protection system that maintains a safety factor of at least two (twice the maximum arresting force).

(2) Positioning anchorages must be capable of supporting at least twice the potential impact loading of an employee's fall or 3,000 lbs., whichever is greater.

(3) Restraint anchorages must have the capacity to withstand at least twice the maximum expected force that is needed to restrain a person from exposure to the fall hazard.

(4) Horizontal lifeline anchorages must be designed, prior to use, by a registered professional engineer with experience in designing horizontal lifeline systems; or designed by a QP for Fall Protection, who has appropriate training and experience.

(5) Rescue anchorages, if required for use during self-rescue or assisted rescue, must be identified and selected. Rescue anchorages must have strength capable of sustaining static loads of at least 3,000 lbs. or five times the applied load.

b. Anchorages in new facilities, buildings and structures. During the design of new facilities, buildings and structures, fall hazards should be considered and eliminated whenever possible. When elimination or prevention of fall hazards is not feasible, the design should include certified and labeled anchorages.

B1311. Rescue Plan and Procedures. When personal fall protection systems are used, the designated CP for Fall Protection at the Navy command, unit or activity must ensure that the mishap victim can self-rescue or can be rescued promptly by others, should a fall occur. A rescue plan (or a pre-incident plan developed by the jurisdictional and Government-emergency response agency) for an employee suspended in a body harness after a fall must be in writing by the Navy command, unit or activity and include a detailed discussion of: methods of rescue, methods of self-rescue, equipment used, training requirements, specialized training for the rescuers, procedures for requesting rescue and medical assistance, transportation routes to a medical facility and pre-incident planning with jurisdictional public and Government-emergency response agencies. A rescue plan for an employee suspended in a body harness after a fall must be developed using the site-specific fall rescue procedures requirement in reference (e).

B1312. Inspection, Storage, Care and Maintenance of Fall Protection Equipment. Before each use and prior to donning of personal fall protection equipment, the end user must carefully inspect the equipment following the inspection steps recommended by the fall protection equipment manufacturer's instructions or 3M maintenance system, whichever is more stringent to ensure that it is in good working condition. A CP for fall protection, other than the end user, must ensure personal fall protection equipment is inspected at least annually. Inspection of the equipment by the CP for Fall Protection must be documented. Guidance on storage, care and maintenance of fall protection equipment can be found in references (e), (g) and in literature furnished by the fall protection equipment manufacturer.

B1313. Falls from Heights Mishap Reporting. Falls from height mishaps under this paragraph must be reported if they meet the reporting criteria of reference (j). When personal fall protection equipment is impacted or activated during a fall, it should be reported as an injury mishap if the individual is injured or if the individual is not injured, then reported as a near-miss using the Hazard Report in reference (j).

B1314. Audits and Evaluations. The managed fall protection program must be audited and evaluated by the Fall Protection Program Manager at periodic intervals not to exceed two years. The program audit and evaluation must identify strengths and deficiencies for each element of the fall protection program along with recommendation for improvements. The audit and evaluation must be documented. The Fall Protection Program Compliance Audit Checklist is located in reference (e).

B1315. Responsibilities.

a. The command, unit and activity Commander, Commanding Officer, Director or Officer-In-Charge is responsible for establishing and implementing a fall protection program, which includes identification and elimination, prevention or control of fall hazards. This includes:

- (1) Survey and assess fall hazards;
- (2) Provide prevention and control measures;
- (3) Train personnel;
- (4) Inspect the equipment;
- (5) Conduct audits and evaluation;
- (6) Ensure proper installation and use of personal fall protection systems and equipment;
- (7) Verify the availability of rescue equipment with accompanying rescue procedures;

and

(8) Designate sufficient personnel that have the necessary skills, knowledge, training and expertise to develop, manage, administer and implement the fall protection program. Depending upon the command, unit or activity size and mission, personnel who manage, administer or implement the fall protection program may be assigned either as full time or as part time (collateral duty) positions.

b. The Fall Protection Program Manager: A person assigned by the command who is responsible for the development and implementation, auditing and evaluation of the program. The Fall Protection Program Manager through training, knowledge and expertise should be able to identify, evaluate and address existing and potential fall hazards. The manager must ensure that personnel exposed to fall hazards and other personnel involved in the program receive adequate training as outlined in appendix B13-C and references (e) and (g).

Note: The Fall Protection Program Manager position need not be an exclusive title designation. With adequate education, training and experience the same person may also function as a Qualified Person for Fall Protection or Competent Person for Fall Protection.

c. CP for Fall Protection: A person designated by the command, unit or activity to be responsible for the immediate supervision, implementation and monitoring of the fall protection program, who through training knowledge and expertise is capable of identifying, evaluating and addressing existing and potential fall hazards and in the application and use of personal fall protection and rescue systems or any component thereof AND who has the authority to take prompt corrective measures to eliminate or control the hazards of falling. The CP for Fall Protection conducts onsite evaluation, supervision of the fall protection program and to provide hands-on training for End Users of Fall Protections.

d. QP for Fall Protection: A person with a recognized engineering degree or professional certificate and with extensive knowledge, training and experience in fall protection and rescue field, who is capable of performing design, analysis and evaluation of fall protection and rescue systems and equipment.

e. End User of Fall Protection: A person who has been trained and authorized in the use of assigned fall protection equipment, including hands-on training and practical demonstrations in a typical fall hazard situation and uses personal fall arrest, restraint or positioning equipment while performing work assignments. End users must be trained by a person who has the knowledge, experience and education to deliver the training as determined by the CP for Fall Protection. Hands-on training for the End Users of Fall Protections must be conducted by the CP for Fall Protection.

APPENDIX B13-A
STEP BY STEP HOW TO ESTABLISH, MANAGE AND IMPLEMENT A FALL
PROTECTION PROGRAM

Step by step information for establishing, managing and implementing a fall protection program arranged in a chronological order:

1. Assign Fall Protection Program Manager and designate CP for Fall Protection;
2. Train Fall Protection Program Manager and CP for Fall Protection;
3. Program manager develop written Fall Protection program, Safety Office review and approval is required;
4. Conduct fall hazard surveys and assessment and develop survey report;
5. Select type of FP systems and FP methods to be used;
6. Develop site specific Fall Protection and Prevention Plan (if PFAS is the planned method). The plan must be developed by either the CP or QP for Fall Protection;
7. FP equipment programming and purchases;
8. Identify and train End Users on the use of FP equipment. Training must be conducted by a competent person;
9. Establish FP equipment storage area and develop requirements for care, maintenance and inspection procedures per manufacturer's Instructions and recommendations;
10. Competent person identify use of non-certified anchorages. A QP will design certified anchorages. A CP can install, use and inspect certified anchorages under the direction of a qualified person;
11. Develop rescue plan and procedures;
12. Conduct refresher training as required; and
13. Audit the program.

APPENDIX B13-B
PERSONAL FALL ARREST SYSTEMS AND EQUIPMENT

1. Personal Fall Arrest Equipment Criteria. Elements of a PFAS consist of an anchorage system, which includes the anchorage (rigid part of the structure) and anchorage connector, connecting means, which may include energy absorbing lanyard, self-retracting device, fall arrestor or lifeline and a full body harness or suitable combinations. The PFAS must be capable of arresting a free fall safely, suspend the victim vertically while awaiting rescue and allow rescue personnel to accomplish identified tasks in a fall hazard situation. All components and subcomponents of a PFAS must be compatible.

2. Components of a PFAS include:

a. Harness (Full Body). A full body harness (FBH) is the fundamental component of every PFAS. All full body harnesses must permanently incorporate a dorsal attachment element (D-ring) and may contain any combination of other elements and must permanently include a load bearing sub-pelvic strap. All shoulder straps must come together at the dorsal location and either cross or be connected by webbing or attached with a connector. The FBH must permanently incorporate either a waist belt or back strap or other means of controlling the separation of the shoulder straps on the back of the FBH. All FBHs will meet the requirements of ANSI Z359.11 standard titled Safety Requirements for Full Body Harnesses. A wide variety of FBHs are available that meet the requirements of ANSI Z359.11 Standard. The harnesses are equipped with a chest strap that horizontally connects to the two vertical shoulder straps or shoulder straps that cross at the chest (X-Style). Full body harnesses used in fall arrest may also be integrally designed into coveralls or vests. An extender element no longer 24 inches may also be used as attachment to the dorsal D-ring. Fundamentally, full body harnesses meeting the requirements of ANSI Z359.11 have the common characteristics found in subparagraphs 2a(1) through 2a(8):

(1) A dorsal "D" ring located at the upper back between the shoulder blades.

(Note: In addition to fall arrest, the dorsal attachment may also be used in travel restraint or rescue.)

(2) Manufactured using synthetic straps or webbing.

(3) Leg straps, shoulder straps and Pelvic strapping, which are fastened about the person and used in a variety of combinations to distribute the fall arrest forces to over at least the upper thighs, pelvis, chest and shoulders to reduce the potential of injury from impact forces.

(4) After arresting a fall, suspends the victim approximately vertically.

(5) In addition to these common characteristics, the design of a full body harness may incorporate the additional features in subparagraphs 6a(5)(a) through 6a(5)(g):

(a) Frontal “D”-ring attachment located at the waist for use as a ladder climbing connection for guided type fall arrester, where there is no chance of a fall in a direction other than the feet first. The frontal D-ring is also used in suspended rope access system, work positioning, travel restraint and rescue

(b) Hip D-rings attachment element, located at the side near the hip region, must be used in pairs and must be used solely for work positioning or travel restraint

(Note: The hip D-ring attachments are not to be used for fall arrest.)

(c) Shoulder D-ring attachment elements must be used as a pair and are acceptable attachment for rescue and entry or retrieval. These “D” rings are located at the top of each shoulder strap and are usually smaller in size than the dorsal “D” ring.

(Note: The shoulder attachment elements must not be used for fall-arrest.)

(d) Sternal D-ring. The sternal attachment is located at the sternum and is used as an alternative fall arrest attachment in applications where the dorsal attachment is determined to be inappropriate by the competent person for fall protection and where there is no chance to fall in a direction other than the feet first. The sternal attachment should only be used when the likely fall distance is not greater than two feet. Accepted practical uses for a sternal attachment include ladder climbing with guided fall arrester, ladder climbing with an overhead self-retracting lifeline for fall arrest, work positioning, travel restraint, rescue and rope access.

(e) Waist belts, depending upon the design, may be integral to the full body harness and necessary for proper use; or simply a convenience for attaching tools, carrying pouches or providing lower back support.

(f) Shoulder pads, leg padding, integral elastic webbing and a wide variety of other features that add commercial viability to products.

(g) All newly purchased harnesses will be equipped with Fall Arrest Indicator located at the Dorsal D-ring and at least one Lanyard Parking Location (Required for attaching the unused leg of the “Y” lanyard to the harness).

(6) Full body Harness Selection. Consideration must be given to items in subparagraphs 2a(6)(a) through 2a(6)(c) when selecting the appropriate full body harness:

(a) Expected duration that personnel will be wearing the body harness.

(b) Body stature and size of personnel assigned (one size does not fit all).

(c) Gender of personnel expected to wear the harness.

(7) Electrically rated harnesses (Arc Flash Harnesses) must meet ASTM F887 Standard; either the harness does not have metal above the waist or the metal components are insulated.

(8) Additional features that are task specific. These features must be carefully selected. For example, if a harness is used with a climbing ladder fall arrest system, a frontal or sternal D-ring attachment must be provided.

b. Connecting Means.

(1) Energy Absorbing (EA) Lanyards. The EA lanyard as part of a PFAS connects the full body harness to an anchorage and reduces the forces of a fall through an integral shock absorber (deceleration device). Lanyards are available in three, four- or six-foot lengths, although longer lanyards are available (use-only in restraint systems). Lanyards must have snap hooks or carabineers and be designed for a PFAS. Commercial variations include adjustable EA lanyards that allow the lanyard to be shortened, reducing potential free fall distance. Variations also include EA lanyards with built-in chaffing protection and may include a “D” ring connector that allows a lanyard to be used to wrap around an anchorage. Double “Y” lanyards allow for 100 percent tie-off (i.e., one lanyard can always be connected to an anchorage). There are two types of energy absorbing single and “Y” lanyards. The first type is the six-foot free fall energy absorbing (single and “Y” lanyards). These are only used when the anchorage point is located above the Dorsal D-ring. The second type is the 12-foot free fall single and “Y” lanyards used when the tie off point is below the dorsal D-ring. When using “Y” lanyard do not attach the unused leg of the lanyard to any part of the harness except to attachment points specifically designated by the manufacturer (Lanyard parking Location). Do not allow the legs of the Y lanyard to pass under arms, between the legs or around the neck.

NOTE: When selecting a lanyard, consideration must be given to the availability and location of the anchorage point, free fall and total fall distances, potential chaffing and weight of the person and capacity of the equipment. All newly purchased EA lanyards must be equipped with deployment indicators and at least one Lanyard Parking Location. Personal energy absorbers must be designed such that it is obvious if they have been activated or by a warning, flag or label, that indicates activation. Lanyards used in restraint systems and positioning lanyards can be either fixed or adjustable.

(2) Snap hooks and Carabineers. Snap hooks and carabineers must be self-closing self-locking and must be capable of being opened only by at least two consecutive deliberate actions. Newly purchased snap hooks, carabineers must meet the requirements of ANSI Z359.12 Connecting Components Standard and must be capable of withstanding a tensile load of 5,000 pounds. The gates of the newly purchased snap hooks and carabineers must be capable of withstanding a minimum load of 3,600 pounds when the load is applied in all directions. Snap hooks and carabineers must meet the ANSI Z359.1-2007 standard or later.

(3) Self-Retracting Devices.

(a) Self-Retracting Lanyard. The self-retracting lanyard (SRL), also known as a self-retracting lifeline, refers to a wide variety of commercially available devices. A SRL is a device containing a drum-wound line or strap. This line can be slowly extracted from or retracted onto the drum under slight tension during normal employee movement. After onset of a fall, the line automatically locks the drum and arrests the fall. The SRL is typically used in a vertical mode unless permitted by the manufacturer for horizontal application. The SRL is attached to a suitable overhead structural member. A locking snap hook at the end of the webbing or wire rope is attached to the dorsal “D” ring. The mechanism works in a manner similar to a retractable automobile seatbelt. The SRL comes in lengths from a few feet to an excess of a hundred feet in length. SRL advantages include a self-tending lifeline and reduced free fall distance. Disadvantages include high cost, weight of the equipment, requirement for specialized inspections and the possibility of swinging into an obstruction during a fall if the SRL is extended too far horizontally. SRLs must meet the requirements of ANSI Z359.14 Standard.

(b) Self-Retracting lanyard with Leading Edge Capability (SRL-LE). A self-retracting device is suitable for applications where during use the device is not necessarily mounted or anchored overhead. The device may be attached at the foot level and where the possible free fall distance is up to 5 feet that includes an integral energy absorber adjacent to the end of the line which connects to the FBH to withstand the impact loading of the line constituent with a sharp or abrasive edge during fall arrest and for controlling fall arrest forces on the end user. The SRL-LE can be used in horizontal or vertical applications. The line constituent of SRL-LE is made either from synthetic rope, webbing or wire rope. SRL-LE must meet the requirements of ANSI Z359.14 Standard.

(c) Self-Retracting Lanyard with Rescue Capability (SRL-R). An SRL that includes an integral means for assisted rescue via raising or lowering the rescue subject. SRL-LE must be capable of raising or lowering the load to affect rescue. The device can be made as part of a SRL or SRL-LE as a hybrid component.

(d) Hybrid Self-Retracting Devices. Hybrid Device must meet the individual requirements of any two Self-Retracting Devices in subparagraphs .2b(3)(a) through 2b(3)(c).

(4) A fall arrester is a device that travels on a rope or cable and automatically engages the line and locks to arrest the fall of a worker. The fall arrester is a very useful component of a PFAS when vertical mobility is required. When the rope grab is designed to manually lock, it may be used in a horizontal mode as part of a fall restraint system, which is called rope adjuster. Fall arrester is also used to attach a worker to a climbing ladder fall arrest system using a short connector.

c. Anchorage Connectors. A wide variety of anchorage connectors are available for use as part of a PFAS. Examples of anchorage connectors include but not limited to tie-off adaptor, beam clamps, roof anchors, self-locking eye connectors and ballasted anchors (Free Standing).

Anchorage connectors must be designed per reference (g) to assure compatibility with other components of a PFAS.

(1) Tie-off Adapters. The tie-off adapter is a common component of a PFAS. The tie-off-adapter is, in essence, two “D” rings connected together by synthetic webbing or wire rope, typically with built-in chaffing protection. The tie-off adapter allows personnel to improvise an anchorage by wrapping the adapter around a structural member of suitable strength. A lanyard or other components of the PFAS can then be attached to the tie-off adapter. Tie-off adapters can be found in three-, four- and six-foot lengths. Additional lengths can be purchased.

(2) When selecting a tie-off adapter as part of a PFAS, consideration must be given to potential misuse or inappropriate use. Anchorages have failed when the tie-off adapters were not attached to sufficiently strong structural members.

3. Single Anchor Lifeline System. A single anchor lifeline is a vertically suspended flexible line or rope with a connector at the upper end attached to a fixed overhead anchorage; to which a fall arrestor (Rope Grab) travels. The fall arrestor is connected to the worker’s full body harness by the use of an energy-absorbing lanyard. Only one person must be attached to a lifeline system. Two workers will require two independent vertical lifelines. Single anchor lifeline system can be used in vertical, sloped or horizontal applications.

4. Horizontal Lifeline. A horizontal lifeline is a fall arrest system consisting of flexible wire, rope or synthetic cable spanned horizontally between two end anchorages. It may have energy absorbing component, lifeline tensioner component and intermediate anchorages. A horizontal lifeline can be either a permanent or a temporary system. A horizontal lifeline must be designed, installed and used under the supervision of a qualified person as part of a complete fall arrest system that maintains a safety factor of two. The competent person may supervise the assembly, disassembly, use and inspection under the direction of the qualified person for fall protection.

NOTE: Horizontal lifelines are available in kit forms and in a variety of lengths and styles. A properly designed kit contains specialized components to maintain proper tension of the lifeline and to prevent the attachment points of the lifeline from exceeding designed strength requirements.

5. Self-Rescue and Assisted-Rescue Equipment:

a. Evacuation Harness. Evacuation harness is used only for rescue and must be designed to properly fit and securely hold the rescue subject during rescue. The harness must at a minimum provide support for the body around the shoulders and thighs.

b. Rescue Lanyard and Rescue Anchorage Connector Components must meet ANSI/ASSP Z359.4 Standard.

c. Synthetic Rope Tackle Block. The rope tackle block is used for raising or lowering a person by the use of rope and pulleys and must have a minimum theoretical mechanical advantage of 3:1; equipped with secondary means to prevent uncontrolled lowering of the worker. The rope used must be made of synthetic material and must have strength, aging and abrasion characteristics equivalent to or superior to polyamides.

d. Descent Devices. Descent devices are components designed for single use (intended to be used and operated by one person) for personal descent or to lower another person from an elevated location. Descent control devices can be either manual or automatic. The automatic descent control device once engaged lowers the person at a constant speed.

APPENDIX B13-C
FALL PROTECTION TRAINING REQUIREMENTS AND METHODS

Trainee GROUP	Desired Training Objectives	Training Mechanism and Type
<p>End User of Fall Protection (Authorized Person)</p>	<ul style="list-style-type: none"> -Selection and safe use of equipment applicable to the scope of work -Application limits -Proper anchoring and tie-off techniques -Estimation of fall distances including total fall distance, free fall distance and clearance requirements -Determination of deceleration distance -Swing fall hazards -Methods of inspection -Storage, care and maintenance of equipment -Applicable regulations and standards -Limitations of equipment -Specific lifelines -Rescue and self-rescue techniques -Recognize fall-hazard deficiencies -Recognize fall risks at worksite -Proper set-up and use of the designated area or warning line system (if required) 	<p>Hands-on training and practical demonstrations (performance assessment (a must)) for using local equipment or on-site training as applicable to the command, unit or activity, delivered by the Competent Person for FP</p> <p>Or</p> <p>ESAMS Course #2018 titled Fall Protection Awareness Training for End Users Working at Heights and Supervisors of End Users and ESAMS course 3024 titled Fall Protection Hands-On Training and Practical Demonstration Requirements for End Users</p> <p>(16 hours or as appropriate)</p> <p>Depending on the work task and the type of work being performed by the end user, the Command Competent Person for Fall Protection will</p>

Trainee GROUP	Desired Training Objectives	Training Mechanism and Type
		determine the extent and the duration of the required training
Construction Management Personnel	<ul style="list-style-type: none"> -Recognize fall-hazard deficiencies -Recognize fall risks at worksite -Application and requirements of fall protection systems and equipment -Applicable rules and regulations -Fall protection program requirements including roles and responsibilities and training requirements for personnel involved in the fall protection program -application and requirements of personal fall protection systems and equipment including guardrails, safety nets and covers: -Requirements personal fall protection systems and equipment including: <ul style="list-style-type: none"> -Application and methods of use -Proper anchoring and tie-off techniques -Methods of inspection and record keeping -Storage of the equipment -Applicable regulations -Rescue equipment and procedures -Understand fall protection and prevention plan and rescue plan requirements -Application and use of Arial Work Platforms -Requirements for of Warning Line or Designated Area Methods -Requirements for Working over Water 	Fall Protection, part of the 40 hours Construction Safety Training (USACE EM 385-1-1, section 21) (Minimum 4 hours)

Trainee GROUP	Desired Training Objectives	Training Mechanism and Type
Contracting Officer Technical Representative and Contract Assurance Personnel	<ul style="list-style-type: none"> -Recognize fall-hazard deficiencies -Recognize fall risks at a worksite -Various types of slips, trips and fall hazards encountered at workplaces -causes that lead to slips, trips and fall mishaps on the same level and Recommended solutions to mitigate fall hazards and prevent fall mishaps 	<p>(Awareness Training)</p> <p>Or</p> <p>Receive ESAMS Course #1259 titled Slips Trips and Same Level Falls</p>
Competent Person for Fall Protection (designated by the command, unit or activity)	<ul style="list-style-type: none"> -In addition to the end user training, the competent person for fall protection training including hands-on and practical demonstrations (performance assessment), must also include: -Implementation of various fall protection systems -Donning of the equipment -Proper inspection and record keeping -Recognize and identify fall hazards at work-site -Proper equipment installation techniques -Proper anchoring and tie off techniques -Risk assessment and hazard ranking -Preparation, update, review and approval of fall protection and prevention plans and rescue and evacuation plans -Applicable fall protection regulations -Plan and specification review and approval 	<p>Competent Person for Fall Protection NAVSAFENVTRACEN Course #A-493-0103 (ESAMS) Course ID 6198)</p> <p>Or</p> <p>Competent Fall Protection Person As approved by echelon 2 per this Appendix and DON FP Guide</p> <p>(Minimum 40 hours)</p>
Qualified Person for Fall Protection	<ul style="list-style-type: none"> -Design, select, analyze and certify fall protection systems and equipment -Preparation, update, review and approval of fall protection and prevention plans and rescue and evacuation plans -Fall protection regulations and standards -Plan and specification review and approval 	<p>As approved by echelon 2 per this instruction</p> <p>(minimum 40 hours)</p>

Trainee GROUP	Desired Training Objectives	Training Mechanism and Type
Architects and Engineers (Designers) involved in planning and design of buildings, facilities and structures	<ul style="list-style-type: none"> -Understand best practices and design considerations for management of fall hazards during construction and maintenance phases -Understand various fall protection and prevention planning and design considerations for management of hazards during construction and maintenance phases -Applicable fall protection regulations, standards, instruction and requirements -Understanding of various fall protection systems and equipment -Recognize design deficiencies affecting fall hazards -Recognize fall risk assessment and control measures at worksites -Identification and selection of certified and non-certified anchorages 	<p>ESAMS Course #1900</p> <p>(Awareness Training)</p> <p>(4 hours)</p>
Fall Protection Program Managers (assigned by the command, unit or activity)	<ul style="list-style-type: none"> -Recognize and identify fall hazards at workplaces -Understand best practices, criteria and requirements for development and managing fall protection program -Risk assessment and hazard ranking -Selection, safe use and limitation of fall protection systems and equipment -Storage, care and maintenance of the equipment -Applicable fall protection regulations and standards -Program audit and evaluation criteria -Understand duties, responsibilities and training requirements for personnel involved in the fall protection program 	<p>Course Number A-493-0099 (ESAMS course ID 6360) or as approved by echelon 2</p> <p>Or</p> <p>ESAMS Course #4437 (part 1) and 4438 (part 2) Fall Protection Manager Training</p> <p>16 hours</p>
Aviation Fall Protection Program Managers	<ul style="list-style-type: none"> -Recognize and identify fall hazards at workplaces 	<p>Fall Protection Program Managers Training for CNAL and CNAP Wing or Squadrons</p>

Trainee GROUP	Desired Training Objectives	Training Mechanism and Type
	<ul style="list-style-type: none"> -Understand best practices, criteria and requirements for development and managing fall protection program associated with aviation maintenance requirement -Conduct fall hazard survey and prepare survey report -Risk assessment and hazard ranking -Selection, safe use and limitation of fall protection systems and equipment -Work with NAVAIR prior to purchasing fall protection equipment that require maintenance and corrosion inspections and lifecycle maintenance -Implement feedback under Naval Aviation Maintenance Program and T/M/S System Safety Working Groups -Understand duties, responsibilities and training requirements for personnel involved in the fall protection program -Provide training to the End User for Fall Protection 	<p>16 hours In resident Or Alternate aligned with chapter as approved by ECHELON 3 (COMNAVAIRFOR)</p>
Aviation Competent Person for Fall Protection	<p>In addition to End User of Fall Protection training, the Competent Person for Fall Protection training must include hands-on and practical demonstrations and the following:</p> <ul style="list-style-type: none"> -Implementation of various Fall Protection systems and equipment used in aviation environment ashore and afloat -Proper donning of the personal fall protection equipment -Proper inspection and record keeping of Personal Fall Protection equipment and systems. -Recognize and identify fall hazards at work-site ashore and afloat. -Verify the proper fall protection equipment and system use and installation techniques ashore and afloat. -Verify or confirm proper anchoring and tie-off techniques 	<p>40 hours in resident Or Alternate aligned with chapter as approved by ECHELON 3 (COMNAVAIRFOR)</p>

Trainee GROUP	Desired Training Objectives	Training Mechanism and Type
	<ul style="list-style-type: none"> -Assessment of risk and hazard ranking -Prepare, update, review and approval of fall protection and prevention plans and rescue and evacuation plans -Assurance of understanding Fall Protection regulations and standards by personnel to be exposed to fall hazards ashore and afloat. -Integration with OPNAVINST 5100.19F when required to embark on an afloat vessel. 	
<p>Architects, Engineers and other Inspectors conducting Investigation and inspection work on roofs, general Industry workplace conditions or conducting fall hazard surveys</p>	<ul style="list-style-type: none"> -Fall Protection awareness training -Applicable regulations and standards -Responsibilities and basic duties of the inspection team -Safe work practices -Safe access -Protective Methods used when conducting inspection and investigation work -Pre-work safety verification check -Procedures for conducting inspection and investigation work -Training requirements 	<p>ESAMS Course #3639 titled Fall Protection Awareness Training for Architects, Engineers and other Inspectors involved in conducting Roof Inspection, Investigation and Assessment Work</p> <p>(Awareness Training)</p>
<p>End User of Fall protection (Authorized Person) Refresher or Update Training</p> <p>(every 2 years)</p> <p>(Competent Person for FP will determine the</p>	<p>Selection and safe use of equipment:</p> <ul style="list-style-type: none"> -Application limits -Proper anchoring and tie-off techniques -Estimation of fall distances including total fall distance, free fall distance and clearance requirements -Determination of deceleration distance -Methods of inspection -Storage, care and maintenance of equipment -Applicable regulations and standards 	<p>Delivered by the Competent Person for Fall Protection (Competent Person for Fall protection determines if Hands-On training and practical demonstrations are required)</p> <p>Or,</p>

Trainee GROUP	Desired Training Objectives	Training Mechanism and Type
extent of the refresher training	<ul style="list-style-type: none"> -Limitations of equipment -Specific lifelines -Rescue and self-rescue techniques -Recognize fall-hazard deficiencies 	ESAMS course #2018 titled Fall Protection Awareness Training for End Users Working at Heights and Supervisors of End Users
Refresher or Update Training for the Competent Person for Fall Protection (Every 2 years)	<ul style="list-style-type: none"> -Stay current with the fall protection and rescue educational requirements -Acquire knowledge and understanding of the best fall protection practices and application of fall protection rescue equipment and systems 	Applicable technical seminars or web based training Or Receive ESAMS Course #4438 as Competent Person Refresher Training
Refresher Training for the Qualified Person for Fall protection	-Stay current with the Fall Protection and rescue educational requirements	Applicable technical seminars, conferences or web based training Or Receive ESAMS Course #4438 (Part 2) titled Competent Person Refresher Training
Refresher Training for the Fall Protection Program Manager (Every two years)	Stay current with the Fall Protection and rescue educational requirements	Applicable technical seminars, conferences or web based training Or Receive ESAMS Courses # 4437 (Part 1) and 4438 (part 2)

Trainee GROUP	Desired Training Objectives	Training Mechanism and Type
Other Personnel Involved in the Fall Protection Program (Whether exposed or not exposed to falls)		As determined by the Fall Protection Program Manager

CHAPTER 14

MISHAP REVIEW AND ANALYSIS

Ref: (a) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, And Record Keeping Manual, 7 Jan 2005

B1401. Discussion. Navy commands, units and activities will conduct mishap reporting, investigation, and record keeping in accordance with reference (a). This chapter contains additional requirements related to mishap review and analysis that must also be met.

B1402. Leadership Review. Commanders, commanding officers and officers in charge, or their respective deputies, chiefs of staff, or executive officers, will review mishaps. The command, unit and activity head, or his or her designee, with the safety manager will decide which mishaps to review. At a minimum, commanders, units and activities will review any mishap that requires submission of a Mishap Investigation Report (MIR) in accordance with reference (a). The specific review mechanism is left to the commands, units or activities discretion and can take many forms. This review will include the cognizant first-line supervisor and/or next level of management, and the injured employee if needed for amplifying information. The review will involve safety, medical, compensation, and other management personnel, as appropriate. The object of the review is to determine compliance with and adequacy of established standards and procedures, identify the underlying cause(s) of the mishap and take corrective action to prevent recurrence.

B1403. Mishap Analyses. Commands, units and activities will conduct detailed analyses of their mishap experiences and develop annual mishap reduction goals. The safety department is to analyze mishap data, including “near miss” data, on a regular basis to identify significant trends and utilize these trends to adjust safety program efforts, training requirements as well as identify goals, accountability issues, and potential failures of command infrastructure. They will include these goals in command, unit and activity goals and specific strategies and measurement standards and develop actions for goal attainment.

B1404. Occupational Injury or Illness Treatment

a. Reporting Procedures. Employees will report immediately to their supervisors any occupational injury or illness. If an employee requests medical care, the supervisor will offer to refer the employee to the supporting medical treatment facility (MTF) occupational health department, if available, for examination and recording of the injury in the employee medical record. Referral to the supporting MTF is not mandatory for civilian employees nor will it be construed as the initial choice of the attending physician. If the employee elects evaluation at the supporting MTF, the supervisor will furnish OPNAV 5100/9 Medical Referral Form or equivalent. Civilian injuries should be recorded on OSHA 301 or equivalent.

b. Injury Report Control. The safety office may use OPNAV 5100/9 as one means of control to ensure the prompt receipt of information they need to investigate mishaps and to complete appropriate mishap reports for civilian employees. The safety office may use other tracking systems if they allow commands, units and activities safety offices to track MTF visits.

(1) The MTF will make every effort to determine whether or not an injury or physical disability is occupational before checking the "Undetermined" block.

(2) The supervisor will notify the MTF and the cognizant Safety Manager of the reported occupational injury/illness for administrative purposes.

c. Military members will report occupational injuries and illnesses to their supervisors for referral to MTF and provide documentation from MTF of the treatment received, and outcome of recovery.

B1405. Responsibilities

a. Commanders, commanding officers, and officers in charge must:

(1) Ensure all employees report to their supervisors any occupational injury or illness.

(2) Ensure a review process is established when investigation is complete.

(3) Ensure mishap reporting, investigation, and record keeping is conducted in accordance with reference (a).

CHAPTER 15

RESPIRATORY PROTECTION

- Ref:
- (a) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (b) NAVSEA 389-0288, Radiological Controls. [No link available]
 - (c) NAVSEA 389-0153, Radiological Controls Manual. [No link available]
 - (d) Title 29 CFR 1910.134, Subpart Personal Protective Equipment (Respiratory Protection)
 - (e) American National Standards Institute (ANSI), Z88.7-2010, American National Standard for Color Coding of Air-Purifying Respirator Canister, Cartridges, and Filters
 - (f) Commodity Specification for Air- Seventh Edition
 - (g) American National Standards Institute (ANSI), Z88.2-2015, American National Standard, Practices for Respiratory Protection
 - (h) NIOSH Respirator Selection Logic 2004, NIOSH Publication 2005-100,
 - (i) Industrial Hygiene Field Operations Manual NMCPHC-TM6290.91-2, latest version
 - (j) NMCPHC Technical Manual OM 6260, Medical Surveillance Procedures Manual and Medical Matrix, Aug 2015
 - (k) American National Standards Institute (ANSI), Z88.10-2010 American National Standard for Respirator Fit Testing Methods

B1501. Discussion

a. This chapter establishes requirements and responsibilities for an ashore respiratory protection program. Reference (a) covers respiratory protection for forces afloat. When Navy respirator policy differs from OSHA respirator policy, commands, units and activities must follow Navy policy. Issues not specifically addressed in Navy policy do not constitute conflicts with OSHA policy.

b. Many occupational commands, units and activities expose personnel to air contaminants that can be hazardous, if inhaled. Elimination or control of exposures to air contaminants must be accomplished through the use of effective engineering controls. When engineering controls are not feasible or do not effectively control air contaminants, the command, unit, or activity work center must implement a respirator protection program and personnel must use respiratory protection to protect personnel from air contaminants.

B1502. Applicability

a. The provisions of this chapter must apply where employees are required to wear respiratory protection equipment due to the nature of their work or job.

b. The provisions of this chapter do not apply to:

(1) Personnel wearing respiratory protection for the sole purpose of protection against airborne radioactive contamination associated with the Naval Nuclear Propulsion Program, which is governed by reference (b) or (c).

(2) Contractors must have fully implemented respiratory protection programs and provide their own respiratory protective equipment in accordance with reference (d) and provide applicable documentation to the command, unit, or activity where they are employed or performing work.

B1503. General Requirements

a. In accordance with paragraph B1513.b.(2)(c), Chief, Bureau of Medicine and Surgery (BUMED) Industrial Hygiene must perform evaluations of respiratory hazards for commands, units and activities. Guidance on performing hazard assessment for respirator selection is available at the Navy and Marine Corps Public Health Center (NMCPHC) Web site <http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/HAZARD-ASSESSMENT-FOR-RESPIRATOR-SELECTION.pdf>

Whenever respiratory protection is required, commands, units and activities must establish and maintain a respiratory protection program in accordance with this chapter and reference (d). The commander, commanding officer or officer in charge must appoint a trained respiratory protection program manager (RPPM) who must implement program requirements. RPPMs must meet the requirements of the Occupational Safety and Health Professional as described in the glossary to this Manual. Paragraph B1512 contains minimum additional training requirements for RPPMs.

b. Commands, units and activities must provide appropriate equipment to personnel, such as employees, inspectors, and visitors who must enter an area where the use of respiratory protection is required. These personnel must use this equipment regardless of stay time.

c. Commands, units and activities must fit test, issue, and train personnel to wear respirators and ensure personnel are medically qualified.

d. Special considerations are required for respirators used for emergency escape. Three scenarios apply to respirators used for emergency escape. These include office spaces, where chemical biological, radiological, and nuclear (CBRN) escape only respirators have been cached in the event of a CBRN terrorist attack; industrial workplaces where hazard assessment has shown that during an emergency the use of respirators for escape is required; and visitors to industrial workplaces requiring escape only respirators.

(1) Personnel working in office spaces where CBRN escape only respirators have been cached for escape in the event of a CBRN terrorist attack:

(a) Are not required to receive medical evaluation to wear the escape only respirator.

(b) Must be trained in the use and operation of the escape only respirator. Training must include instruction about conditions that may preclude or limit the effective use of respirators, such as claustrophobia, anxiety, facial hair, or unusual facial features; personnel with such conditions must notify the trainer, who is to administer an individualized plan for the use or non-use of an escape-only respirator, or restriction from entrance to the work space.

(2) For industrial workplaces where hazard assessment has shown that during an emergency the use of respirators for escape is required:

(a) The appropriate type of respirator for escape must be selected,

(b) An adequate number of escape respirators must be provided and accessible where they may be needed.

(c) Personnel assigned to areas where respirators may be required for escape must be enrolled in the complete respirator program, including medical evaluation and training in the use and limitations of escape respirators.

(3) The following two scenarios apply for visitors and personnel who must enter but who are not assigned to industrial workplaces where escape respirators are required.

(a) The Navy does not require medical approval for visitors and personnel who must enter but who are not assigned to industrial workplaces where commands, units and activities provide hooded or mouthpiece escape only respirators for potential emergencies. However, they must be briefed in the use of the escape only respirator and must be escorted at all times by command, unit, or activity personnel who are trained in the use of the respirator and who can guide and assist them in emergencies.

(b) For work areas where tight-fitting respirators, such as self-contained breathing apparatus or gas masks, are required for escape, visitors and personnel who must enter but who are not assigned to industrial workplaces must first receive medical evaluation, respirator training, and fit testing.

Note: Any respirator that protects adequately against a suddenly occurring hazardous atmosphere may be used for escape purposes; however, this does not make that respirator an "escape only" respirator. Escape only respirators are designed and approved for use only during escape from hazardous atmospheres and must not be used to enter a hazardous atmosphere. See footnote D of Table 15 for further discussion on escape only respirators.

e. Command, unit, or activity programs must only permit the issuance of respiratory protection for:

(1) Workers in areas known to have contaminant levels requiring the use of respiratory protection or in which contaminant levels requiring the use of respiratory protection may create a hazard without warning (e.g., emergency purposes such as hazardous material spill responses).

(2) Workers performing operations documented as an inhalation hazard and workers in the immediate vicinity where operations generate hazardous levels of contaminants.

(3) Workers in suspect areas or performing operations suspected of being health hazardous but for which adequate sampling data does not exist.

(4) Workers performing operations covered under certain OSHA specific standards, such as the Lead Standard, where OSHA allows workers to use powered air-purifying respirators instead of negative pressure air-purifying respirators.

(5) Any other worker for whom the use of respiratory protection is deemed appropriate by the RPPM - for humanitarian or morale use (voluntary respirator use).

f. When respirators are not required (as defined by regulation and/or documented non-exposures), the voluntary use of respiratory protection is allowed if the respirators are issued and controlled by the RPPM and these criteria are met. Voluntary respirator use is defined and described in detail in the glossary of this Manual (see Voluntary Respirator Use).

(1) National Institute for Occupational Safety and Health (NIOSH) approved filtering face pieces may be issued, for voluntary use, without medical screening and fit testing when the contaminant of concern to the employee is a particulate. Annually provide respirator users with the information relating to the limitations stated on the respirator approval label. Personnel may not supply their own respirators.

(2) When the contaminant of concern to the employee is a gas or vapor, NIOSH approved elastomeric respirators equipped with appropriate chemical cartridges may be issued for voluntary respirator use. All elements of the respiratory protection program must be met, including medical screening and fit-testing.

(3) Hooded respirators are also permitted for voluntary use. All elements of the respiratory protection program must be met.

(4) Surgical masks are not respirators and are not allowed except for U.S Food and Drug approved surgical masks available for patients in hospital or clinic waiting rooms.

(5) Issuance of voluntary use respirators must not be used as a justification for avoiding further evaluation of health hazards.

g. Wearing contact lenses in contaminated atmospheres with respiratory protection is permitted. Provide suitable eye and face protection for all workers exposed to eye injury hazards, regardless of contact lens wear.

B1504. Types of Respirators. The three basic types of respirators are air purifying, supplied-air, and self-contained. Personnel sometimes group supplied-air respirators and self-contained breathing apparatuses together as atmospheric supplying respirators. This Manual lists them separately for clarity. Detailed descriptions of respirators are found the Navy and Marine Corps Public Health Center (NMCPHC) Respiratory Protection Toolbox article entitled RESPIRATOR CLASSIFICATION at this Web site, <http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/RESPIRATOR-CLASSIFICATION.pdf>

a. Air-Purifying Respirator. These respirators remove air contaminants by filtering, absorbing, adsorbing, or chemically reacting with the contaminants as they pass through the respirator canister or cartridge. Personnel must only use this respirator where adequate oxygen (19.5 to 22 percent by volume) is available. This category also includes battery-powered air purifying respirators.

Note: Authorization for military gas masks, such as the M-50, is only for chemical, biological, and radiological (CBR) warfare, CBR warfare training, and nuclear accidents when used according to DOD 3150.8M of 22 February 2005.

b. Supplied-Air Respirators. These respirators provide breathing air independent of the environment. Personnel must use these respirators in place of chemical cartridge, air purifying respirators when:

- (1) A cartridge change out schedule has not been established and implemented;
- (2) There are no appropriate end-of-service life indicator respirators; or
- (3) The contaminant is of such high concentration or toxicity that an air-purifying respirator is inadequate.
- (4) When recommended by the Industrial Hygiene Survey or workplace evaluation conducted by a cognizant industrial hygienist.

c. Self-Contained Breathing Apparatus (SCBA). This type of respirator allows the user complete independence from a fixed source of air and offers the greatest degree of protection but is also the most complex. Training and practice in its use and maintenance is essential.

B1504. Respirator Cartridges and Gas Mask Canisters

a. Navy policy no longer permits reliance on odor thresholds and other warning properties as the sole basis for determining that an air-purifying respirator will afford adequate protection against exposure to gas and vapor contaminants.

b. Commands, units and activities must:

(1) Implement a change-out schedule for chemical canisters and cartridges based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. Commands, units and activities must describe this data, along with the logic for relying on the change schedule, in their respirator programs. The change schedule should be included in written standard operating procedures (SOPs).

(2) Change chemical canisters and cartridges according to manufacturer's directions, or based on objective data obtained as indicated in reference (e).

(3) Chemical cartridge and canister air-purifying respirators may be used (up to their maximum use concentration) for protection against gas and vapor contaminants, including substances without good warning properties, such as isocyanates, if a cartridge change out schedule is developed and implemented.

(4) Identify respirator cartridges, canisters and filters by the information provided on the NIOSH approval labels as well as the color-coding required by reference (e).

Note: Some foreign (European and European Union (EU)) respirator cartridges use a color-coding system that differs from American National Standards Institute (ANSI) standards. Where local situations may have the potential for use of EU or other local national standards, training and supplemental labeling must be provided.

B1505. Compressed Breathing Air Requirements

a. Breathing air or sources of breathing air for supplied air respirators or SCBAs must meet at least the minimum Grade D breathing air requirements of references (d) and (f).

Air intakes must be located away from vehicular and other engine exhaust in fresh outdoor atmospheres, such as above roof level and away from ventilation exhausts. A detailed discussion of compressed breathing air is provided in the NMCPHC Respiratory Protection Toolbox article entitled COMPRESSED BREATHING AIR at this Web site,

<http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/COMPRESSED-BREATHING-AIR.pdf>

b. Commands, units and activities must conduct monitoring of the breathing air quality at least quarterly. Test results must be provided to the safety office. Records of such air quality monitoring must be maintained for five years.

Note: Monitoring in accordance with 1506 (b) and (c) do not apply to ambient air breathing apparatus.

c. In addition to quarterly air quality monitoring to ensure Grade D breathing air, commands, units and activities must equip compressor systems with either-high temperature or continuous carbon monoxide monitor and alarm systems or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the command, unit, or activity must monitor the air supply at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm. Commands, units and activities must equip all new and or upgraded air compressor systems with continuous carbon monoxide monitor and alarm systems. Calibrate monitor and alarm systems on compressors used for supplying breathing air according to the manufacturer's instructions.

d. Commands, units and activities purchasing breathing air from outside sources must comply with reference (g).

B1506. Respirator Selection Considerations

a. Reference (g), (h), and (i) provide general respirator selection guidance.

Also see the NMCPHC Respiratory Protection Toolbox article entitled HAZARD ASSESSMENT FOR RESPIRATOR SELECTION at this Web site, <http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/HAZARD-ASSESSMENT-FOR-RESPIRATOR-SELECTION.pdf>

Note: Host countries may require respiratory protection that meets standards and certifications they establish for foreign national employees. Where foreign legislation applies, commands, units and activities must issue respiratory protection to the employees that meet the host nation criteria.

b. Respirators may be purchased through the General Services Administration Web site: <https://www.gsaadvantage.gov/>

c. As a minimum, the RPPM must consider these factors to correctly assess the nature of the hazard requiring respiratory protection and the type of respirator to be used:

(1) The current workplace evaluation conducted by the cognizant industrial hygienist.

(2) The chemical, physical, and toxicological properties of the contaminant such as:

(a) Warning properties of the contaminant gas or vapor (smell, taste, eye irritation, or respiratory irritation).

(b) Whether employees can absorb the contaminant through the skin.

(c) Whether any of the contaminants are immediately dangerous to life or health (IDLH) or whether the contaminant would produce injurious effects after prolonged exposure.

(3) Concentration of the contaminant in the atmosphere. Where the command, unit, or activity cannot identify, or reasonably estimate the employee exposure, it must consider the atmosphere to be IDLH.

(4) Occupational exposure limits (OELs) for the contaminant(s).

(5) Whether an oxygen-deficient or oxygen-rich atmosphere exists or may be created.

(6) Whether toxic, flammable, or explosive by-products are present or may be produced.

(7) The nature, extent, and frequency of the duties personnel will be performing (e.g., welding, painting, etc.) in the work area.

(8) Sorbent efficiency and service life of cartridge or canister.

(9) Any possibilities of high heat reaction with sorbent material in the cartridge or canister.

(10) Any possibility of shock sensitivity (explosion hazard) of the substances absorbed on the cartridge or canister sorbent.

(11) The assigned protection factor or degree of protection provided.

(12) The RPPM must select respiratory protection using the assigned protection factors (APFs) listed in Table 15-1.

Table 15-1
Assigned Protection Factors ^D

Type of respirator ^{A, B}	Quarter mask	Half mask	Full facepiece	Helmet/hood	Loose fitting facepiece
Air-purifying Respirator	5	10	10/50 ^G	_____	_____
Filtering Facepiece Respirators	_____	5	_____	_____	_____
Powered Air-purifying Respirator (PAPR)	_____	50	1,000	25/1,000 ^C	25
<hr/>					
Supplied-Air Respirator (SAR) [Airline Respirator] ^E					
Demand mode	_____	10	10/50 ^G	_____	_____
Continuous flow mode	_____	50	1,000	25/1,000 ^C	25
Pressure-demand or other positive-pressure mode (i.e., Continuous flow SAR meeting NIOSH pressure demand requirements are approved as pressure demand SAR.)	_____	50	1,000 ^F	_____	_____
<hr/>					
Self-Contained Breathing Apparatus (Open & Closed Circuit SCBA)					
Demand	_____	10	10/50 ^G	50	_____
Pressure-demand	_____	_____	10,000	10,000	_____

^A Employers may select respirators with greater protection factors than what is required by the hazard.

^B APFs are only applicable if all elements of an effective respirator program are established and enforced in accordance with the Respirator Chapter of OPNAVINST 5100.23 Series.

^C The employer must have evidence that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. OSHA accepts respirator manufacturers' empirical test data demonstrating that hooded respirators provide an APF of 1,000. In the absence of such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose fitting facepiece respirators, and receive an APF of 25.

^D These APFs do not apply to respirators used solely for escape. For escape respirators used in association with contaminants that are regulated by OSHA substance specific standards (e.g., acrylonitrile, formaldehyde, benzene), refer to the appropriate substance-specific standards. Paragraph (d)(2)(ii) of 29 CFR 1910.134 states that "*Respirators provided only for escape from IDLH atmospheres must be NIOSH certified for escape from the atmosphere in which they will be used.*"

^E When using a combination respirator ensures that the APF is appropriate to the mode of operation in which the respirator is being used. For example, a combination full facepiece pressure-demand SAR with an air-purifying canister would have an APF of 1,000 in the pressure-demand mode; but would have an APF of 50 in the negative pressure air-purifying mode.

^F The protection provided by combination, full facepiece pressure-demand SARs with auxiliary SCBA is equivalent to the protection provided by full facepiece pressure-demand SCBA; therefore, the APF of 10,000 for pressure-demand SCBA applies.

^G APF is 10 when qualitatively fit tested and 50 when quantitatively fit tested.

d. Should it become necessary to enter an oxygen deficient atmosphere (<19.5 percent oxygen) or an IDLH atmosphere, personnel must only use these types of respirators:

(1) Full facepiece, open circuit; pressure-demand SCBA with an air cylinder rated for at least 30 minutes.

(2) Full facepiece, closed circuit; pressure-demand SCBA (the lowest rated service life of these devices is 60 minutes).

(3) A full facepiece combination pressure-demand supplied-air respirator equipped with an auxiliary self-contained air supply of 15 minutes to ensure escape from the IDLH area. Personnel must only use the auxiliary self-contained air supply for egress purposes. If the self-contained air supply (15 minute supply) is insufficient to ensure escape, then personnel must use an SCBA.

e. Firefighting. Full facepiece, pressure demand SCBA approved by NIOSH and meeting National Fire Protection Association (NFPA) requirements (see glossary) that is equipped with an air cylinder rated for at least 30 minutes. Navy fire and emergency services must comply with this chapter and Chapter 26 of this Manual. When differences occur between these chapters and NFPA standards, the more stringent requirements must be followed.

f. Respiratory Protection for Medical Personnel. Medical personnel who wear respirators must comply with this chapter.

g. For safe entry procedures into IDLH atmospheres, and for interior structural firefighting, refer to reference (d).

B1507. Medical Evaluations

a. Commands, units and activities must not fit test personnel or assign them to work in, or permit them to enter, areas requiring respiratory protection unless they have been medically evaluated in accordance with reference (j) which meets the requirements of reference (d).

b. Military personnel who have been confirmed by their command, unit and activity as having no deployment limiting medical conditions, and with a current annual Periodic Health Assessment in accordance with SECNAVINST 6120.3 CH-1, are considered qualified to wear any type of respiratory protection. Shipboard personnel undergoing shore firefighting training

are not required to obtain medical qualification or respirator fit testing for SCBA prior to reporting for training.

B1508. Respirator Fit Testing

a. Fit Testing. Commands, units and activities must fit test each individual required to use a respirator with a tight-fitting facepiece, at the time of initial fitting and annually thereafter. Additional fit testing information is provided in the NMCPHC Respiratory Protection Toolbox article entitled RESPIRATOR FIT TESTING at this Web site, <http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/RESPIRATOR-FIT-TESTING.pdf>

(1) Commands, units and activities must perform fit testing according to reference (d). Reference (k) can be used by RPPMs as guidance.

(2) All tight-fitting positive and negative pressure respirators must be either qualitatively or quantitatively fit tested by commands, units and activities initially and annually. Qualitatively fit tested negative pressure, air purifying respirators can only be worn in atmospheres up to 10 times the OEL. Full face, negative pressure, air purifying respirators must be quantitatively fit tested to be worn in atmospheres between 10 and 50 times the OEL (minimum passing fit factor for full face respirators is 500).

b. Record keeping. The RPPM must document respirator fit testing and include make, model, style, and size, method of test and test results, strip chart recording or other recording of test results for quantitative fit test, test date, and the name of the instructor and fit tester. This information is required to be established and retained in accordance with reference (d).

B1509. Inspection and Cleaning of Respirators. After use, respirators must be restored to their original condition and configuration (as packaged and sold by the manufacturer) for the NIOSH approval to remain valid. The RPPM must keep a copy of all respirator user manuals and maintain, clean, disinfect, inspect, repair, and store respirators in accordance with manufacturers' instructions in order to maintain their NIOSH certification. Only personnel who have received training through the RPPM must perform the cleaning, inspection, and maintenance of respiratory protective equipment in accordance with reference (d). Additional respirator maintenance information is provided in the NMCPHC Respiratory Protection Toolbox article entitled RESPIRATOR MAINTENANCE at this Web site, <http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/RESPIRATOR-MAINTENANCE.pdf>

B1510. Respiratory Protection Training. The command, unit, or activity and their supervisors must ensure proper respirator use by providing all employees required to use respirators, their supervisors, and persons who issue and or maintain respirators with training in accordance with this paragraph. Commands, units and activities must document that this required initial and

annual training occurs in a manner that is understandable to the respirator wearer, and that respirator wearers can demonstrate knowledge of at least these aspects of respiratory protection. Commands, units and activities must train emergency first responders in accordance with Chapter 26, paragraphs B2604 and B2608 of this Manual.

- a. The nature and degree of respiratory hazards.
- b. Respirator selection based on specific hazards.
- c. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
- d. The limitations and capabilities of the respirator.
- e. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- f. How to inspect, put on and remove, use and check the seals of the respirator.
- g. The procedures for maintenance and storage of the respirator.
- h. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- i. Wearing contact lenses in contaminated atmospheres with respiratory protection is permitted as long as eye and face protection is worn as appropriate for workers exposed to eye injury hazards.
- j. Know when to change chemical cartridges and canisters according to the established change out schedule.
- k. The general requirements of the respiratory standard.

B1511. RPPM Training

a. Because of the large variation in quality of respiratory protection training available for RPPMs, and because of the complexity of respiratory protection, the Navy has defined minimum acceptable training for RPPMs.

b. The RPPM must pass one of these training courses before commands, units and activities appoint them as the RPPM:

- (1) The OSHA Training Institute Course 2225.

(2) The Navy RPPM course, Respiratory Protection Program Management (A-493-0072).

(3) Any respiratory protection course that has at least 32 hours of training including, but not limited to, the topics listed:

- (a) Respiratory hazards.
- (b) Federal standards applicable to respirators.
- (c) Minimum respiratory protection program requirements and administration.
- (d) Respirator types, selection, certification, and limitations.
- (e) Respirator cleaning, maintenance, and inspection.
- (f) Qualitative and quantitative fit testing of respirators, including actual laboratory fit testing.
- (g) Breathing air quality.
- (h) Medical considerations.
- (i) Respirator training.
- (j) Confined spaces and IDLH atmospheres.
- (k) Special problems in program administration (facial hair, lens fogging, and communication).
- (l) Standard operating procedures.
- (m) Cartridge change out schedules.

c. RPPMs must stay current on respirator information by consulting resources such as the Navy and Marine Corps Public Health Center (NMCPHC), OSHA, and NIOSH home pages. Commands, units and activities should consider formal refresher training for RPPMs every 5 years at a course that meets paragraph B1512.b. The Web site for NMCPHC Respiratory Protection Toolbox is <https://www.med.navy.mil/sites/nmcphc/industrial-hygiene/Pages/default.aspx>

d. The Navy requires a course certificate from the OSHA or Navy course as proof of training. If employees attend another course, the Navy requires both the course certificate and a course syllabus specifying training topics and number of hours as proof of training.

e. The Navy does not require assistant or alternate RPPMs to comply with paragraph B1512.b.; however, those assisting with respirator program training, fit testing, or other program implementation, must receive training appropriate to the responsibilities assigned. For example, the RPPM can provide on-the-job training, or the command, unit and activity might require the assistant to complete formal training, but in all cases must receive training appropriate to perform the tasks assigned by the RPPM. Personnel assigned by the RPPM to conduct respirator fit testing should be trained and evaluated according to clause 5 and Annex A1 of reference (k).

B1512. Responsibilities

a. Commanders, commanding officers, and officers in charge must establish a comprehensive respiratory protection program and appoint a qualified RPPM in writing. The Navy encourages small commands, units and activities with few employees utilizing respirators to negotiate with host commands, units and activities for RPPM service. As a minimum, commanders must ensure that the respiratory protection program provides:

(1) A centrally located facility staffed to maintain and issue respiratory protection equipment. The program must provide one or more centrally located facilities at a command, unit, or activity depending on its nature and size. Facility personnel must:

(a) Ensure that commands, units and activities issue only respirators approved by NIOSH or jointly by NIOSH and MSHA.

(b) Maintain all respiratory protection equipment in a sanitary and serviceable condition in accordance with paragraph B1510.

(c) Store all respiratory protection equipment in a designated clean area.

(2) Written SOPs governing the selection, care, issue, and use of respirators. Commands, units and activities must also develop and post worksite SOPs in the general area. SOPs must include emergency and rescue guidance, as necessary. SOPs must include cartridge change out schedules as appropriate.

(3) Initial and annual respiratory protection training in accordance with paragraph B1511 for all respirator users (including emergency first responders) and their supervisors, and personnel who issue and or maintain respirators.

(4) Procedures to ensure that all employees have received medical evaluations required by paragraph B1508.

(5) A completed OPNAV 5100/35 Respirator Use Questionnaire for each civilian employee requiring a medical examination for respirator use.

(6) Fit testing in accordance with paragraph B1509.

(7) Procedures to ensure that all sources of breathing air meet the requirements cited in paragraph B1506.

(8) An annual audit of the program by the RPPM. The BUMED's Industrial Hygiene periodic review of the respiratory protection program does not fully meet this requirement but may provide data used in the evaluation. Guidance on performing annual respirator program audits is available at the NMCPHC Web site:

<http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/RESPIRATOR-PROGRAM-REVIEWS.pdf>

(9) Arrangements for fit testing and respiratory protection program support to ships in port that have a collateral duty safety officer by either the supporting tender, by Navy Environmental and Preventive Medicine Units or by shore command, unit and activity safety offices or medical activities.

(10) For RPPMs to successfully complete required training.

(11) Establishment and implementation of cartridge change out schedules and describes the objective information or data on which they are based in the written respirator program.

b. Chief, Bureau of Medicine and Surgery (BUMED) must:

(1) Ensure the medical qualification requirements of the Respiratory Protection Program agree with reference (j). A physician, or the following individuals under the supervision of a physician, may conduct the medical evaluation: a nurse practitioner, an occupational health nurse, a physician's assistant, or an independent duty hospital corpsman. Reference (j) details the required medical evaluation protocols for respirator users. The health care professional must return the completed OPNAV 5100/35 containing the medical written recommendation to the worker and command, unit and activity RPPM. The medical recommendation must provide this information:

(a) The worker's ability to wear the respirator.

(b) Any limitations on respirator use, or recommendations for a different respirator based on the worker's medical condition or relating to the workplace conditions in which the respirator will be used.

(c) The requirement, if any, for the worker to report back to the medical facility for follow-up medical evaluations.

(d) A statement that the health care professional has provided the worker with a copy of the written recommendation.

(2) In support of the RPPM:

(a) Provide RPPMs with a written evaluation on the effectiveness of their program based on occupational medicine and industrial hygiene reviews.

(b) Make occupational health professionals available to the RPPM for consultation on all aspects of the respiratory protection program. Review command, unit and activity respirator training and fit-testing procedures for technical content upon request. Training and fit testing are command, unit and activities responsibilities.

(c) Provide an evaluation of respiratory hazards.

(3) In support of afloat commands, provide fit testing and respiratory protection program support to ships in port that have a collateral duty safety officer by Navy Environmental and Preventive Medicine Units or by shore support commands, units and activities safety offices or medical activities.

c. Employees must obtain the respiratory protection equipment selected by the RPPM, and inspect, use, and maintain such equipment in accordance with the instructions and training received. At a minimum, employees must:

(1) Inspect the respiratory protection equipment before and after each use in accordance with reference (d) and return the equipment to the central respirator facility when its use is no longer required or when any malfunction is noted.

(2) Perform user seal checks per the manufacturer's instruction or in accordance with reference (d). If a successful user seal check cannot be performed, the employee will not wear the respirator.

(3) Report any malfunction of the respirator to his or her immediate supervisor. If the respirator requires repair or replacement, return it to the respirator facility.

(4) Guard against damage to or loss of respiratory protection equipment.

(5) Change respirator cartridges and canisters according to established change out schedule.

CHAPTER 16
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CHAPTER 17

ASBESTOS CONTROL

- Ref:
- (a) Title 29 CFR 1910.1001, OSHA Asbestos Standard, latest revision
 - (b) Title 29 CFR 1926.1101, OSHA Asbestos Construction Standard, latest revision
 - (c) Title 29 CFR 1915.1001, Asbestos Exposure in all Shipyard Employment Work, latest revision
 - (d) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (e) Title 40 CFR 763 Chapter I-EPA Appendix C Subpart E, Asbestos Model Accreditation Plan, latest revision
 - (f) American Society for Testing and Materials (ASTM) Standard Practice for Visual Inspection of Asbestos Abatement Projects (E1368-05e1)
 - (g) American Conference of Governmental Industrial Hygienists, Inc., Committee on Industrial Ventilation, Industrial Ventilation A Manual of Recommended Practice
 - (h) American National Standards Institute/American Industrial Hygiene Association (ANSI/AIHA) Z9.2-2006, American National Standard for Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems,
 - (i) Title 40 CFR Part 61, Subpart M, National Emission Standard for Asbestos
 - (j) Industrial Hygiene Field Operations Manual NMCPHC-TM6290.91-2, latest version
 - (k) Title 5 CFR 339 - Medical Qualification Determinations
 - (l) NMCPHC Technical Manual OM 6260, Medical Surveillance Procedures Manual and Medical Matrix, Aug 2015
 - (m) Occupational and Environmental Medicine Field Operations Manual NMCPHC TM 6260.9A, Apr 2017
 - (n) Title 32: National Defense part 728-Medical and Dental Care for Eligible Persons at Navy Medical Department Facilities
 - (o) 8-14. NAVMED P-117, Manual of the Medical Department (MANMED)
 - (p) SECNAV Manual M-5210.1, Department of the Navy Records Management Manual
 - (q) Title 29 CFR 1910.1020 Subpart Z, Access to Employee Exposure and Medical Records
 - (r) SECNAVINST 5211.5F, Department of The Navy (DON) Privacy Program, 20 May 2019
 - (s) Asbestos Medical Surveillance Program (AMSP)
 - (t) Unified Facilities Guide Specification UFGS 02-82-00, Asbestos Remediation, Nov 2018 was Unified Facilities Guide Specification UFGS-02 82 16.00 20, Engineering Control of Asbestos Containing Materials, Feb 2010
 - (u) NAVSEA STANDARD ITEM NO 009-10 30 July 2019, Control of Shipboard Asbestos Containing Material (ACM)
 - (v) OPNAVINST 5090.1E, Environmental Readiness Program Manual, 3 Sep 2019

B1701. Discussion

a. This chapter provides guidance for controlling or eliminating the exposure of Navy personnel to asbestos during the use, removal, and disposal of asbestos containing materials (ACM) or presumed asbestos containing material (PACM). The provisions of this chapter apply to industrial and construction commands, units and activities and supplement the Secretary of the Navy (SECNAV) Standards references (a) through (c).

b. Navy policy is to eliminate asbestos hazards by substitution with asbestos free material or, where this is not possible, through the use of engineering, administrative controls, and respiratory protection. Installations will remove friable ACM when ACM poses a threat to release airborne asbestos fibers and cannot be reliably repaired or isolated. Do not removed installed ACM or PACM, which are in good condition, for the sole purpose of eliminating asbestos. Commands, units, and activities must use only suitable asbestos substitute materials as determined by Navy approved identification and testing methods. Commands, units, and activities must not use existing supplies of ACM whenever there are acceptable substitutes.

c. Commands, units and activities must conduct shipboard work in accordance with this chapter and reference (c). Chapter B1 of reference (d) describes the asbestos control program for forces afloat.

d. Whether state and local requirements for asbestos removal and disposal work are applicable depends on whether the workers are Federal or contract workers and if the requirements originate from state and local occupational safety and health (OSH) or from Clean Air Act requirements. Applicability is a complex legal issue that should be decided by qualified legal counsel familiar with the particular jurisdictions in question. Appendix B17-A provides assistance to legal counsel in determining applicability of state and local requirements.

B1702. Program Definitions and Health Effects

a. Asbestos is a general term that applies to a variety of naturally occurring mineral silicates, e.g., chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos or any products composed of these minerals. Asbestos is a fibrous material that is incombustible and possesses high tensile strength, good thermal and electrical insulation properties, and moderate to good chemical resistance. The beneficial properties of asbestos make it ideal for many diverse uses such as:

(1) Thermal System Insulation (TSI). The application of ACM (TSI) to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat energy transfer or water condensation.

(2) Surfacing. ACM is sprayed on, troweled on, or otherwise applied to surfaces such as acoustical plaster on ceilings, fireproofing materials on structural members or other materials on surfaces for fireproofing, acoustical, or other purposes.

(3) Miscellaneous. ACM that is not TSI or surfacing (such as brakes, clutches, floor covering, gaskets, roofing, and cementitious materials).

b. In accordance with references (a) through (c), PACM means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980. The designation of a material as “PACM” may be rebutted pursuant to paragraphs (j)(8) of reference (cc), or paragraph (k)(5) of references (b) and (c).

c. Asbestos is a major health hazard. Inhalation of asbestos fibers may cause asbestosis, pleural thickening, lung cancer and mesothelioma and also may cause cancer of the gastrointestinal tract. If exposure is combined with smoking, the risk of developing lung cancer is increased dramatically.

d. The extended latency period of asbestos-related disease, lack of adequate past exposure data, effects of other carcinogens, and the variability of human response make safe levels of exposure difficult to determine. Between the first asbestos exposure and the appearance of symptoms, latency periods of 20 to 40 years have been observed.

B1703. Occupational Exposure Limit (OEL). Navy OEL’s are available in references (a) through (ce). Affected employees will receive a written notification of asbestos exposure monitoring results following the applicable notification requirements found in references (a) through (c).

B1704. Control of Asbestos in the Workplace Environment. Chapter 12 discusses the basic principles for controlling hazards in an occupational environment, including substitution with less hazardous material (HM), engineering controls (e.g., isolation, ventilation), and the use of personal protective equipment (PPE). Commands, units, and activities must prepare written asbestos control procedures, which set forth these engineering and work practice controls and review and update, as necessary. References (a), (b) and (c) require specific work practices and engineering controls based on the type of ACM or PACM and type of work. Commands, units, and activities must train project personnel in accordance with reference (e) and prohibit administrative controls, such as employee rotations, as a means of keeping the exposure below the OEL.

a. General Workplace Control Practices

(1) Cognizant headquarters activity will approve non-asbestos-containing substitute materials, which must replace ACM. Replacement or substitution of friable ACM, such as asbestos TSI and sprayed on asbestos, is of primary concern because friable ACM are loosely bound and can easily crumble or be pulverized that can become airborne.

(2) Whenever practicable, handle, mix, apply, remove, cut, score, or otherwise work asbestos in a wet state sufficient to prevent the emission of airborne fibers in excess of the OEL. Do not remove asbestos cement, mortar, coating, grout, or similar material containing asbestos from its container (e.g., bag, box, etc.) without wetting, enclosing or ventilating to prevent any airborne release of asbestos. When wetting decreases usefulness, use enclosures or ventilation to reduce the emission of airborne fibers. Do not apply ACM by spray methods, under any circumstances.

(3) Establish regulated areas as required by paragraph (e) of references (a) through (c). Do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics when involved in asbestos-related work commands, units and activities in the regulated area.

(4) Establish procedures to minimize the accumulation of asbestos-laden waste, dust, and scrap materials. Institute specific procedures for the containment of asbestos dust and handling of ACM to minimize the possibility of secondary air contamination. Promptly clean up and dispose of wastes and debris contaminated with asbestos in leak-tight containers. Adequately wet material and use high efficiency particulate air (HEPA) filtered vacuum cleaners for removal, clean up and disposal of debris. Prohibit dry sweeping, shoveling, or other dry clean-up of asbestos-containing dust and debris at all times.

(5) Collect and dispose of asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing (consigned for disposal) which may produce, in any foreseeable way, airborne concentrations of asbestos fibers in sealed, impermeable bags, or other impermeable containers labeled in accordance with references (a) through (c). Color code containers to ensure easy recognition. Double bag and dispose of asbestos waste in accordance with the procedures outlined in paragraph B1706.

(6) Control the spread or increase of airborne concentrations of asbestos by minimizing the effects of environmental conditions, such as wind, ventilation systems, or high traffic conditions. Enclosures or temporary curtains may be used for this purpose.

(7) To minimize exposure potential, perform asbestos removal operations, to the extent feasible, during the second or third shifts or on weekends and holidays.

(8) Strictly adhere to good housekeeping procedures and dust control measures to minimize the release of asbestos fibers during removal/rip-out of ACM. These are the most important and effective means of reducing downtime before reoccupying a workspace after asbestos abatement operations. Always conduct a visual inspection after clean-up. Thoroughly clean and inspect work areas prior to air sampling and releasing asbestos-controlled areas for unrestricted access in accordance with reference (f).

(9) A “Qualified” or “Competent” person, as defined in references (b) or (c), must supervise all asbestos work performed in a regulated area. For Class I (as defined in the Definitions’ section of references (b) or (c)) and II personnel, training must meet the criteria of Environmental Protection Agency (EPA) Model Accreditation Plan for supervisor, in accordance with reference (e). For Class III and IV personnel, training must meet the criteria with the EPA requirements for the training of local education agency maintenance and custodial staff, in accordance with paragraph 763.92(a)(2) of reference (e).

b. Lunch areas. Provide and maintain lunch areas in accordance with references (a) through (ce) as applicable to the work being performed. Use proper personal hygiene practices including but not limited to hand washing. Personnel must wash their hands and face before eating, drinking, or smoking.

c. Ventilation. Use local exhaust ventilation to ensure that atmospheric levels of asbestos do not exceed the OEL. General requirements for the design and use of ventilation to reduce exposures are listed.

(1) Local exhaust ventilation requirements apply to both permanent and temporary systems.

(a) Provide fixed local exhaust ventilation, equipped with pre-filters and HEPA filters, at the point of airborne fiber generation. Capture velocities must be high enough, under the specific environmental conditions, to move any generated asbestos fibers to the air collection/filtration device. In addition, duct transport velocities must be high enough to prevent accumulation of fibers in the duct. Provide clean out points for necessary periodic maintenance. Do not directly exhaust ventilation systems used to control asbestos exposures or emissions, to another regulated area or outside environment unless the ventilation system has HEPA filters. Each ventilation unit (e.g., fixed system, air mover or vacuum cleaner) to be used for asbestos work must be approved by the cognizant industrial hygienist. Each work site ventilation system set up must be approved by the competent or qualified person. Prohibit routine re-circulation of filtered air from asbestos operations. Use the design criteria in reference (g) for facilities with permanent asbestos operations.

(b) Design, construct, install and maintain local exhaust ventilation, and dust collection systems in accordance with references (g) and (h). Position local exhaust ventilation in a regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter.

(c) Provide a HEPA-filtered local exhaust ventilation system for all hand-operated and power-operated tools that may release asbestos fibers in excess of the OEL.

(d) Maintain exhaust filtration systems to prevent performance degradation of the ventilation systems as a whole. Perform such maintenance work under the provisions of this chapter.

(e) Where negative pressure enclosures are required, maintain a minimum negative pressure of 0.02 inches water gauge within an enclosure. A minimum of four air changes per hour are required. Direct air movement, in a negative pressure enclosure (NPE), away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

(2) These requirements are applicable for permanent ventilation systems only:

(a) Test permanent ventilation systems every 3 months or within 5 days of a process or control change that may result in changes to employee exposure. Maintain test records indefinitely. Alternatively, in cases where ventilation systems are equipped with continuous monitoring devices such as pressure taps, manometers, or pitot tubes, log the gauge readings each day the system is used. Also, note non-use days.

(b) Design the system for ease of maintenance and accessibility in accordance with references (g) and (h). Evaluate each system component including hoods, ductwork, clean-out hatches, exhaust fans and air pollution control devices (APCD). Locate the exhaust fan after the APCD. Locate the exhaust fan and APCD in a protected or restricted room. Treat this as a regulated area. Use bag-in bag-out housing on all filtration systems.

d. Personal Protective Clothing and Related Facilities

(1) Personnel handling ACM or PACM during abatement actions, or where the concentration of airborne fibers is likely to exceed the OEL, must wear, at a minimum, the protective clothing listed:

(a) Full body, one-piece disposable coveralls (use of breathable coveralls is permitted in cases where employees will need to shower). An attached hood is highly desirable.

(b) Hoods (head covering) that extend beyond the collar of the coverall, completely protecting the neck area.

(c) Medium weight rubber gloves and a thin cotton under-glove to absorb perspiration.

(d) Slip-resistant plastic shoe covers, or heavy polyethylene shoe covers with slip-resistant soles, or lightweight rubber boots.

(e) Face shields, vented goggles, or other appropriate protective equipment whenever the possibility of eye irritation exists.

Note: The proper use of protective clothing requires that all openings be closed and that garments fit snugly about the neck, wrists, and ankles. Accordingly, tape the wrist and ankle junctions, as well as the collar opening on the outer disposable coveralls to prevent contamination of skin and underclothing without restricting physical movement. Employees must not wear personal clothing under their coveralls.

(2) Establish decontamination areas adjacent to the regulated area for Class I work involving less than 25 linear or 10 square feet of TSI or surfacing ACM or PACM and for Class II and Class III asbestos work operations where exposures could exceed the OEL, or where no negative exposure assessment has been produced.

(a) The decontamination area must comply with references (a) through (c) as applicable and consist of an equipment room or area that is covered by an impermeable drop cloth on the floor/deck or horizontal working surface. This area must be of sufficient size that equipment can be cleaned and personnel may remove their protective equipment without spreading contamination beyond the area. Employees must proceed to a shower and clean room that may be remote from the regulated area.

(b) Alternative control methods for Class I work in construction, ship repairing, shipbuilding, shipbreaking work, and related work. A certified industrial hygienist (CIH) or licensed professional engineer who is also qualified as a project designer as defined in appendix B17-B, may evaluate the work area, the projected work practices, and the engineering controls and certify in writing that they planned control method is adequate to reduce direct and indirect employee exposure to below the OELs under worst-case conditions of use and that planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under (cf), or perimeter monitoring which meets the criteria in either this chapter, or references (b) or (c).

(3) Commands, units and activities must launder asbestos-contaminated clothing to prevent release of airborne asbestos fibers in excess of the OEL. Contracts governing the laundering of asbestos-contaminated clothing must specifically require that contractors comply with the precautions specified in references (a) through (c) as applicable. Contracts must include specific notice of the asbestos-related hazards and require that the contractor notify his/her personnel of the associated hazards. Seal asbestos-contaminated clothing in impermeable bags and transport in containers that have the required warning labels.

e. Respiratory Protection

(1) General Guidance

(a) Employ engineering control measures and work practices to control and contain airborne asbestos fibers to the lowest feasible level. Do not achieve compliance with the OEL by employee rotation. Do not achieve compliance with the OEL by the use of respirators alone except under these conditions:

1. During the time period necessary to commence engineering control measures.
2. In work situations in which the feasible control methods are not sufficient to maintain the airborne concentration of asbestos fibers below the OEL.
3. In work situations where engineering and workplace controls have been implemented, a negative exposure assessment is not available and no industrial hygiene monitoring data exists to verify that such controls have reduced exposure levels below the OEL.
4. During emergencies.

(b) Establish a respiratory protection program in accordance with Chapter 15 of this Manual.

(2) Types of Respirators. Select only respirators approved for protection against exposure to asbestos by the National Institute for Occupational Safety and Health (NIOSH). Collect asbestos air sampling data under paragraph B1709b. To determine the level of respiratory protection, use Table 15-1. Do not use disposable (filtering facepiece) respirators for protection against airborne asbestos fibers. Air-purifying respirators must be equipped with high efficiency filters. Use 42 CFR 84 approved P100 filters to retain consistency with previous NIOSH HEPA filter color-coding. PAPRs must be equipped with HEPA filters.

Note: Provide personnel with a tight fitting powered air-purifying respirator in lieu of any negative pressure respirator if it is requested and provides adequate protection.

(3) Respirator Requirements

(a) In addition to selecting respirators in accordance with Table 15-1 and paragraph B1704e (2), use these specific work requirements:

1. All Class I asbestos work requires respirators. For all Class I work above 1 f/cc as an 8-hour TWA, use a full face, pressure-demand supplied air respirator equipped with an auxiliary self-contained air supply. For all Class I work between 0.1 and 1 f/cc as an 8-hour TWA, use either a tight-fitting powered air-purifying respirator equipped with HEPA filters, or full face, pressure-demand supplied air respirator equipped with either an auxiliary self-contained air supply or HEPA egress cartridges. For Class I work below 0.1 f/cc as an 8-hour TWA, use any respirator approved for asbestos.

Note: Taking a bulk sample of ACM or PACM is classified as a disturbance. Disturbing ACM is Class III asbestos work.

2. Class II and all other Class III asbestos work usually requires a half-mask air purifying respirator, other than a disposable respirator, equipped with HEPA filters (P100 filters) when a negative exposure assessment is not available, when ACM is not removed in a substantially intact state or when asbestos work is not performed using wet methods. Refer to appropriate sections in references (b) and (c) on roofing work.

3. Class IV workers must wear the same respiratory protection as other workers in the regulated area.

(b) Employees who wear respirators may leave the regulated area to wash their faces and respirator face pieces whenever necessary to prevent skin irritation associated with respirator use.

(c) Do not assign personnel to tasks requiring the use of respirators if, based upon his/her most recent medical evaluation, it is determined that the employee will be unable to function normally while wearing a respirator or that the safety or health of the employee or other personnel will be impaired by his/her use of a respirator.

f. Respirator Fit Testing

(1) In accordance with chapter 15, fit test all Navy personnel issued respirators, equipped with tightly fitting face pieces (including pressure demand respirators) for protection against airborne asbestos fibers in the negative pressure mode.

(2) Perform either quantitative or qualitative fit tests at the time of initial fitting and at least annually thereafter. Conduct fit testing in accordance with Chapter 15 of this Manual. Qualitative fit testing is acceptable for both half-mask and full-face respirators worn as protection against airborne asbestos concentrations that are less than 10 times the OEL.

g. Communication of Hazards

(1) Communicate asbestos hazards with warning signs and labels to all potentially exposed personnel as indicated in references (a), (b) and (c).

(2) The National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations also contain specific labeling requirements for waste disposal. Off-site disposal requires the name of the waste generator and location where the waste was generated, as specified in reference (i).

B1705. Asbestos Clearance Level Criteria. The asbestos clearance level, as defined here, provides quality control following asbestos abatement operations. Perform all asbestos abatement operations with strict adherence to good housekeeping procedures and adequate control measures to minimize, to the greatest extent feasible, the release of asbestos fibers to the environment. All asbestos abatement projects must undergo a thorough visual inspection. Thoroughly clean any visible dust or debris in accordance with reference (f). Clearance sampling is required inside regulated areas where a physical containment barrier such as, but not limited to, polyethylene sheeting has been erected for removal of asbestos-containing material. At a minimum, perform air sampling as described:

a. Sample the air inside the regulated area to determine if airborne fiber levels are less than 0.01 f/cc using the NIOSH 7400 method. The minimum sample volume is 1200 liters. Use aggressive air sampling where required by law to perform clearance air sampling. The necessary number of samples may vary significantly, and therefore, should be determined locally on a case-by-case basis. The project is considered complete if all samples collected are less than 0.01 f/cc.

b. Reference (j) and NIOSH 7400 method provide technical guidance for sampling and analysis.

c. Personnel who are not industrial hygienists (IHs), industrial hygiene technicians, or certified exposure monitors, must complete a formal course, in accordance with appendix B17-B, prior to performing asbestos sampling. In addition, on-the-job training (OJT) is required under the direction of the cognizant IH. The cognizant IH will certify, in writing, as competent, those individuals who successfully complete the OJT.

B1706. Disposal Procedures. In preparation for disposal, adequately wet asbestos wastes prior to double bagging in heavy duty plastic bags (at least 6 mils thick) or other suitable impermeable containers (see paragraph B1712). Mark all bags or containers with standard asbestos warning labels. Distinctively color code asbestos waste containers, such as bags, trash cans, dumpsters, etc., to ensure easy recognition. Label dumpsters ASBESTOS WASTE ONLY or otherwise mark in accordance with paragraph B1704.g. Exercise care to prevent bags and other containers from rupturing when being moved to a dumpster or other suitable vehicle for transport to a proper disposal site.

B1707. Asbestos Management Program Ashore

a. The program objective is to provide a long-term solution that will eliminate personnel exposure to airborne asbestos fibers in Navy buildings and workspaces through cost effective management of ACM. The program contains three key elements:

- (1) Survey and material evaluation
- (2) Operations and maintenance (O&M) program

(3) Design and abatement. Centrally managed Hazard Abatement funds are available for design and abatement of high priority asbestos projects.

b. The asbestos program manager (APM) must be appointed in writing by the command, unit, activity commander, commanding officer, or officer in charge or by direction (in accordance with the Department of Navy Correspondence Manual to implement the Asbestos Management Program. The APM may be located in the public works department, safety and health department, or the environmental department. Smaller commands, units and activities, with host-tenant relationships, may use the building manager or facilities representative to act as the liaison with the host, when a written agreement exists specifying that the host is responsible for carrying out the APM's duties. When such a written agreement exists, training requirements for the command, unit, or activity representative will be as mutually agreed. The protection of employees and program elements of appendix B17-C are thereby met. Appendix B17-C provides details of the program and division of responsibilities.

B1708. Training. Follow training and certification requirements of appendix B17-B. Maintain training records in accordance with Chapter 6 of this Manual. Make copies of references (a), (cd) or (ce) and other handout type training materials available to employees upon request at no charge.

B1709. Industrial Hygiene

a. Exposure Monitoring Plan. Establish an exposure monitoring plan to characterize exposures for every employee with occupational exposure to asbestos. In this regard, perform both personal (employee) air sampling and environmental (area) monitoring. Collect personal air samples in the breathing zone of the employee. Give the employee or designated employee representative the opportunity to observe sampling or monitoring. Within a class or category of similar operations, conduct sampling with a frequency and pattern to accurately and reproducibly represent the airborne levels produced by a typical operation within the class or category. To maintain negative exposure assessments, monitoring at least annually each type of asbestos work is recommended. Sampling, of all areas where repetitious asbestos work is performed, is at the discretion of the cognizant IH in accordance with references (a), (b), and (c). Personnel performing personal air sampling to determine exposure to airborne asbestos, who are not IHS, industrial hygiene technicians, or certified exposure monitors, must complete a formal course in asbestos sampling in accordance with appendix B17-B. In addition, on-the-job training is required under the direction of the cognizant IH. The cognizant IH will certify in writing as competent those individuals who successfully complete the OJT.

b. Method of Sampling. Collect breathing zone air samples, which are representative of the 8-hour TWA exposure of each employee for comparison to the OEL, and breathing zone air samples, which are representative of the 30-minute short term exposure for comparison to the EL, in accordance with appendix B17-A of references (a) through (c). Collect environmental air

samples using the current revision of the NIOSH 7400 method along with any additional guidance from local requirements. The Industrial Hygiene Field Operations Manual provides additional information on sampling.

c. Method of Measurement. Analyze asbestos air samples using personnel who have successfully completed the NIOSH 582 or an equivalent course. Perform analysis of samples by the appropriate method, ORM or NIOSH, and specify the laboratory results.

d. Monitoring Records and Retention. Complete documentation on the NMCPHC 5100/13 Industrial Hygiene Air Sampling Survey Form or computerized equivalent. Record and retain exposure data as indicated in Chapter 8 of this Manual.

B1710. Asbestos Medical Surveillance Program (AMSP)

a. General. The AMSP is designed to identify signs and symptoms of asbestos exposure or asbestos related medical conditions as early as possible through periodic medical evaluations. The program also provides for identification of medical conditions which may increase the employee's risk of impairment from asbestos exposure and for counseling of workers on medical conditions related to asbestos exposure.

b. Criteria for Inclusion of Personnel in the AMSP. Include personnel who meet the exposure criteria defined in references (a) through (c) in the AMSP. These persons must remain in the program for the duration of current exposure. Civil service employees may be required to complete medical examinations related to asbestos exposure in accordance with reference (k).

c. Criteria for Removal of Personnel from the AMSP

(1) An employee in the AMSP who changes to a job either without asbestos exposure, or at a level below the current exposure criteria, is to receive a termination evaluation to meet requirements in accordance with references (a) through (c). Chief, Bureau of Medicine and Surgery (BUMED) has a program for persons previously in the AMSP, or with significant past exposure, to continue receiving medical evaluations on a voluntary basis. The details of this program are contained in references (l) and (m).

(2) When an employee enrolled in the AMSP is being removed from the potential exposure assignment, and has never met the exposure criteria in references (a) through (c), a termination evaluation is not required (for example, persons assigned to work on asbestos removal teams who have not been exposed at or above the current exposure levels). Document the health record when the employee is removed from the AMSP.

(3) When an employee has been inappropriately enrolled in the AMSP, accomplish administrative removal only by the responsible occupational health care professional (with occupational medical physician consultation as needed). Remove an employee from the program if review of the records indicate the employee did not meet the OSHA criteria for inclusion in the

program, and there is no medical evidence (based on AMSP medical parameters) to warrant inclusion in the AMSP. Clearly document the health record with the reason(s) for removal.

(4) Provide information and counseling on the value of continuing medical evaluations to employees upon termination of employment.

(a) Upon termination of Navy employment, civilian personnel are no longer eligible for health care in Navy clinics and cannot be followed up in the Navy AMSP. Encourage employees to obtain a copy of their health record for follow-up with their private physician.

(b) Retired military personnel may continue to be seen in Navy clinics for AMSP evaluations, subject to the conditions listed in reference (n). Guidelines and protocols for entry in the AMSP based on past exposure are found in references (l) and (m).

d. Medical Personnel Performing Medical Surveillance Evaluations. Perform medical evaluations by, or under the supervision of a credentialed physician. Nurse practitioners, physician assistants, independent duty corpsmen and occupational health nurses authorized to provide health assessments under the BUMED Quality Assessment and Improvement Program may provide AMSP medical evaluations using approved medical protocols. The health care provider must have a copy of this chapter, including references (a) through (c).

e. Situational Medical Evaluations. Conduct situational evaluations in response to a specific incident for which a hazardous overexposure is suspected. Given the long latency of asbestos-related disease, the primary purpose of these exams is to document the baseline medical condition. Personnel are not enrolled in the AMSP on the basis of a one-time exposure to asbestos or a one-time medical evaluation for actual or potential asbestos exposure unless the criteria in accordance with references (a) through (c) are met. When exposure does not meet the criteria for enrollment in the AMSP, do not use AMSP forms. Document situational evaluations for asbestos exposures in the health record. Consider obtaining a baseline chest radiograph if one is not already on file.

f. Content of Medical Evaluation. Reference (l) contains the medical protocols for the AMSP employees in compliance in accordance with references (a) through (c).

(1) Physical Evaluation. Reference (m) lists the forms required for documenting the review and update of medical and occupational history and evaluation.

(2) Pulmonary Function Test. Follow the spirometry testing requirements found in reference (m).

(3) Chest X-ray. The local radiologist must read the posterior/anterior chest X-ray required in accordance with references (a) through (c), and follow procedures in reference (ba). This must be forwarded for a reading using the International Labor Organization (ILO) 1980 Classification for Pneumoconiosis (generally known as B readings).

(4) Medical Evaluation Counseling. Counsel all personnel on the AMSP regarding the results of the medical evaluation. Complete and distribute A Physician's Written Opinion in accordance with references (a) through (c). Include information from the local radiologist's official interpretation of the chest X-ray as part of the medical evaluation; if the B reading results received subsequently provide new information, inform the employee of those findings.

g. Documentation of Medical Evaluations. Document AMSP medical data in the health record and maintain the data in accordance with reference (o). Document AMSP medical data in the health record and maintain the data in accordance with references (o) and (p).

h. Medical Records Including Chest X-rays. Reference (p) requires all medical information collected for occupational health purposes, including all AMSP medical data, to be maintained in the health record.

(1) Transfer, Retention and Retirement of Health Records. Forward health records, in accordance with reference (p), when the active duty member or civilian employee transfers to another location or retires. Original chest x-rays are a permanent part of the health record and the medical clinic must maintain them, in accordance with references (a), (b) and (c). If the civilian transfers to an agency outside the Navy, the Navy medical clinic must maintain the chest films and retire them in accordance with current directives.

(2) Access to Medical Data. Refer to Chapter 8 of this Manual, along with references (q) and (r) to implement the Federal regulations relating to the access and privacy of medical data.

(3) Central Asbestos Medical Surveillance Program Registry. The Navy's mechanism for reporting occupational diseases is via the safety chain of command to the Naval Safety Center. The NMCPHC maintains a central database registry containing selected information related to persons in the Asbestos Medical Surveillance Program. This is used to track the number of persons routinely being evaluated for potential asbestos-related disease and health record information related to asbestos medical evaluations for program management purposes. Reference (s) provides additional details.

B1711. Work Performed by Private Contractors. For commands, units and activities, each contract for work to be performed by a private contractor in Navy facilities and ships in the United States and abroad must comply with appropriate OSHA and EPA regulations. Use references (t) to design asbestos actions in Navy facilities.

Invoke reference (u) in contracts for the control of asbestos operations on board Navy ships undergoing construction and/or repair.

B1712. Environmental Protection

a. General

(1) All Federal, state and local requirements, including emission standards and the provisions of this chapter must be met. For additional information, contact the cognizant IH and the command, unit, or activity environmental coordinator.

(2) Technical assistance for air pollution control is available upon request from the Naval Facilities Engineering Commands (NAVFAC).

b. Properly contain and dispose of asbestos materials in an approved landfill.

Note: Some states may require asbestos materials to be disposed of in specially designated landfills. Consult with the command, unit, or activity environmental coordinator prior to any disposal. Where state or local agencies regulate asbestos as a hazardous waste (HW), the Navy may be responsible for the management of all administrative and disposal requirements as the generator of the waste. The landfill operator will record specific locations within landfills used for the disposal of asbestos materials and the cognizant naval facility will retain a copy in accordance with reference (a) through (c) and (t). This practice should reduce the possibility of future unearthing and rupturing of disposal containers. Guidance for disposal and management of asbestos from an environmental prospective can be obtained in reference (v).

c. Application of National Emission Standards for Asbestos

(1) The National Emission Standards for Asbestos are contained in references (t) and (v). The standards include:

(a) Demolition and renovation of regulated asbestos containing material (RACM) in facilities and ships. Prior to renovation or demolition of facilities, conduct a thorough re-inspection for RACM by an asbestos inspector qualified in accordance with appendix B17-B.

(b) Spray application of materials containing 1 percent or more asbestos is prohibited for buildings, structural members, pipes, and conduits.

(c) Fabrication, installation, and disposal of waste asbestos. Specific requirements must be met for these processes. Procedures for the handling, transporting, and disposing of asbestos waste are prescribed in the standards (references (a) through (c)). Wet down waste asbestos or asbestos-contaminated material and place in impermeable containers prior to transporting for disposal. Label the containers as prescribed in this chapter. In addition, label transport vehicles during loading and unloading in conformance to reference (t).

(d) The activity must ensure that written notification to the EPA and/or cognizant state or local agencies is done in accordance with reference (t) and state and local regulations. Guidance on notification requirements is found in appendix B17-D.

B1713. Responsibilities. These responsibilities are assigned to provide an effective asbestos exposure control program throughout the Navy.

a. Echelon 2 Commands must:

(1) Ensure that ACM or PACM are not procured or specified when a suitable substitute exists.

(2) Review and purge current military specifications, technical manuals, contract guide specifications, and any other document or specification under Navy cognizance of requirements for asbestos-containing materials where suitable non-asbestos substitutes exist.

(3) Provide advice and technical assistance, in coordination with BUMED, to define appropriate engineering and work practice controls, and identify acceptable non-asbestos-containing substitute materials.

(4) Ensure program support by providing the resources required to meet the regulatory standards for the control of asbestos as prescribed by this chapter.

b. Chief, Bureau of Medicine and Surgery (BUMED) must:

(1) Centrally manage the AMSP and maintain an electronic records database to allow for record access and data analysis.

(2) Provide professional, technical, and training assistance to commands for the purpose of evaluating the potential for asbestos exposure.

(3) Manage the asbestos fiber counting and identification program, including laboratory quality control.

c. Commander, Naval Facilities Engineering Command must:

(1) Provide technical oversight of the facility Asbestos Management Program Ashore.

(2) Maintain guide specifications in accordance with current regulations.

d. The Commander, Naval Sea Systems Command must work through the Standard Specification for Ship Repair and Alteration Committee (SSRAC) to maintain reference (u) in accordance with current regulations.

e. Commanders, Commanding Officers, and Officers in Charge of Commands, Units and Activities must:

(1) Apply control measures, monitoring procedures, O&M plans prescribed in this chapter, to processes using asbestos or ACMs.

(2) Comply with applicable Federal, state, and local asbestos requirements.

(1) Budget resources in order to meet these asbestos control requirements.

(4) Appoint an APM, in writing, to implement the requirements of paragraph B1707 and appendix B17-C.

(5) Maintain a current copy of applicable state and local asbestos requirements.

APPENDIX B17-A

DETERMINING APPLICABILITY OF STATE AND LOCAL REQUIREMENT

Asbestos Workers	Federal OSHA	State/Local OSHA	Federal CAA	State/Local CAA
Federal (On Base)				
Removal	Yes ²	No	Yes	Yes
Disposal	Yes ²	No	Yes	Yes
Federal (Off Base)				
Removal	Yes ²	No	Yes	Yes
Disposal	Yes ²	No	Yes	Yes
Contractor (On Base)				
Removal	Yes	No	Yes	Yes
		(Exclusive Juris)		
		Yes	Yes	Yes
		(Concurrent Juris)		
Disposal	Yes	No	Yes	Yes
		(Exclusive Juris)		
Asbestos Workers				
	Federal OSHA	State/Local OSHA	Federal CAA	State/Local CAA
		Yes	Yes	Yes
		(Concurrent Juris)		
Contractor (Off Base)				
Removal	Yes	Yes	Yes	Yes
Disposal	Yes	Yes	Yes	Yes

OSHA -
CAA - Clean Air Act

APPENDIX B17-B

ASBESTOS TRAINING AND CERTIFICATION REQUIREMENTS LISTED BY TYPES OF OPERATION

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
DESIGN OF PROJECTS WHICH INVOLVE REMOVAL OF ACM OR WORK IN PROXIMITY OF ACM/PACM	ARCHITECTS, ENGINEERS, PLANNERS, ESTIMATORS (P&Es) & APMs	ABATEMENT PROJECT DESIGNER	3-DAY ABATEMENT PROJECT DESIGNER COURSE	YES 1 DAY	** 40 CFR 763.92
REVIEW OF PROJECTS TO DETERMINE ADEQUACY OF CONTROL	ENGINEERS, INDUSTRIAL HYGIENISTS, SAFETY PERSONNEL & APMs	ABATEMENT PROJECT DESIGNER	3-DAY ABATEMENT PROJECT DESIGNER COURSE	YES 1 DAY	** 40 CFR 763.92
PERSON RESPONSIBLE FOR ASBESTOS REMOVAL, ENCAPSULATION, ENCLOSURE AND/OR	ASBESTOS ABATEMENT SUPERVISOR OR COMPETENT	ASBESTOS ABATEMENT CONTRACTOR/SUPERVISOR	5-DAY ASBESTOS ABATEMENT CONTRACTOR/SUPERVISOR	YES 1 DAY	29 CFR 1915.1001(o)(4)(i) 29 CFR 1926.1101(o)(4)(i) ** 40 CFR 763.92

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
REPAIR (CLASS I AND II ASBESTOS WORK)	PERSON, QUALIFIED PERSON, ROICC PERSONNEL		TRAINING COURSE		40 CFR 61 Subpart M
PERSON RESPONSIBLE FOR MAINTENANCE AND HOUSEKEEPING (CLASS III AND IV ASBESTOS WORK)	MAINTENANCE AND HOUSEKEEPING SUPERVISORS, COMPETENT, QUALIFIED PERSON	NONE	2-DAY OPERATIONS AND MAINTENANCE TRAINING	YES NOT SPECIFIED	29 CFR 1915.1001(o)(4)(ii)) 29 CFR 1926.1101(o)(4)(ii))
PHYSICAL GATHERING OF SUSPECTED ACM/PACM SAMPLES FOR LAB I.D.	SAFETY PERSONNEL INDUSTRIAL HYGIENIST, P&Es, & FACILITY INSPECTORS	ASBESTOS INSPECTOR	3-DAY ASBESTOS INSPECTOR COURSE	YES Yes 1 DAY	29 CFR 1915.1001(k)(5) 29 CFR 1926.1101(k)(5) ** 40 CFR 763.92

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
DEVELOPMENT OF ASBESTOS MANAGEMENT PLANS & ASBESTOS O&M PLANS	FACILITY INSPECTORS, SAFETY PERSONNEL & IHs	ASBESTOS MANAGEMENT PLANNER	2-DAY ASBESTOS MANAGEMENT PLANNER COURSE (INSPECTOR ACCREDITATION REQUIRED AS PREREQUISITE)	YES 1 DAY	** 40 CFR 763.92
LABORATORY ANALYSIS OF AIRBORNE SAMPLE	INDUSTRIAL HYGIENE, SAFETY PERSONNEL	PROFICIENCY ANALYTICAL TESTING (PAT) ROUNDS	5-DAY NIOSH 582 COURSE OR EQUIVALENT	ES (PAT)	29 CFR 1910.1001 APP. A 29 CFR 1915.1001 APP. A 29 CFR 1926.1101 APP. A
PERSONNEL WHO ENGAGE IN CLASS I WORK	ABATEMENT WORKERS	ASBESTOS ABATEMENT WORKERS	4-DAY ASBESTOS ABATEMENT WORKER COURSE; OR 5	YES 1 DAY	29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9) ** 40 CFR 763.92

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
			DAY ASBESTOS ABATEMENT CONTRACTOR/SUPERVISOR TRAINING COURSE.		
PERSONNEL WHO ENGAGE IN CLASS II WORK ONLY	ABATEMENT WORKERS	NONE <input type="checkbox"/>	<i>Class II</i> operations that require the use of critical barriers (or equivalent isolation methods) and/or negative pressure enclosures, training must be equivalent in curriculum, method, and length to the EPA Model	YES NOT SPECIFIED	29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9)

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
			Accreditation Plan (MAP) asbestos abatement worker. For employees performing <i>Class II</i> operations involving one generic category of building materials containing training may be covered in an 8-hour course that includes hands-on experience.		
PERSONNEL WHO ENGAGE IN CLASS III OPERATIONS ONLY	MAINTENANCE WORKERS	NONE	16-HOUR OPERATIONS & MAINTENANCE.	YES NOT SPECIFIED	29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9)

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
			REQUIREMENTS ARE RELAXED WHEN ONLY ONE GENERIC CATEGORY OF BUILDING MATERIAL IN CLASS III WORK IS DONE.		
PERSONNEL WHO ENGAGE IN CLASS IV OPERATIONS ONLY AND HOUSEKEEPING WHERE ACM OR PACM IS PRESENT	MAINTENANCE & CUSTODIAL WORKERS	NONE	2-HOUR ASBESTOS AWARENESS TRAINING	YES 2 HOURS	29 CFR 1910.1001 (j)(7) 29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9)
RESPONSIBLE FOR OVERALL ASBESTOS PROGRAM	COMMAND, UNIT, ACTIVITY ASBESTOS	LETTER OF APPOINTMENT FROM COMMANDING	3-DAY ABATEMENT PROJECT DESIGNER	YES 1 DAY	RECOMMENDED TRAINING

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
	PROGRAM MANAGERS	OFFICER	COURSE AND 2 DAY ASBESTOS INSPECTOR/MANAGEMENT PLANNER COURSE, (INSPECTOR ACCREDITATION REQUIRED AS PREREQUISITE)		
AIR SAMPLING	ASBESTOS WORKPLACE MONITORS AND CLEARANCE SAMPLERS	NONE	2 DAYS AND ON THE JOB TRAINING	NONE	RECOMMENDED TRAINING
AUTOMOTIVE BRAKE AND CLUTCH	AUTO MECHANICS	NONE	2-HOUR AWARENESS	NONE	29 CFR 1910.1001 APP. F

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
			PLUS HANDS-ON TRAINING		29 CFR 1915.1001 APP. L
GENERAL INDUSTRIES OPERATIONS ABOVE OEL (NOT OTHERWISE CLASSIFIED)	VARIOUS	NONE	2-HOUR AWARENESS AND OPERATION SPECIFIC	YES NOT SPECIFIED	29 CFR 1910.1001(j)(7)

APPENDIX B17-C

ASBESTOS MANAGEMENT PROGRAM ASHORE

The Navy Asbestos Management Program Ashore consists of the following three elements: operations and maintenance (O&M) program, survey and material assessment, and design and abatement. These elements are the key components of a command, unit, or activity asbestos program to protect personnel from asbestos exposure. The cornerstone of the program is the O&M program. The first step in the process is to appoint an asbestos program manager (APM) in accordance with Chapter 17, paragraph B1707 of this Manual. The APM is responsible for overseeing all aspects of the asbestos management program.

1. Operations and Maintenance Program

a. Objective. Ensure that personnel are properly trained and protected from asbestos exposure caused by inadvertent disturbance of asbestos-containing material (ACM). Provide a living document to manage and record all asbestos-related actions.

b. Scope. The O&M program provides the framework for an activity to manage and document all asbestos actions. An active and aggressive O&M program protects personnel by ensuring that any ACM or presumed asbestos containing material (PACM) is tested before maintenance or repair operation disturbs it, and that proper work practices are employed whenever ACM is disturbed. An O&M program includes: notification, work requests and controls, inventory and periodic surveillance, work practices, record keeping, training, and worker protection. The APM will incorporate elements of the O&M program into the command, unit, or activities existing work request and control system to the greatest extent possible. Additionally, the APM will ensure the examining physician possesses the information required by references (cc) through (ce). Guidance for developing an O&M program is given in Naval Facilities Expeditionary Warfare Center (EXWC) 70.2-010.1, "Model Operations and Maintenance Program for Buildings Containing Asbestos" and the National Institute of Building Sciences (NIBS), "Guidance Manual: Asbestos Operations & Maintenance Work Practices. Include each building with ACM in the O&M program until no ACM remains."

c. Responsibility. Command, unit, or activity.

d. Method. APM, FECs, Public Works Department (PWD), other Navy sources, or contract.

e. Funding Source. Command, unit, or activity.

2. Survey and Material Assessment

a. Objective. Locate, identify, and assess the condition of all types of ACM and PACM in shore facilities. Provide a record of survey results to determine the degree of hazard. A survey is extremely helpful in carrying out an asbestos O&M plan; however, the inventory can be

developed, building by building, as needed, under the O&M program. If materials are not sampled, presume all suspect material contains asbestos until laboratory analysis proves otherwise.

b. Scope. Inspect facilities to identify, locate, and assess the condition of all suspect friable and non-friable ACM. Inspectors will be trained by an EPA or state accredited asbestos building inspector's course. Assess the condition of the material to identify potential hazards and prioritize abatement actions. As a minimum, take identification samples of damaged and significantly damaged homogeneous areas. Guidance for survey and material assessment is defined in NFESC 70.2-010, "Asbestos Facility Inventory/Assessment Protocol." Guidance on project development is in Chapter 12 of this Manual.

c. Responsibility. Command, unit, or activity.

d. Methods. In-house, FECs, other Navy sources, or contract. Forward DAP/MIS project formats to the FECs, via chain of command outlined in NAVFACINST 5100.14A (NOTAL), for entry into the hazard abatement database.

e. Funding Source. Budget submitting office (BSO) or command, unit, or activity.

3. Design and Abatement

a. Objective. Develop and execute plans and specifications for hazard abatement projects to eliminate hazardous conditions caused by damaged or significantly damaged ACM. If ACM is removed, replace with asbestos-free materials, if available.

b. Scope. Develop abatement projects to remove, encapsulate, or enclose damaged or significantly damaged ACM. Project designers and contractors will be trained by an EPA, or state-accredited asbestos project designer course. The projects will abate hazards, ensure worker and building occupant protection, and include proper procedures for final inspection, acceptance, and asbestos waste disposal.

c. Responsibility. Activity

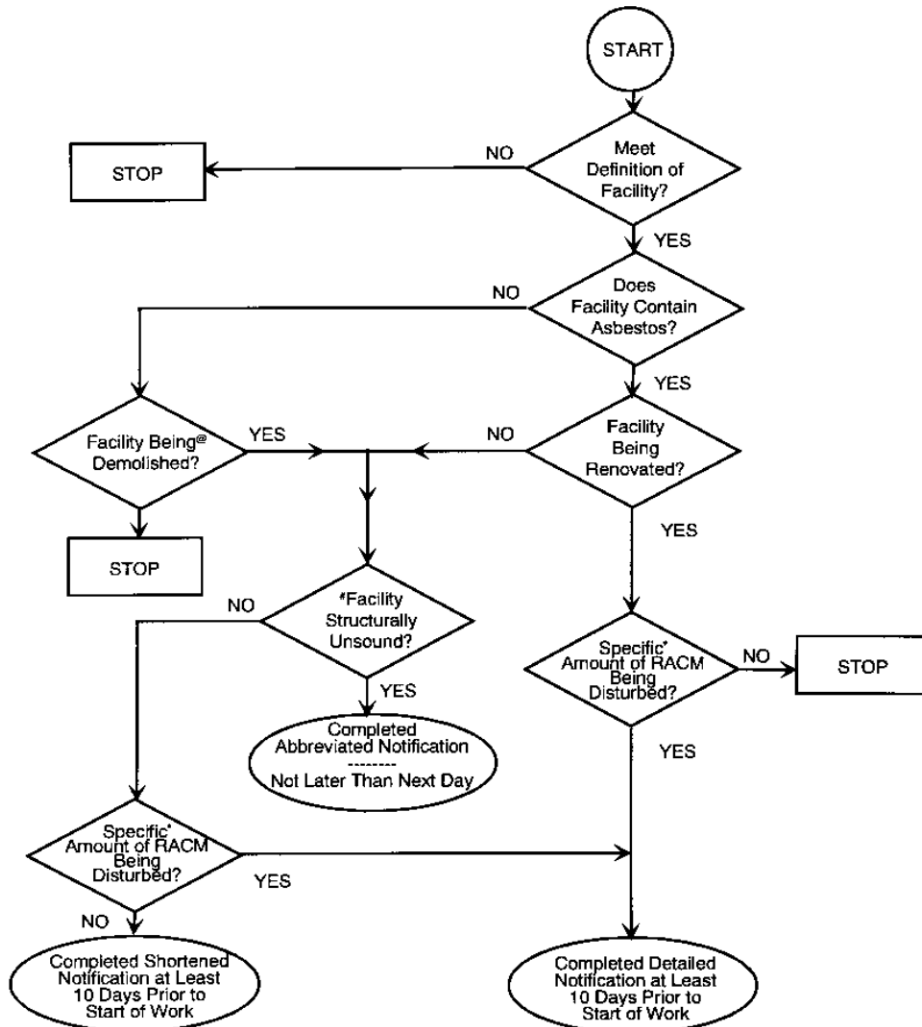
d. Method. In-house, FECs, other Navy sources, or contract.

e. Funding Source. COMNAVFACENGCOM centrally managed hazard abatement account, budget submitting office, and command, unit, or activity.

APPENDIX B17-D

GUIDANCE ON NOTIFICATION REQUIREMENTS

17-Information from NESHAP Asbestos Regulations
(40CFR61, Nov 1990)



Decision Logic to Determine Notification Requirements

* Specific - At least 260 ft, 160 ft², or 35 ft³ of RACM

Under Order of State or Local Government Agency because facility is unsafe or in danger of imminent collapse

@ The term "demolished" means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

For further information, consult the following in 40 CFR 61:

Detailed Notification: Paragraph 61.145

Shortened Notification: Paragraphs 61.145(b)(1), (2), (3)(i) and (iv), and (4)(i) through (vii) and (4)(ix) and (4)(xvi).

Abbreviated Notification: Paragraphs 61.145 (b)(1), (2), (3)(iii), (4) (except (viii)), (5), and (c)(4) through (c)(9).

CHAPTER 18

HEARING CONSERVATION

- Ref:
- (a) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
 - (b) DoD Instruction 6055.05, Occupational and Environmental Health (OEH), 11 Nov 2008
 - (c) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (d) NMCPHC Technical Manual OM 6260, Medical Surveillance Procedures Manual and Medical Matrix, Aug 2015
 - (e) DoD Instruction 6055.12, Hearing Conservation Program, 14 Aug 2019
 - (f) Navy and Marine Corps Public Health Center Technical Manual, NMCPHC-TM 6260.51.99-2, Navy Medical Department Hearing Conservation Program Procedures
 - (g) American National Standards Institute, ANSI Standard S1.25, “American National Standard Specification for Personal Noise Dosimeters,”
 - (h) NIOSH Pub. No. 79-117, Industrial Noise Control Manual Jan 1978 was NIOSH Pub. No. 79-117, Industrial Noise Control Manual
 - (i) NAVFAC P-970, Environmental Protection Planning in the Noise Environment ,June 1978
 - (j) MIL-STD-1472F, Department of Defense Design Criteria Standard Human Engineering, Aug 1999
 - (k) Unified Facilities Criteria (UFC) 3-600-01 of 26, Fire Protection Engineering for Facilities, Aug 2016
 - (l) American National Standards Institute, ANSI Standard S1.4 through S1.4a, “American National Standard Specification for Sound Level Meters,”
 - (m) UFC 3-45-01, Noise and Vibration Control, 15 May 2003
 - (n) Industrial Hygiene Field Operations Manual NMCPHC-TM6290.91-2, latest version
 - (o) Title 29 CFR 1910, Occupational Safety and Health Standards
 - (p) American National Standards Institute, ANSI Standard S1.40, “American National Standard Specifications and Verification Procedures for Sound Calibrators”

B1801. Discussion. Noise injury is a continuing concern within the Department of Navy, both ashore and afloat. The goal of the Hearing Conservation Program (HCP) is twofold; reduce hazardous noise sources through acquisition and engineering controls and ensure auditory fitness for duty in the military members and civilian workforce in accordance with references (a) through (m). Hearing acuity is critical to individual medical readiness and mission success. Noise reduces productivity, efficiency, readiness, and hearing acuity. All levels of leadership will proactively pursue HCP to optimize operational readiness and hearing preservation during federal service. Hearing loss is the most prevalent service-connected disability with costs exceeding one billion dollars annual. These costs only weakly reflect diminished operational effectiveness and the human costs of hearing loss, and impaired quality of life.

Note: For environmental and community noise, see Chapters 20, Noise Prevention Ashore and 21 Environmental Compliance Afloat (Section 22-14) of reference (b).

B1802. Hearing Conservation Program

a. The HCP will be implemented when personnel are occupationally exposed for at least 1 day per year to:

(1) Continuous or intermittent noise as an 8-hour time-weighted average (TWA) of 85 decibels on the A-weighted scale (dBA) or greater.

(2) Impulse or impact noise of 140 dB peak (dBp) sound pressure level or greater.

(3) Other determined to be at risk.

(4) Ultrasonic exposures, which occur under special circumstances that require specific measurement and hazard assessment calculations, in accordance with reference (e).

b. The HCP includes these elements:

(1) Noise Hazard Assessment

(2) Noise Abatement and Engineering Controls

(3) Hearing Protection Devices (HPDs)

(4) Training and Education

(5) Medical Qualifications Standards and Audiometric Testing

(6) Hearing Injury Reporting & Investigation

(7) Program Performance Evaluation

(8) Recordkeeping

B1803. Noise Hazard Assessment

a. An initial baseline and a Periodic Industrial Hygiene Survey (PIHS) must be conducted to determine if personnel exposures to occupational noise and potential noise hazard areas equal or exceed the occupational exposure limits (OELs) for noise:

(1) For an 8-hour TWA, the OEL is 85 dBA. Where exposure times exceed 8 hours, calculate allowable noise exposure in dBA using the guidance in reference (n).

(2) For impact or impulse noise, the OEL is 140 dB dBP sound pressure level.

b. To effectively assess exposures and control sound pressure levels, it is necessary to accurately measure personal exposures and sound pressure levels in accordance with reference (n). Qualified persons will conduct initial and periodic monitoring. Persons qualified to perform exposure monitoring are specified in Chapter 8 of this Manual.

c. Industrial hygienist will identify and assess exposure to ototoxic chemicals. Follow the guidance in reference (n) for assessing chemical exposures.

d. Employee Notification of Monitoring Results. The employer will notify each employee exposed at or above an 8-hour TWA of 85 dBA of the results of the monitoring in accordance with reference (o). This means that results of personal noise dosimetry monitoring that are at or above 85 dBA as an 8-hour time-weighted average must be forwarded to the command, unit, or activity Commanding Officer. Employee notification must be forwarded to the command, unit or activity Commanding Officer. Actual notification of employees remains a command, unit, or activity responsibility.

e. For acquisition and development of new systems, identify prospective sound pressure levels from historical data from existing systems; modeling of anticipated noise levels; and measurement of sound pressure levels in new or modified systems; and equipment during the test and evaluation stage in accordance with Military Standard (MIL-STD) 1474E and reference (h).

B1804. Labeling of Hazardous Noise Areas and Equipment

a. All potentially hazardous noise areas must be clearly identified by signs located at their entrances or boundaries. The designation of hazardous noise areas and equipment will be based on this criteria:

(1) Any work area or equipment where the sound pressure level is 85 dBA or above (continuous or intermittent) will be considered noise hazardous.

(2) Any work area or equipment where the sound pressure level is 140 dBP or greater (impulse or impact) will be considered noise hazardous.

b. Each tool or piece of equipment producing sound pressure levels of 85 dBA or greater, including vehicles, will be conspicuously marked to alert personnel of the potential hazard. The exception will be when an entire space is designated as a hazardous noise area and the equipment is stationary. Exteriors, but not interiors, of military combatant equipment are excluded from this requirement. Professional judgment and discretion will be exercised when labeling tools and equipment.

B1805. Noise Abatement and Engineering Controls

a. Noise Abatement programs will include implementation of noise assessment and engineering control measures through the systems engineering and systems safety process in accordance with reference (i) when:

(1) Legacy systems have measured noise exposure concerns as indicated by personnel exposures at or above 85 dBA or 140 dBP.

(2) New systems are considered likely to create noise exposures at or greater than 85 dBA or 140 dBP.

(3) Communication is anticipated to be potentially impaired by equipment noise.

b. Engineering controls will be the primary choice for eliminating personnel exposure to potentially hazardous noise, in accordance with reference (e). Noise generation, personnel exposures, and signal control will be considered in the context of life-cycle risk management and combat capability. Hazard Control and Abatement guidance is located in Chapter 12.

c. Procurement of new tools and equipment for purchase will incorporate “buy quiet” requirements in accordance with references (j) those with lowest sound emission levels which are technologically and economically feasible and compatible with performance and environmental requirements.

d. The secondary means of protecting people will be administrative, i.e. limiting times of exposure or enforcing safe stay times. Administrative controls (i.e., the adjustment of work schedules to limit exposure) are effective only under strict supervisory control and in consultation with safety, industrial hygiene or occupational audiology. Use of personal protective equipment (PPE) (e.g., ear plugs, muffs, etc.) will be temporary or a last resort solution and only after noise studies have determined engineering or administrative controls are not feasible. Appendix B18-A contains a chart to demonstrate administrative control of noise exposure with HPD maximum stay times.

B1806. Training and Education

a. Supervisors and managers of personnel in noise hazardous areas will receive training on their role in preserving the mission's hearing readiness. Elements of this education should include responsibility to support effective noise control by enforcement, design, engineering controls, as well as operational impacts of hearing impairment and miss-communications.

b. Hearing Conservation Program enrolled personnel and their supervisors must receive documented initial and annual hearing loss prevention training. Initial training will be provided

by the command, unit or activity prior to assignment to duty in a designated noise hazardous environment.

c. All personnel enrolled in the HCP will receive initial and annual training. Training will include:

- (1) The impact of hazardous noise on the hearing system;
- (2) The purpose of hearing protection;
- (3) The advantages, disadvantages, and attenuation of various hearing protectors;
- (4) Instructions on selection, fit, use, and care of personal HPDs including demonstrations of proper HPD fittings and techniques for obtaining an effective fit;
- (5) Mandatory requirement and administrative actions for failure to wear HPD;
- (6) The purpose of audiometric testing;
- (7) An explanation of the audiometric test procedures;
- (8) The personal and professional impact of hearing loss and;
- (9) HPD use during off-duty activities.

d. Annual training will be coordinated by the noise hazard command, unit, or activity. Where available, commands, units, and activities should seek training assistance from medical treatment facility (MTF) occupational audiologists, who are subject matter experts on noise-induced hearing loss and HCP.

B1807. Medical Qualification Standards and Audiometric Testing

a. Hearing Tests and Medical Evaluation. Entry of personnel into a HCP will be based on the results of the industrial hygiene exposure assessment and relevant criteria found in reference (c) and relevant criteria found in 1802 and 1803 in this chapter. Individuals that meet the criteria for exposure intensity and frequency are considered at risk and must be included in HCP and receive annual audiometric testing. The PIHS identifies tasks, processes, operations or similar exposure groups where exposures are above the OEL.

b. The cognizant MTF will conduct periodic hearing tests and diagnostic and medical qualification evaluations as well as provide HCP data to assist commands, units and activities with monitoring the effectiveness of the HCP.

c. For military or civilian personnel who experience a STS, commands, units, and activities will evaluate their personal hearing protection to confirm adequacy of the fit and the resulting amount of attenuation using one of these instructions:

(1) Use a field attenuation estimation, commonly called a fit-test system (individual fit testing is recommended as best practice when possible); or

(2) When needed, commands, units, and activities may request assistance from the local medical personnel to apply appropriate Occupational Safety and Health Administration (OSHA) or National Institute for Occupational Safety and Health derating to the reported attenuation of the hearing protector (current ANSI S12.6 does not require derating) as described in reference (n).

d. Personnel with pre-existing hearing loss that exceeds enlistment or employment standards or those with a demonstrated increased susceptibility to noise-induced hearing loss may be removed or excluded from occupations with noise exposure above the OEL. Occupational audiologists and occupational medicine physicians will determine medical qualification. These determinations and recommendations are provided to the employee's command, unit, or activity and may have an adverse impact on the member's employment. Detailed criteria and disposition processes are defined in reference (b).

e. Disposition. Hearing loss with a suspected medical cause is routed through the appropriate referral process in accordance with references (c). Proactive detection of temporary thresholds shifts facilitates early intervention before a confirmed permanent STS occurs.

(1) Significant Threshold Shifts (STS) and OSHA Recordable Hearing Loss are defined in reference (e) and (f). Personnel demonstrating unresolved STS after appropriate auditory rest will be notified, along with his or her command, unit or activity within 21 days of a confirmed permanent standard threshold shift (STS).

(2) Work-related STSs are considered OSHA recordable when an occupational audiologist, otologist, or occupational medicine physician determines the shift toward deteriorated hearing, is permanent, is consistent with an occupational origin, and the threshold average is 25 dB or more at 2000, 3000, and 4000 Hz in either ear. See reference (g) for additional details on reporting STS.

(3) The individual, his or her supervisor, and command, unit or activity will be notified by MTF when either an STS or an OSHA recordable STS occurs.

f. Termination Hearing Test. All military personnel regardless of enrollment in the HCP will receive a termination hearing test within 12 months of military separation. Within 12 months prior to separation from the command, unit or activity or transfer to a non-noise hazardous position, civilians enrolled in the HCP will receive a termination hearing test

B1808. Hearing Protection Devices (HPDs)

a. HPDs consists of insert type (e.g., ear plugs) and circumural type (e.g. ear muffs) and are considered an interim protective measure while installing engineering control measures. HPDs will constitute a permanent measure only if engineering controls are not technologically, economically, or operationally feasible.

b. Hearing protection will be worn by all personnel when they enter or work in an area where the operations generate:

(1) Continuous or intermittent sound pressure levels greater than 85 dB(A)

(2) Impulse or impact noise at 140 dBP sound pressure level or greater.

c. A combination of insert type and circumaural types of hearing protection devices (double hearing protection) will be worn where sound pressure levels are 104 dBA or greater, for continuous and interment noise, or 165 dBP or greater, for impulse and impact noise, unless an occupational audiologist, IH, or occupational medicine physician has determined that the single protection (insert or circumural types) is adequate for the anticipated duration of exposure.

d. Personnel required to wear HPDs will be provided with the appropriate type and size of HPD. A selection of sizes and types (e.g., ear plugs or ear muffs) will be available to personnel. HPDs will be provided at no cost to personnel entering designated hazardous noise areas. HPDs will be replaced as necessary whenever they become damaged, hardened, or otherwise determined to be no longer functional. When hazardous noise sources are operating, personnel will wear HPDs regardless of exposure time. Safety personnel, industrial hygienists or occupational audiologists will be consulted for guidance regarding assessment of HPD attenuation.

e. HPDs provided and worn singly or in combination will reduce exposures below an 8-hour TWA of 85 dBA and below 140 dB for peak sound pressure levels. For all situations where hearing protection is required, assess whether the HPDs are adequate using any accepted method for assessing attenuation as described in Appendix B, Section 1910.95 of Title 29, CFR or the ANSI S12.6 in accordance with reference (e). Refer to Appendix B18-A of this manual for HPD attenuation methods. Use of field attenuation estimation systems, commonly called a fit-test system are accepted and recommended as best practice, when possible. Field attenuation estimation using the fit-test system should be performed by a trained safety professional or industrial hygienist.

f. The administrative control of limiting exposure time will be implemented in cases where HPDs alone do not provide sufficient attenuation below an 8-hour TWA of 85 dB(A) for

continuous or intermittent noise, or 140 dBP sound pressure level for impulse or impact noise. Refer to Appendix B18-A Hearing Protection Devices for HCP requirements and stay times.

g. All personnel exposed to gunfire in a training situation (e.g., weapons qualification) or live fire operational training (e.g., gunfire, artillery or missile firing) will wear HPDs. Commanders will dictate the use of hearing protection in combat and combat simulations, based on mission requirements and the ability of the hearing protection to facilitate communication and situational awareness.

h. Use of custom earplugs is authorized. Only audiologists or other professionally trained medical personnel will take ear impression of the ear necessary to make the custom earplugs. Non-medical, but professionally trained staff may take ear-mold impressions under the supervision of an audiologist or qualified physician. Medical personnel trained to fit preformed and custom earplugs must examine the fit and condition of preformed and custom earplugs at least annually. As with all personal protective equipment, cost is the responsibility of the individual commands, units or activities.

i. Preformed sized earplugs will be fitted and issued only under the supervision of personnel specifically trained to fit earplugs. For recruits and officer candidates the designated time to initially fit appropriate hearing protection and provide education on the prevention of hearing loss is during basic training and prior to any exposures to hazardous noise. All commands, units and activities will ensure proper initial fitting and supervise the correct use of HPD. The Navy and Marine Corps Public Health Center (NMCPHC) Web site will provide guidance and links to sites with additional information on selecting HPDs. Consult occupational audiologist or industrial hygienist for specifics in accordance with references (c) and (e).

j. The use of portable music players with headphones or ear buds is prohibited in industrial areas and in work areas where high noise hazards have been identified. Such equipment provides limited effective protection and actually contributes to noise exposure by creating sound pressure levels in excess of ambient levels.

k. Hearing aids may not be used in conjunction with or in place of HPDs except as approved by an audiologist or otolaryngologist on a case-by-case basis. Refer to Appendix B18-A Hearing Protection Devices for HCP requirements and stay times in Appendix B18-B.

B1809. Hearing Injury Reporting and Investigation

a. Hearing loss occurring cumulatively over time from an occupational exposure is considered an occupational illness. Hearing loss that occurs from an instantaneous event (i.e., acoustic trauma from an explosion) is considered an injury. Military and civilian occupational illness and injury will be documented appropriately in designated Navy and Marine electronic tracking systems

b. Upon receipt of STS reports from the MTF, commands, units, and activities will ensure a mishap investigation in accordance with OPNAVINST 5102.1D is completed so causes of hearing loss can be established and deliberate, concrete action to prevent future hearing injuries can be taken. Commands, units and activities will collaborate with MTF Occupational Audiologists and industrial hygienists for assistance with worksite assessments, HCP training, and HPD selection/fittings.

B1810. Recordkeeping

a. Commands, units and activities will maintain records of PIHS identifying noise hazardous operations, equipment and areas, as well as roster of all personnel enrolled in the HCP, in accordance with reference (e) and this Chapter.

b. Commands, units and activities will maintain and annotate OSHA 300 logs for civilian personnel and an equivalent log for exposed military personnel whenever it is reported by the MTF that personnel have a confirmed permanent STS.

c. All hearing conservation audiometric testing data, notifications of STS and OSHA recordable hearing loss will be maintained by MTF in accordance with references (a), (c), (g), and (k).

B1811. Program Performance Evaluation

a. Commands, units and activities with noise hazards and/or personnel enrolled in a HCP will evaluate their HCP effectiveness annually through examination of program performance metrics in accordance with reference (e) and implement steps to mitigate program weaknesses and shortfalls.

b. In accordance with reference (e) the Chain of Command will report metrics annually: number of HCP enrolled personnel, compliance rate for annual audiograms, and hearing injury rate (STS rate) to cognizant echelon 2 commands, units and activities (both raw numbers and rates) by 31 Dec for the previous fiscal year.

c. Acquisition program evaluations are required to consider the effectiveness of programs in managing risk in accordance with references (d), (h) and (i). Feasibility will be evaluated and tracked using the methodology of reference (f) and residual risks communicated to appropriate management levels.

B1812. Responsibilities

a. Headquarters' Commands in addition to complying with paragraphs B1802 through B1810 will:

(1) In coordination with Chief, Bureau of Medicine and Surgery (BUMED), provide technical assistance and engineering guidance to subordinate commands, units and activities in accordance with paragraph B1805.

(2) Provide appropriate technical and engineering control guidance. Consider, design, and engineer noise control features into existing and future ships, aircraft, weapons, weapon systems, equipment, materials, supplies and facilities.

(3) Ensure commands, units and activities maintain training records in accordance with Chapter 6 of this document.

(4) Ensure chain-of-command evaluates HCP during oversight processes to verify and document commands, units and activities compliance with this Chapter. Program oversight reports, along with required aforementioned metrics data, will be available for review by Naval Inspector General (IG).

(5) As major Systems Command in the position to effectively reduce a high number of noise hazards affecting a large Navy worker population through the acquisition process, NAVAIR and NAVSEA will:

(a) Ensure incorporation of feasible noise engineering controls into hazard abatement plans.

(b) At least annually, request their aviation depots and naval shipyards to provide an analysis of their high noise measurements with recommendations for work processes and equipment in need of noise control.

b. Commanders, Commanding Officers and Officers in Charge for commands, units and activities will take these actions:

(1) Use the current PIHS to identify hazardous noise areas and equipment. The PIHS may be used by commands, units and activities as the current inventory of all potentially hazardous noise areas and operations. It will be available to supervisors and employees. This inventory will as a minimum identify noise levels, IH assigned health Risk Assessment Codes (RACs), and the types of control measures. Safety specialists or supervisors will designate hazardous noise areas and equipment in accordance with the current PIHS. In cases where measured noise exposures represent equipment or systems with widespread navy use, summarized data will be communicated to responsible technical authorities in systems commands, units and activities and/or acquisition system (platform) program managers in collaboration with organizations receiving industrial hygiene support. BUMED will collaborate with these efforts in accordance with paragraph B1811c.

(2) Local Commands, units and activities are responsible for establishing and maintaining a roster of all personnel enrolled in their hearing conservation and noise abatement

program. Supervisors and safety specialists using the current PIHS will identify individuals assigned to operations associated with hazardous noise. Each command, unit and activity will maintain a comprehensive roster of enrolled personnel in accordance with reference (e) and update it every six months or more frequently as changes occur among personnel. Commands, units and activities rosters will be monitored and used by both MTF and Navy supported commands, units and activities to ensure personnel are trained and receive annual audiometric testing.

(3) Commands, units and activities with noise hazards and/or personnel enrolled in a HCP will evaluate their HCP effectiveness annually through examination of program performance data and criteria and implement steps to mitigate program weaknesses and shortfalls.

(4) As needed, request the cognizant MTF or Navy Environmental and Preventive Medicine Unit (NEPMU) Occupational Audiologist to assist local commands, units and activities in annually monitoring program effectiveness such as providing onsite workplace assessments, trend analysis, and identification of program weaknesses and program improvement recommendations.

(5) Local commands, units and activities will review annual cognizant MTF or NEPMU trend analysis results, implement recommended program improvements, and correct identified program weaknesses.

(6) The preferred marking for equipment and/or power tools is the standard hazardous noise label. They may also be individually and permanently marked via a stencil (painted) or engraved with the words "Produces Hazardous Noise." To minimize foreign object damage, flight line tools should be stenciled as noise hazardous.

(7) Commands, units and activities will label designated hazardous noise areas and equipment that produce sound pressure levels equal to or 85 dBA or greater or 140 dBP sound pressure level.

(8) Commands, units and activities will have the option of using additional means to alert employees to noise hazardous operations. These may include posting barriers or using flashing lights to indicate hazardous noise conditions.

(9) Commands, units and activities will issue personal HPDs at no cost to all personnel working or training in hazardous noise environments and in operational settings.

(10) The use of administrative controls or rotation of employees under strict supervisory control in consultation with safety, industrial hygiene or occupational audiology is an acceptable alternative means to reducing noise exposure when engineering controls are not feasible. Provide

personal HPDs, and ensure proper usage by personnel where administrative or engineering controls are not feasible or ineffective.

(11) Commands, units and activities will request and document training provided by hearing conservation subject matter experts, such as occupational audiologists, occupational medicine, occupational nurses, industrial hygiene specialists, or safety specialists, in accordance with Chapter 6 of this Manual.

(12) Abatement of Existing Noise Hazards.

(a) The commands, units and activities will undertake the abatement of hazardous noise levels, to the extent possible or practicable in accordance with 1805. Consult subject matter experts such as acoustic engineers or industrial hygienists for guidance.

(b) Conduct engineering control feasibility studies for those areas where continuous sound pressure levels exceed 100 dBA and personnel are exposed for 4 hours or more even though protected by HPDs.

c. Chief, Bureau of Medicine and Surgery (BUMED) will:

(1) Manage the medical (i.e., industrial hygiene, occupational audiology, occupational medicine, and occupational nursing) aspects of the HCP. Support a research and development effort in the medical aspects of hearing conservation. BUMED will coordinate hearing conservation and noise mitigation efforts and report status to senior management through the Navy Executive Safety Board in accordance with references (a) and (l).

(2) Occupational audiology will develop and maintain collaborative working relationships with supported commands, units and activities in order to implement effective workplace practices and procedures to prevent noise induced hearing loss. This support includes audiometric monitoring, comprehensive diagnostic evaluations, and medical qualification assessments, annual HCP performance reports, hearing injury reports, hearing protection consultations, worksite technical assist visits, and hearing conservation outreach and training evolutions.

(3) Provide advice to other Headquarters commands as requested to assist them in meeting their hearing conservation and noise abatement responsibilities.

(4) Ensure results of medical surveillance and diagnostic hearing tests performed for hearing conservation and personal noise dosimetry documentation become a permanent part of an individual's electronic medical record.

(5) Industrial hygienist or occupational audiologist will assess the adequacy of HPDs, as requested, when HPDs are used in very high noise environments or for extended exposure periods in accordance with reference (c).

(6) Train individuals to fit preformed earplugs.

(7) Provide commands, units, and activities with hearing injury rates annually as well as notification of STS and OSHA recordable hearing loss.

(8) Industrial hygienist will identify and assess exposure to ototoxic chemicals. Follow the guidance in reference (n) for assessing chemical exposures.

(9) Work environments or equipment found to have sound pressure levels equal to or greater than 85 dBA for continuous or intermittent noise, or 140 dBP sound pressure level for impact will be analyzed to determine the potential hazard and will be resurveyed within 30 days of any significant modifications or changes in work routine which could impact or alter the noise intensity and exposure level.

(10) Noise exposure assessments will be recorded in Defense Occupational and Environmental Health Surveillance System - Industrial Hygiene (DOEHRS-IH) and conducted in accordance with reference (e) for all personnel routinely working in hazardous noise areas and performing hazardous noise operations. The exposure assessment will identify which work areas, processes, and equipment produce unacceptable levels of noise, determine the type of hearing protection necessary, i.e. single or double, and identify similarly exposed groups at risk.

(11) Paragraph B1802 outlines the criteria used to determine the degree of compliance with applicable standards.

(12) When personal dosimetry is conducted, the results of the testing and other pertinent information will be documented by industrial hygienists in DOEHRS-IH and provided to the cognizant MTF for inclusion of results into the personnel's medical record.

(13) Measurements using sound level meters and noise dosimeters will be part of the industrial hygiene workplace exposure assessment process and placed in DOEHRS-IH and -HC in accordance with Chapter 8 of this Manual. For noise areas exceeding the capability of double hearing protection, octave band analysis should be provided to assist in noise abatement efforts.

(14) Assess noise in all potentially hazardous noise work areas initially and reassess when operations change using the risk management process in accordance with reference (k).

(15) Assign RACs to all potentially hazardous noise areas and operations as identified on the PIHS in accordance with reference (m). In cases where measurements appear consistent with risks relevant to a class of systems or defense platforms, these data will also be communicated to

relevant technical authorities and/or program (acquisition) or product/equipment managers. Headquarters commands and commands, units and activities commanders, commanding officers, and officers in charge will support and help in coordination of risk communication. Acquisition program managers may be identified via system safety leads for each systems command and/or relevant Assistant Secretary of Navy for Research, Development and Acquisition (ASN RDA) databases (See <http://acquisition.navy.mil/home/programs>). Product managers and service points of contact for standard stock (NSN) products may be identified via the SD-1 publication available on the Assist database (<https://assist.dla.mil/online/start/>).

(16) Provide hearing readiness data upon request by local commands, units and activities for inclusion in electronic data systems, such as the Medical Readiness Reporting System (MRRS), Navy and Marine Corps consolidated safety data repository, Web Enable Safety System (WESS) and the Enterprise Safety Applications and Management System (ESAMS).

(17) Provide diagnostic occupational audiology evaluations, disposition assessments, hearing loss prevention recommendations, and consultative medical advice for HCP referred personnel.

(18) Provide appropriate professional and technical hearing conservation guidance and assistance to the Naval Education and Training Command (NETC).

(19) Provide:

(a) Guidelines for Personnel conducting sound level measurements.

(b) Certification of personnel performing hearing conservation audiometry.

(c) Certification of audiometric test chambers.

(d) HCP medical surveillance audiometer calibration.

(20) Maintain DOEHRS Hearing Conservation (DOEHRS-HC) database to measure program effectiveness in accordance with reference (e) and use to monitor prevalence of hearing loss and provide input to noise control engineering decisions.

(21) DOEHRS Industrial Hygiene Program Offices will use DOEHRS-IH for documentation of noise exposure assessments to include sound level measurements, identification and quantification of noise hazard sources.

(22) Report HCP metrics annually to the Naval Safety Center by 1 Dec for the previous fiscal year.

(23) As requested, evaluates the effectiveness of commands, units and activities HCP based on STS rates, audiograms completion rates, and permanent STS rates in accordance with reference (e).

(24) Ensures Navy and Marine Corps Public Health Center maintains and promulgates References (c), (n), and (p).

APPENDIX B18-A

HEARING PROTECTIVE DEVICES (HPDs)

The information in this appendix provides information on the OSHA accepted methods for assessing attenuation, using the Noise Reduction Rating (NRR) of a given hearing protector. (Appendix B, Section 1910.95 of Title 29, CFR.) The NRR is based on the attenuation of continuous noise, but is more difficult to apply to impact or impulse sound pressure levels above 140 dBP sound pressure level. The cognizant industrial hygiene activity can assist in determining sufficient noise attenuation of HPDs for impact and impulse noise.

a. Assessing Attenuation of HPDs. To estimate the attenuation afforded to a noise-exposed employee in an actual work environment by muffs, plugs, or a combination of both, proceed as listed:

Single hearing protection (e.g., ear muffs or ear plugs):

(1) When using a dosimeter that is capable of C-weighted measurements:

(a) Obtain the C-weighted dose for the entire work shift, and convert to a TWA (see dosimeter instruction manual for conversion table).

(b) Subtract the NRR from the C-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

(2) When using a dosimeter that is not capable of C-weighted measurements, the listed method may be used:

(a) Convert the A-weighted dose to TWA (see dosimeter instruction manual).

(b) Subtract 7 dB from the NRR value.

(c) Subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

(3) When using a sound level meter set to the A-weighting:

(a) Obtain the employee's A-weighted TWA.

(b) Subtract 7 dB from the NRR,

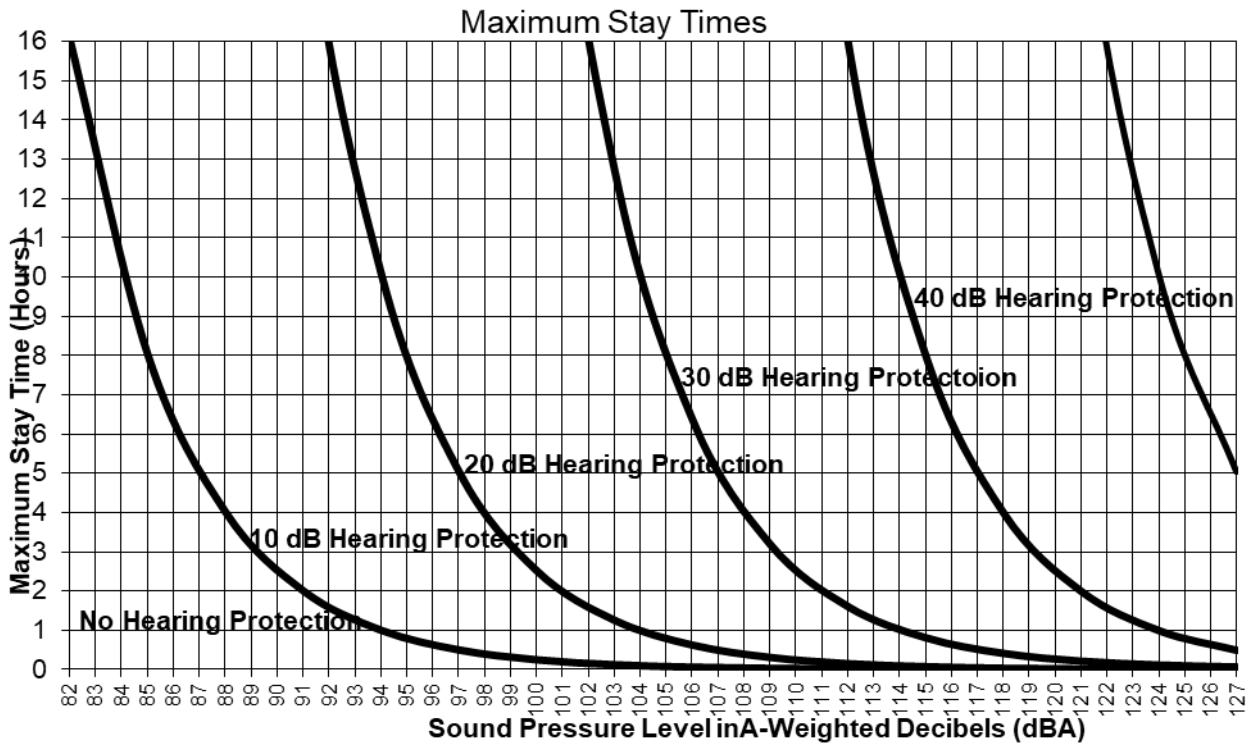
(c) Subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

- (4) When using a sound level meter set on the C-weighting network:
- (a) Obtain a representative sample of the C-weighted sound levels in the employee's environment.
 - (b) Subtract the NRR from the C-weighted average sound level to obtain the estimated A-weighted TWA under the ear protector.

For double hearing protection (e.g., ear plugs and ear muffs) add 5 dB to the calculated attenuation (above) to account for the use of the second hearing protector then subtract.

APPENDIX B18-B

HEARING PROTECTION DECIBES AND STAY TIMES
Administrative Control of Noise Exposure with Hearing Protective
Devices



8-hour Noise Exposure Calculation:

$$T = \frac{8}{2^{\left(\frac{L-85}{3}\right)}}$$

$$T = 8 \times 2^{\frac{85-L}{3}}$$

Where: T = time in hours (decimal)

L = effective sound level in dBA, i.e. environmental SPL - NRR*

*Sound levels may be measured in either dB (A) or dB (C). However, as noted above, if dB (A) is used, the NRR must be reduced by 7 dB.

See ANSI S12.68 Estimating Noise Levels at the Ear for noise sources with a frequency pattern that makes application of a single average NRR underestimate noise exposures. Aircraft noise commonly falls into this category

CHAPTER 19

SIGHT CONSERVATION

- Ref:
- (a) American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Standard Z87.1-2015, Occupational and Educational Personal Eye and Face Protection Devices
 - (b) ANSI/ISEA Standard Z358.1-2014, Emergency Eyewash and Shower Equipment
 - (c) Title 29 CFR 1910.151, Subpart Medical and First Aid (Medical Services and First Aid)
 - (d) Title 29 CFR 1910.133, Subpart Personal Protective Equipment (Eye and Face Protection)

B1901. Discussion. All Navy commands, units, and activities with personnel having exposure to eye hazardous operations must implement a sight conservation program in accordance with the guidance established in this chapter and Chapter 20 of this Manual. The command sight conservation program must include, but not be limited to, these program elements:

- a. Identification and evaluation of eye hazardous areas, processes, and occupations.
- b. Prescription protection eyewear program.
- c. Provision and maintenance of appropriate personal protective equipment (PPE) at government expense.
- d. Provision and maintenance of emergency eyewash, facewash, and deluge shower stations.
- e. An employee training, promotion, and emphasis program.
- f. Effective program enforcement.

Note: This chapter focuses primarily on sight conservation issues of concern (i.e., eye wash equipment and medical requirements for protective eyewear). For comprehensive aspects of a sight conservation program, consult Occupational Safety and Health Administration (OSHA) standards and other professional guidelines. Refer to reference (a) for guidance on eye and face protection. Additional help in choosing eyewear is available using the OSHA Eye and Face Protection e-Tool at <http://www.osha.gov/SLTC/etools/eyeandface/index.html>

B1902. Emergency Eyewash Facilities

- a. Reference (b) requires that suitable facilities for quick drenching or flushing of the eyes and body be provided where the eyes or body of any person may be exposed to injurious corrosive materials. A combination eye wash and face wash facility is preferred over an eye

wash facility. The responsibility for managing eyewashes rests with the owner of the work process that requires eyewashes (e.g., command, unit, activity, etc.). The owner of the work process must ensure that emergency eyewash facilities are provided, installed, maintained, and inspected in accordance with reference (b) and this chapter in all areas where the employees' eyes may be exposed to corrosive materials. All such emergency facilities must be located where they are easily accessible and can be reached within 10 seconds by those in need.

b. Inspection and maintenance tags must be placed on all emergency eyewash/shower units to document most current inspection, maintenance, or changing of flushing fluid and annotate on the tag the individual/s responsible (Name, Dept, Work Center and contact number) for the testing and maintenance.

c. Commands, units, and activities should only use self-contained eyewash units on a temporary basis until permanent emergency eyewash facilities are installed or at remote locations where water is not readily available. Self-contained eyewash units must be capable of providing constant flow for 15 minutes with a minimum capacity of 16 gallons. Commands, units, and activities must not use personal eyewash units for work with corrosives. For other work operations not involving corrosives, personal eyewash units can only be used on a case-by-case basis with approval from the command, unit, or activity safety and occupational health (SOH) staff.

Note: Personal eyewash units are defined in reference (b).

d. Prohibit use of faucet mounted eye wash units. Drench hose units may supplement, but may not be used in place of dedicated eyewash units.

B1903. Occupational Eye Care Services and Equipment

a. The command, unit, or activity SOH office must consult with supply officers and the cognizant medical activity to determine the most suitable procurement procedures when prescription protective eyewear is required. It is a civilian employee's responsibility to obtain an eye refraction exam and secure an accompanying prescription for safety glasses (comprehensive vision examinations are a personal health responsibility and are strongly recommended in conjunction with an eye refraction examination). Commanding officers must establish procedures for obtaining prescription safety eyewear meeting the guidelines of reference (a) through contracts, reimbursement, cognizant medical activity, or other methods. Such procedures must comply with provisions of Labor Management Relations covered under Title 5 United States Code Chapter 71, other provisions of law providing for collective bargaining agreements and procedures, and any agreements entered into under such provisions.

b. Any worker who has best-corrected distant visual acuity of 20/200 or worse in one eye will require additional work risk assessments. If a review of the work process confirms the

possibility of high-velocity eye hazards, those workers functionally blind in one eye must be required to use both protective eyewear and face shield when performing eye hazardous work.

c. Functional requirements, medical surveillance, and certification requirements are covered under the Occupational and Environmental Medicine program in Chapter 8, paragraph B0805 of this Manual.

d. When Navy medicine provides optometric services (i.e., eye refraction examinations and vision screenings), all medical forms and evaluations must be documented according to the Bureau of Medicine and Surgery Manual of Medical Department, NAVMED P117.

B1904. Protective Eyewear

a. Commands, units, and activities must ensure that protective eyewear is provided in accordance with reference (d) and this chapter. Eye and face protection devices must comply with reference (a).

b. Where protective eyewear is necessary, commands, units, and activities must provide approved safety glasses or goggles to visitors, instructors, and others who must enter or pass through eye hazardous areas. Plano glasses or goggles must also be provided to employees awaiting delivery of corrective-protective eyewear.

c. Contact lenses are not eye protective devices, and wearing them does not reduce the requirement for eye and face protection. Guidance on contact lens use in a chemical environment can be found in National Institute for Occupational Safety and Health (NIOSH) Publication No. 2005-139: *Current Intelligence Bulletin 59, Contact Lens Use in a Chemical Environment*.

d. Chapter 20 contains additional information on eye protection equipment and the sight conservation program.

B1905 Responsibilities

a. Commanders, commanding officers, and officers in charge must:

(1) Ensure that hazard assessments of workplaces are performed, including electrical arc flash analysis and applicable hazardous material data and industrial hygiene survey reports for any eye hazardous areas, processes, and occupations.

(2) Ensure provision and maintenance of appropriate personal eye protective equipment at government expense.

(3) Ensure that proper eye protection comply with references (a) and (b).

(4) Ensure employees are trained on proper wearing of eye protection and emphasize promotion of eye protection program.

(5) Ensure suitable facilities for emergent quick drenching or flushing of the eyes and body are provided and can be reached where the eyes or body of any person that may be exposed to injurious corrosive materials as stated in reference (c).

(6) Ensure there is provision and maintenance of emergency eyewash, facewash, and deluge shower stations.

b. Commanding Officers of Medical Commands, Units, Activities, and Treatment Facilities must:

(1) Provide appropriate medical evaluations to determine worker capability to perform assigned tasks using the prescribed eye protection.

CHAPTER 20

PERSONAL PROTECTIVE EQUIPMENT

- Ref:
- (a) NAVSUPINST 10124.1B, Navy Protective Clothing Board (NPCB), July 2012
 - (b) Title 29 CFR 1910, Subpart I, Personal Protective Equipment
 - (c) Title 29 CFR 1915, Subpart I, Personal Protective Equipment
 - (d) Title 29 CFR 1926 Subpart E, Personal Protective and Life Saving Equipment
 - (e) Title 29 CFR 1910 Subpart I, Appendix B, Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment
 - (f) ANSI Z87.1-2015, American National Standard Practice for Occupational and Educational Personal Eye and Face Protection Devices
 - (g) ANSI/International Safety Equipment Association (ISEA) Z89.1-2014, American National Standard Requirements for Protective Headwear for Industrial Workers
 - (h) ASTM F2413-17, Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear 2017
 - (i) National Fire Protection Association (NFPA) 70E, Electrical Safety in the Workplace, most recent edition
 - (j) ASTM D120-14a, Standard Specification for Rubber Insulating Gloves
 - (k) ASTM D178-19, Standard Specification for Rubber Insulating Matting Gloves
 - (l) ASTM D1048-14, Standard Specification for Rubber Insulating Blankets
 - (m) ASTM D1049-98(2010), Standard Specification for Rubber Insulating Covers
 - (n) ASTM D1050-05e1, Standard Specification for Rubber Insulating Line Hose
 - (o) ASTM D1051-14a, Standard Specification for Rubber Insulating Sleeves
 - (p) ASTM F478-14a Standard Specification for In-Service Care of Insulating Line Hose and Covers
 - (q) ASTM F479-06 Standard Specification for In-Service Care of Insulating Blankets
 - (r) ASTM F496-14a Standard Specification for In-Service Care of Insulating Gloves and Sleeves
 - (s) ASTM F696-06 (2011) Standard Specification for Leather Protectors for Rubber Insulating Sleeves or Mittens
 - (t) ASTM F1236-19 Standard Guide for Visual Inspection of Electrical Protective Rubber Products
 - (u) Title 29 CFR 1910.335, Subpart Electrical (Safeguards for Personnel Protection)

B2001. Discussion

a. The best method of protecting personnel from exposure to hazards in the workplace is to eliminate the hazard. When this is not possible, substitution or engineering controls must be implemented to eliminate or minimize hazard exposure. When elimination and engineering controls are not feasible, or unable to reduce the hazard to an acceptable level of risk, activities must implement a personal protective equipment (PPE) program for personnel potentially exposed to hazards in the workplace.

b. Navy policy requires that activities provide, use, and maintain PPE when competent authority determines that its use is necessary and that such use will lessen the likelihood of occupational injuries and or illnesses. Activities must properly train personnel required to use PPE in accordance with paragraph B2013 of this chapter and ensure that PPE is worn correctly.

c. Activities must recognize that PPE does not reduce or eliminate the hazard itself. PPE merely provides a last line of defense. Any breakdown, failure or misuse of PPE immediately leads to the worker being exposed to the hazard. Whether caused by misuse or improper maintenance, PPE can become ineffective without the wearer realizing it; whereby, creating potentially serious consequences. For this reason, an accurate hazard assessment, proper equipment selection, storage, maintenance, employee training (i.e., including equipment limitations), and mandatory enforcement of equipment use are key elements of an effective PPE program. Guidance for the proper selection and use of protective equipment must be embedded in training and maintenance procedures.

d. Deficiencies in available protective equipment should be reported to the appropriate program manager or systems command technical authority using the relevant feed-back system. If no program manager or technical authority is assigned, the deficiencies should be reported in accordance with reference (a). The Navy Protective Clothing Board reviews and prioritizes deficiency reports for potential funding.

B2002. Basic Program Requirements. Navy commands, units, and activities must implement PPE programs that at least meet the requirements of Federal requirements for general industry; construction operations; and ship repairing, shipbuilding, shipbreaking work, and related work (references (b), (c), and (d), respectively).

Each command, unit, or activity must ensure that hazard assessments of all workplaces are conducted to determine if hazards are present that necessitate the use of PPE. An industrial hygiene (IH) survey provides PPE recommendations for employee only exposures to health hazards. It is not all inclusive, therefore, a safety assessment must also be conducted to identify physical and other hazards or risks which warrant PPE. If such hazards are present, or likely to be present, activities must accomplish these actions:

a. Select appropriate PPE for each hazard identified in the assessment. Ensure each affected employee is trained on and uses assigned PPE.

b. Communicate selection decisions to each affected employee.

c. Document that the required workplace hazard assessment has taken place with a written certification, identifying the occupation, workplace evaluated, the person performing the evaluation, and the date(s) of the hazard assessment. Commands, units, and activities must retain the most current assessment, until superseded, as proof of completed hazard assessments.

Note: Appendix B to reference (e) and Appendix A to reference (c) contains non-mandatory examples of procedures that would comply with the requirement for an occupational hazard assessment.

B2003. Equipment Specifications and Requirements. All personal protective clothing and equipment must be of safe design and construction for the work to be performed. Federal agencies and standards organizations have developed standards and specifications for the design and use of PPE and devices. Activities must only use those items that have been recognized and approved. This approval can be met through the use of:

- a. Federal specifications.
- b. American National Standards Institute (ANSI) or other nationally recognized consensus standard organization specifications (e.g., the National Fire Protection Association (NFPA), or the American Society for Testing and Materials (ASTM)).
- c. Recognized approval authority (e.g., Underwriters Laboratories, Factory Mutual, or Safety Equipment Institute).

B2004. Eye and Face Protection

a. Employees must use eye protection at all times in a designated eye hazard area. Flying particles and chips, splashes from liquids (e.g., acids, caustics, and solvents), and operations that generate hot slag or molten metal, welding glare, etc., can cause eye and or face injury. Employees must wear protective equipment for the eyes and/or face to protect from electric arcs or flashes. Reference (f) provides the performance requirements, selection, use, and maintenance requirements for eye and face protective devices. The selection guidance table is reprinted in appendix B20-A.

Note: Title 29, Code of Federal Regulations (CFR), 1910.133 requires that eye and face protectors comply with ANSI Z87.1 (i.e., Z87.1-2003, Z87.1 R-1998 and Z87.1-1989). Although the 2015 version of ANSI/ISEA Z87.1 is not currently incorporated into 29 CFR 1910.133, it meets or exceeds previous versions of the ANSI Z87.1 standard.

- b. Full face respirators may be required for eye and face protection even when contaminant concentrations are below 10 times the occupational exposure limits (i.e., the level of protection for which half mask respirators are ordinarily acceptable for controlling inhalation hazards). If work processes require full face respirators and impact protection, check with the respirator manufacturer to ensure that respirator lenses comply with reference (f) impact testing requirements.
- c. Chapter 19 contains additional information on the sight conservation program.

d. All welding helmets must meet 29 CFR 1910.252. requirements.

e. All filter lenses and plates must meet the radiant energy transmission test prescribed in reference (f).

B2005. Hearing Protection. See Chapter 18 of this Manual for hearing protection requirements.

B2006. Respiratory Protection. See Chapter 15 of this Manual for respiratory protection requirements.

B2007. Head Protection. Employees must wear head protection at all times in designated hard hat areas. Head protection must meet the specifications of reference (g).

B2008. Foot Protection

a. Foot Hazardous Operations. Employees must wear foot and toe protection when in a designated foot hazard area. Examples of trades or ratings generally associated with foot or toe hazardous operations are construction, materials handling, maintenance, transportation, ship building/repair/breaking, aircraft overhaul and repair, and explosives manufacturing and handling.

b. Protective Footwear

(1) Protective footwear is designed to provide protection against a variety of workplace hazards that can potentially cause injury. Protective footwear must conform to the requirements of reference (h) and be appropriately labeled and identified. General purpose safety shoes are available through normal supply channels. In cases where standard stock general purpose safety shoes do not properly fit the employee, the Navy authorizes procurement from commercial sources.

(2) Employees must wear special purpose safety footwear for special hazards:

(a) Semi-conductive or static dissipative safety shoes are used to dissipate static electricity. To be effective, employees must use the shoes on conductive surfaces, such as wet concrete, metal decks, carbon impregnated surfaces, wet terrain, conductive linoleum, and conductive tiles.

(b) Conductive protective footwear providing extra protection on jobs where static electricity must be conducted out of the body through the ground, for example near explosives.

(c) Molder's "Congress" style safety shoes or boots for protection while handling or producing molten metal or metallic sparks (e.g., welding, or cutting). The design allows for quick removal of the shoes, if necessary, to minimize injury if molten materials fall inside.

(d) Electric shock resistant footwear provides the wearer with shock resistance protection against incidental contact with live electrical circuits, electrically energized conductors, parts, or apparatus. Shock resistant footwear only provides partial protection and personnel should not ignore additional protective measures normally employed in these environments. For example, electrical hazard protection is severely compromised if there is excessive wear on the outsole and heel of the footwear and during exposure to wet and humid environments.

(e) Chemical resistant boots provide protection against liquid chemicals, which could penetrate other types of safety shoes. Chemical resistant safety boots are typically made from rubber, polyvinyl chloride, or nitrile. The type of boot required is dependent on the chemical for which protection is needed.

(3) Safety boots are general purpose footwear that offer the same toe protection as safety shoes but provide added foot and ankle support. The Navy does not approve these boots for use in areas where hazardous chemicals are used.

c. Appropriation and Distribution. The procedures in paragraphs B2008c(1) and (2) apply to issuing protective footwear for military and civilian personnel.

(1) Activities must provide military personnel with standard stock safety shoes when required by their work. When safety shoes exhibit wear such that safety protection is no longer afforded, the command, unit, or activity must provide replacement standard stock safety shoes as organizational clothing (i.e., similar to coveralls or foul weather gear).

(2) The primary method for providing safety shoes to civilians is to issue standard stock items or reimburse individuals who buy their own shoes. A secondary method is to issue safety shoes that activities obtain under a local purchasing contract. Activities may select the method best suited to local conditions. Activities must absorb the cost of safety shoes within local operating funds (i.e., Defense Capital Working Fund), research development, test, and evaluation, or operation and maintenance, Navy. Activities purchasing safety shoes under either local reimbursement or local contracting procedures must ensure that they are appropriately labeled and meet the requirements of reference (h). Activities will determine the amount of the reimbursement by taking into consideration the usual cost in the local area for shoes of the type and quality specified in paragraph B2008b. Activities must document cases where medical considerations require specialized safety shoes (e.g., orthopedic safety shoes) with a written statement from a physician who treats foot disorders.

(a) Activities must provide Navy civilian employees serving overseas (i.e., including foreign nationals) with safety shoes, as required, from standard stocks. The exception to this would be if their cognizant headquarters command grants specific approval for alternate purchasing methods. Foreign national indirect hires, being provided safety shoes

under an existing labor agreement, will continue to use the reimbursement procedures contained in the applicable agreement.

(b) Activities must provide non-appropriated funded civilian employees with safety shoes under provisions of this policy except that the funding and paying sources for required safety shoes will be non-appropriated.

B2009. Hand and Arm Protection

a. Activities must select, provide, and require appropriate hand and arm protection whenever employees are exposed to, or are likely to be exposed to, such hazards as: skin absorption of harmful substances; severe cuts or lacerations; severe abrasion; punctures; electrical shock; chemical irritants; thermal burns; electrical arc flash; and harmful temperature extremes.

b. Activities must base selection of hand protection on an evaluation of the performance characteristics of the hand and arm protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified by a commands, units, or activity's safety office.

c. When selecting hand and arm protection that will be used for chemical hazards, the chemical's ability to permeate and penetrate the glove material must be evaluated. Most glove manufacturers publish this information.

d. Use of certain power hand tools may be associated with exposures to high levels of hand-arm vibration. The best control is process evaluation and selection of tools and equipment creating the lowest exposures to vibration, other ergonomic stresses, and noise. When PPE is still needed, consideration should be given to anti-vibration gloves.

B2010. Electrical Protective Devices

a. PPE and other protective equipment (e.g., tools and test instruments) selected and used for work on energized electrical conductors or circuit parts must comply with Article 130, "Standards on Protective Equipment" of reference (i).

b. Navy commands, units, and activities must provide appropriate rubberized protective equipment for electrical workers who perform work on energized or potentially energized electrical systems. Leather protectors must be provided and worn with rubber insulating gloves where there is a danger of hand injury from electric shock due to contact with energized electrical conductors or circuit parts. Hand and arm protection must be worn where there is possible exposure to arc flash burn. Equipment must conform to references (j) through (t).

B2011. Special Safety Clothing. Special clothing may consist of flame-resistant (FR) fabric for shirts and pants, balaclava, coveralls, disposable coveralls, impervious chemical resistant

coveralls, personal floatation devices (PFDs), welding leathers, electrical arc-rated FR clothing, and PPE and/or chemical resistant aprons.

a. Activities must base selection of special, protective clothing on an evaluation of the performance characteristics of the clothing relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards associated with the process. A command, unit, or activity's safety office can be contacted for assistance, when necessary, in identifying hazards, or potential hazards of a task.

b. Navy activities must provide appropriate special protective clothing whenever employees are exposed to, or are likely to become exposed to, such hazards as those from skin absorption of harmful substances, chemical irritants, thermal burns, electrical arc flash, and harmful temperature extremes.

c. All PFDs used by Navy personnel must be marked for use as a work vest, for commercial use, or for use on all vessels. No PFD identified for "RECREATIONAL USE ONLY" can be used by Navy personnel.

B2012. Personal Fall Protection Equipment. Fall protection equipment is discussed in Chapter 13 of this Manual.

B2013. Training

a. Activities must provide training to each employee who is required to use PPE to include:

(1) When PPE is necessary.

(2) What PPE is necessary.

(3) How to properly don, doff, adjust, and wear PPE.

(4) The limitations of the PPE.

(5) The proper care, maintenance, useful life, storage, and disposal of the PPE.

(6) The PPE pre- and post-operation inspection procedures and damage and defect criteria that would render the PPE unsafe for use.

b. Whenever a supervisor has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph B2013b., the supervisor must ensure retraining is accomplished for each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

- (1) Changes in the workplace render previous training obsolete.
 - (2) Changes in the types of PPE to be used render previous training obsolete.
 - (3) Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.
- c. Activities must maintain documentation verifying that each affected employee has received and understands the required training. Documentation must be in accordance with Chapter 6 of this Manual.

B2014. Responsibilities

- a. Commanders, commanding officers, and officers in charge must:
 - (1) Ensure that hazard assessments of workplaces are performed, including electrical arc flash analysis and applicable hazardous material data and IH survey, to determine PPE requirements. Qualified safety and occupational health personnel must perform these assessments. Commands, units, and activities must use the results of these assessments to designate appropriate work conditions and work areas as requiring PPE. The command, unit, or activity must integrate the PPE requirements into local policy and or standard operating procedures.
 - (2) Ensure that PPE conforms to Occupational Safety and Health Administration requirements from references (b), (c), (d), and (u).
- Note: Employees who wear prescription lenses must be provided eye protection that incorporates the prescription in its design, or wear eye protection that can be worn over the prescription lenses and does not interfere with the wearer's vision or proper position of the protective equipment.
- (3) Arrange for appropriate medical evaluations to determine worker capability to perform assigned tasks using the prescribed PPE.
 - (4) Train personnel in the selection, use, inspection, and care of PPE required for their work situations, and maintain records of such training.
 - (5) Ensure appropriately sized PPE is available and properly worn by personnel.
 - (6) Ensure designated personnel perform periodic equipment inspection, cleaning, disinfection, and maintenance.
 - (7) Provide proper equipment storage to protect against environmental conditions that might degrade the effectiveness of the equipment or result in contamination during storage.

(8) Ensure compliance with the prescribed use of PPE.

(9) Report non-use, misuse, or malfunction of PPE that results, or may result, in injury or occupational illness to Navy personnel via either a Web-Enabled Safety System mishap or hazard report, as applicable.

b. Affected employees' must demonstrate an understanding of the training specified in paragraph B2013a and the ability to use PPE properly before being allowed to perform work requiring the use of PPE.

APPENDIX B20-A

EYE AND FACE PROTECTOR SELECTION CHART

This chart is reprinted with permission from ISEA. ANSI/ISEA Z87.1-2010 is published by the International Safety Equipment Association, Arlington, VA, <http://www.safetyequipment.org>

ANSI/ISEA Z87.1-2010

Protective devices do not provide unlimited protection. This information is intended to aid in identifying and selecting the types of eye and face protectors that are available, their capabilities and limitations for the hazards listed. This guide is not intended to be the sole reference in selecting the proper eye and face protector.

Eye and Face Protector Selection Chart

Hazard	Protectors	Limitations	Marking ¹
IMPACT - Chipping, grinding, machining, masonry work, riveting, and sanding			
Flying fragments, objects, large chips, particles, sand, dirt, etc.	<ul style="list-style-type: none"> Spectacles with side protection Goggles with direct or indirect ventilation Faceshield worn over spectacles or goggles Welding helmet 	<p>Caution should be exercised in the use of metal frame protective devices in electrical hazard areas. Metal frame protective devices could potentially cause electrical shock and electrical burn through contact with, or thermal burns from exposure to the hazards of electrical energy, which include radiation from accidental arcs.</p> <p>Atmospheric conditions and the restricted ventilation of a protector can cause lenses to fog. Frequent cleaning may be required.</p>	<p>Impact rated: + (spectacle lens) Z87+ (all other lens) Z87+ (plano frame) Z87-2+ (Rx frame)</p>
HEAT - Furnace operations - pouring, casting, hot dipping, gas cutting, and welding			
Hot sparks	<ul style="list-style-type: none"> Spectacles with side protection Goggles with direct or indirect ventilation Faceshield worn over spectacles or goggles Full-facepiece respirator Loose-fitting respirator worn over spectacles 	<p>Spectacles, cup and cover type goggles do not provide unlimited facial protection.</p> <p>Operations involving heat may also involve optical radiation. Protection from both hazards shall be provided.</p>	
Splash from molten metal	<ul style="list-style-type: none"> Faceshield worn over goggles Full-facepiece respirator Loose-fitting respirator worn over spectacles 		
High temperature exposure	<ul style="list-style-type: none"> Screen faceshield over spectacles or goggles Reflective faceshield over spectacles or goggles 		
CHEMICAL - Acid and chemical handling, degreasing, plating.			
Splash and irritating mists	<ul style="list-style-type: none"> Goggles with indirect ventilation (eyecup or cover type) Faceshield worn over spectacles or goggles Full-facepiece respirator 	<p>Atmospheric conditions and the restricted ventilation of a protector can cause lenses to fog. Frequent cleaning may be required.</p>	Splash/droplet: D3

Hazard	Protectors	Limitations	Marking ¹
DUST - Woodworking, buffing, general dusty conditions			
Nuisance dust	<ul style="list-style-type: none"> Goggles with direct or indirect ventilation (eyecup or cover type) Full-facepiece respirator 	<p>Atmospheric conditions and the restricted ventilation of a protector can cause lenses to fog. Frequent cleaning may be required.</p>	Dust: D4 Fine dust: D5
OPTICAL RADIATION			
Welding: Electric Arc	<ul style="list-style-type: none"> Welding helmet over spectacles or goggles Handshield over spectacles or goggles <p>TYPICAL FILTER LENS SHADE: 10-14</p>	<p>Protection from optical radiation is directly related to filter lens density. Select the darkest shade that allows adequate task performance.</p>	<p>Welding: W shade number UV: U scale number Glare: L scale number IR: R scale number Variable tint: V Special purpose: S</p>
Welding: Gas	<ul style="list-style-type: none"> Welding helmet over spectacles or goggles Welding goggles Welding faceshield over spectacles or goggles <p>TYPICAL FILTER LENS SHADE: 4-8</p>	<p>Note: Filter lenses shall meet the requirements for shade designations in table 6 of ANSI/ISEA Z87.1-2010.</p>	
Viewing gas-fired furnaces and boilers	<ul style="list-style-type: none"> Welding goggles Welding helmet over spectacles or goggles Welding faceshield over spectacles or goggles Welding respirator <p>TYPICAL FILTER LENS SHADE: 3-6</p>		
Cutting	<ul style="list-style-type: none"> Welding goggles Welding helmet over spectacles or goggles Welding faceshield over spectacles or goggles <p>TYPICAL FILTER LENS SHADE: 3-6</p>		
Torch brazing	<ul style="list-style-type: none"> Welding goggles Welding helmet over spectacles or goggles Welding faceshield over spectacles or goggles <p>TYPICAL FILTER LENS SHADE: 3-4</p>		
Torch soldering	<ul style="list-style-type: none"> Spectacles Welding faceshield over spectacles Welding respirator <p>TYPICAL FILTER LENS SHADE: 1.5-3</p>	<p>Shade or special purpose lenses, as suitable.</p> <p>Note: Refer to definition of special purpose lenses in ANSI/ISEA Z87.1-2010.</p>	
Glare	<ul style="list-style-type: none"> Spectacles with or without side protection Faceshield over spectacles or goggles. 		

1. Refer to ANSI/ISEA Z87.1-2010 table 4a for complete marking requirements.

CHAPTER 21

LEAD

- Ref:
- (a) Title 29 CFR 1910.1025, Subpart Toxic and Hazardous Substances (Lead), Occupational Safety and Health Standard
 - (b) Title 29 CFR 1915.1025, Subpart Toxic and Hazardous Substance (Lead), Occupational Safety and Health for Shipyard Employment
 - (c) Title 29 CFR 1926.62, Subpart Occupational Health and Environmental Controls (Lead), Safety and Health Regulation for Construction
 - (d) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (e) Industrial Hygiene Field Operations Manual NMCPHC-TM6290.91-2, latest version
 - (f) American Conference of Governmental Industrial Hygienists Pub. No. 2096, Industrial Ventilation: A Manual of Recommended Practice, 29th Edition
 - (g) American National Standards Institute (ANSI) Z9.2-2018, American National Standard for Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems
 - (h) UFC 3-410-04N of 13 Dec 17, Design: Industrial Ventilation
 - (i) Centers for Disease Control and Prevention, Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women, November 2010
 - (j) NMCPHC Technical Manual OM 6260, Medical Surveillance Procedures Manual and Medical Matrix, Aug 2015
 - (k) DoD Instruction 6055.05, Occupational and Environmental Health (OEH), 11 Nov 2008
 - (l) UFGS-02 83-0, Lead in Construction, November 2018
 - (m) Title 29 CFR 1910.134, Subpart Personal Protective Equipment (Respiratory Protection)

B2101. Discussion

a. The goal of this chapter is to prevent employee lead exposure and related injuries during the use, handling, removal and melting of materials containing lead at Navy commands, units and activities. The provisions of this chapter and references (a) through (c) apply to lead exposures in general industry, shipyards, shipbreaking, and construction work.

(1) Construction work covered by reference (c), includes any repair, renovation, or other commands, units and activities that disturb in place lead-containing materials (LCM) (e.g., removal of lead paint in way of steel structure renovation and repair), but does not include routine cleaning and repainting (e.g., minor surface preparation and repainting of rental apartments between tenants or at scheduled intervals) where there is insignificant damage, wear, or corrosion of existing lead-containing paint, coatings, or substrates.

(2) Employees performing processes not associated with construction work which may have the potential to cause occupational exposure to personnel are covered by the general industry standard for lead, reference (a). Maintenance commands, units and activities covered by the general industry standard are those that involve making or keeping a structure, fixture, or foundation in proper condition in a routine, scheduled or anticipated fashion.

b. Navy commands, units and activities with ashore operations must establish a lead control program that complies with Federal OSHA regulations (references (a) through (c)) applicable to the type of operation. This includes operations performed aboard vessels while in port or a repair facility. Reference (d) discusses the lead control program for forces afloat.

B2102. Program Definitions and Health Effects

a. Lead, as used in this chapter, means metallic lead, all inorganic lead compounds and organic lead soaps (e.g., lead naphthenate). Lead's abundance, low melting point, high molecular weight, high density and malleability make it a useful material. When added to resins, grease, or rubber, lead compounds act as antioxidants. Although lead has been banned from residential paint, lead and other toxic metals can be found in industrial and maritime paints/coatings and older housing (pre-1978). Other common uses for lead and lead compounds include:

- (1) Ballast
- (2) Radiation shielding
- (3) Paint filler and hardener
- (4) Rubber antioxidant
- (5) An acoustical insulation component
- (6) Solder for electrical components and pipe joints
- (7) High voltage cable shielding
- (8) Small arms ammunition
- (9) Batteries
- (10) Roof flashing
- (11) Weights

b. Significant lead exposures can occur during:

(1) Melting lead or lead-containing Babbitt (a mixture containing two or more metallic elements or metallic and nonmetallic elements usually fused together or dissolving into each other when molten).

(2) Casting molten lead or alloy containing lead

(3) Ballast handling.

(4) Cutting ballast straps with torch or grinder.

(5) Spraying, sanding, scraping, grinding, burning, welding and abrasive blasting, especially on components/equipment with lead based coatings or lead alloys.

(6) Bullet trap clean-out and general cleaning at firing ranges.

(7) Lead shield repair.

(8) Repairing electronics with lead solder.

(9) Special Hull Treatment (SHT) tile cutting.

(10) High voltage cable repair.

(11) Lead-acid battery reclaiming.

(12) Cleanup or handling of lead-contaminated debris and clothing.

c. Lead is a recognized health hazard. Lead overexposure can damage many organs and systems, especially the brain, central nervous system, peripheral nervous system, kidneys, reproductive system, and inhibit heme synthesis or erythropoiesis (red blood cell production). The Navy recognizes the serious health hazards associated with lead exposure and has established strict controls for processes which can potentially expose personnel to these hazards.

B2103. Methods to Control Potential Airborne Lead Hazards. Chapter 12 discusses the basic principles for controlling hazards in the occupational environment including substitution with less hazardous materials, engineering controls (closed systems, thermostats), administrative controls (job rotation, work time limits), and use of personal protective equipment (PPE), in that order. Total reliance on PPE is acceptable only when all other methods are proven to be technically and or economically infeasible.

a. General Workplace Control Practices.

(1) The Navy must not use paints containing more than 0.009 percent lead by dry weight unless the cognizant headquarters command for the command, unit and activity responsible for the work specifically approves higher lead content paint and documents approval criteria.

(2) Before proceeding with work involving paint removal for surface preparation or in the way of hot work, commands, units and activities must determine if lead is a constituent of the paint. This may be accomplished via handheld XRF analyzers, testing of the paint using a valid laboratory method with results in percent lead by weight of paint, or through established and accurate records which provide the needed information (e.g., paint application records, prior testing results, or other valid documentation). The cognizant safety professional or industrial hygienist (IH) must determine the lead monitoring and controls required for the work. This determination must be based on the lead content of the involved paints, the work methods to be employed, and observation, calculations, or previous measurements relevant to the employee exposure potential of the work in question.

(3) When feasible, commands, units and activities must minimize the heating of lead and leaded materials through the use of thermostatically controlled heating or the removal of lead containing coatings prior to heating.

(4) Commands, units and activities must establish procedures to maintain work surfaces as free of lead dust as practicable and must clean up lead dust with high efficiency particulate air (HEPA) filtered vacuum cleaners. Compressed air is prohibited for cleaning floors or other surfaces. Wet or dry sweeping, shoveling, or brushing will only be used when a HEPA filter vacuuming or other equally effective methods that minimize the likelihood of exposure have been tried and do not work. Industrial hygiene will consult and approve the alternative cleaning method(s). Refer to Chapter 12, paragraph B1203.j of this Manual for additional discussion and requirements related to establishing and sustaining housekeeping and hygiene practices to maintain all surfaces as free as practicable of surface accumulations at operations generating airborne dust, mist, or aerosols containing lead.

(5) Commands, units and activities that have lead containing waste, scrap, debris, containers, equipment, and clothing consigned for disposal must collect it, seal it in impermeable containers, and label waste in accordance with paragraph B2103(e).

(6) To minimize exposure potential, commands, units, and activities must isolate hot work on lead and abrasive lead removal operations to the extent feasible, from other operations.

(7) Commands, units and activities whose employees have occupational exposure to lead must have a written compliance program specific to their command, unit, or activity which meets the requirements of reference (a).

b. Ventilation. Mechanical exhaust ventilation is frequently required to ensure that atmospheric levels of lead particulate do not exceed the Permissible Exposure Limit (PEL).

General requirements for the design and use of ventilation systems to reduce exposures are listed in paragraph B2103(b). The cognizant industrial hygienist must provide specific guidance for each lead operation.

(1) Commands, units and activities must design, construct and maintain local exhaust ventilation and dust collection systems using guidelines in references (e), (f) through (h) or equivalent, with assistance from cognizant Industrial Hygiene (IH) personnel and facilities engineers.

(2) Commands, units and activities must coordinate with cognizant IH for testing of ventilation systems used to control lead exposures or emissions using qualified engineering or industrial hygiene personnel at least every 3 months and within 5 days of any production, process, or control change which may result in a change in employee exposure. Where devices such as manometers, pitot tubes (a device to measure fluid flow velocity), etc., are installed to continuously monitor the effectiveness of ventilation systems, commands, units, and activities must instruct employees who use the system on the meaning and importance of the measurements and to immediately contact their safety office if the measuring devices indicate a malfunction. Where such devices are in place, industrial hygiene or engineering personnel only need to inspect the ventilation systems annually.

(3) Commands, units and activities using ventilation systems to control occupational exposures or emissions must not re-circulate air from operations generating lead into any workspace. Ventilation is to be HEPA filtered before exhausted directly to the atmosphere. The command, unit, or activity environmental manager must approve the air pollution control system after consulting with the cognizant air pollution regulatory agency.

(4) The industrial hygienist must review the ventilation design for ease of maintenance and accessibility, as well as design errors, and will pay special attention to hoods, duct work, clean out hatches, exhaust fans and air pollution control devices. Commands, units and activities must install the exhaust fan, after the air pollution control system, in a protected and restricted room or shed. If a HEPA filter is required and the filter and pre-filter housing is located outdoors, they must use a bag-in, bag-out style access housing.

Note: Ventilation design review may not be required for indoor firing range repair or modification under the technical support of the Naval Facilities Engineering Command's (NAVFAC) Technical Center of Expertise program if using a performance-based contracted approach and the design has been certified by NAVFAC's Technical Center of Expertise.

c. Personal Protective Clothing and related control facilities.

(1) Personnel engaged in operations where the concentration of airborne lead particulates is likely to be equal to or exceed the PEL or where the possibility of skin or eye irritation exists, must remove clothing worn to and from work and wear the protective clothing provided by the

Navy. Employees must use waterproof clothing when handling wet lead. Protective clothing includes:

- (a) Full body, one-piece coveralls.
- (b) Durable gloves and head covering, or other appropriate protective equipment which complies with reference (a). Hoods must extend beyond the collar of the coverall, completely protecting the neck area.
- (c) Slip-resistant shoe covers or lightweight rubber boots and may also use disposable shoe covers.
- (d) Vented safety goggles may be worn in lieu of safety glasses with side shields. When there is the potential for a splash to occur or debris to get in/on employee's face, a face shield will be made available to be worn over safety glasses or goggles.

Note: The proper use of protective clothing requires that employees close all openings and that garments fit snugly about the neck, wrists and ankles. Accordingly, employees must tape the wrist and ankle junctions, as well as the collar opening on coveralls as necessary, to prevent contamination of skin and underclothing without restricting physical movement.

- (2) Commands, units and activities must provide change rooms as close as practical to the lead work area(s) for employees who work where the airborne lead exposure is above the PEL (without regard to the use of respirators). They must maintain change rooms under positive pressure with respect to adjacent lead work areas. They must post protective clothing removal procedures in the change room and include vacuuming of clothing (before removal and while still wearing a respirator, if one was required for the task) using a HEPA filter vacuum. Removal of lead particles from clothing by blowing or shaking is prohibited.
- (3) Contracts governing laundering of lead-contaminated clothing must specifically require that contractors comply with the precautions specified in reference (a).

d. Limits of Respirator Usage

- (1) Commands, units, and activities must use engineering control measures in accordance with this chapter and will not achieve compliance with PELs solely by the use of respirators except under these conditions:
 - (a) During the time period necessary to implement engineering control measures.
 - (b) In work situations in which the control methods prescribed are not technically feasible or are not sufficient to reduce the airborne concentration of lead particulates below the PEL.

(c) During emergencies.

(2) Where respirators are required to control exposure to lead, commands, units and activities must comply with the respirator program in accordance with Chapter 15 of this Manual and references (a), (b), (c), and (e). Negative pressure air-purifying respirators must be equipped with P100 filters and powered air purifying respirators (PAPRs) must be equipped with high efficiency particulate air (HEPA) filters.

(3) Commands, units and activities must provide a respirator to employees who work with lead, upon request, and must enter the employee into the respiratory protection program.

e. Warning Signs and Labels. Commands, units and activities must affix caution labels to containers of lead contaminated clothing, equipment, raw materials, waste, debris, or other products in accordance with reference (a).

f. Lunch Rooms and Personal Hygiene. Lunch rooms and personal hygiene must be in accordance with OSHA rules and regulations.

B2104. Dust Accumulation Requirements. Commands, units, and activities must establish and sustain housekeeping and hygiene practices to maintain all surfaces as free as practicable of surface accumulations at operations generating airborne dust, mist, or aerosols containing lead, hexavalent chromium, cadmium or beryllium. “As free as practicable” is defined as conducting regular cleaning and housekeeping activities to prevent avoidable dust exposure, such as those caused by potentially re-entrained dust. Commands, units, and activities must employ a systems engineering approach to establish, document, and integrate refined procedures to ensure surfaces are maintained as free as practicable of accumulations of lead, hexavalent chromium, cadmium or beryllium by:

a. Establish housekeeping plans, schedules and procedures. Compressed air is prohibited for cleaning floors or other surfaces. High efficiency particulate air (HEPA) vacuuming will be the primary method for maintaining surfaces as free as practicable of accumulations. Wet or dry sweeping, shoveling or brushing will only be used when HEPA-filter vacuuming or other equally effective methods that minimize the likelihood of exposure have been tried and do not work. Industrial Hygiene (IH) must be consulted and approve these alternative cleaning methods.

b. Establish containment processes and methods to monitor their effectiveness.

c. Implement best practices decontamination procedures.

d. Establish engineering controls tailored to each facility.

e. Sustain compliance actions, as appropriate, in the local written operating procedures and quality control procedures.

f. Include all key stakeholders in these process improvement activities to ensure the broadest range of solutions as well as widest acceptance during implementation. SOH personnel have an integral role in the development of these process improvement activities.

B2105. Environmental Protection Procedures

a. Commands, units and activities must invoke local, state, and federal environmental standards including reference (a), (b), (d), and (i) and/or requirements of paragraph B2103 of this chapter, whichever are more stringent.

b. Commands, units and activities must require salvageable lead and lead waste be contained and labeled as required by local, state, and federal environmental requirements. Bagging in heavy duty plastic bags or impermeable containers labeled with caution labels identified in paragraph B2103e will be the minimum method of containment of lead salvage and waste until otherwise directed by the cognizant environmental manager for the command.

c. Commands, units and activities cognizant environmental manager must invoke requirements of local, state, and federal requirements related to lead emissions.

d. Technical assistance for air pollution control is available upon request from the Naval Facilities Engineering Command (COMNAVFACENGCOM) Facilities Engineering Commands (FECs).

B2106. Exposure Monitoring. An exposure-monitoring plan must be established for any lead operation with the potential to cause employee exposure at or above the action level. Qualified persons will conduct initial and periodic monitoring. Persons qualified to perform exposure monitoring are specified in Chapter 8 of this Manual. Cognizant IHs will conduct exposure assessments as outlined in Chapter 8 of this Manual. See B0803.a for requirements on documentation of exposure monitoring results in each employee's medical record.

B2107. Medical Surveillance

a. General. This program consists of three basic elements:

(1) Pre-placement medical evaluation.

(2) Semi-annual Blood lead monitoring.

(3) Follow-up medical evaluations based on the results of blood lead analysis and physician opinion.

(4) Unless a medical evaluation was completed within the past twelve months, a termination examination identical in scope to the baseline examination must be conducted just prior to the reassignment or termination of a person from a job requiring medical surveillance due to lead exposure.

Commands, units and activities must include personnel in this program when industrial hygiene survey report indicates that they perform work or are likely to be in the vicinity of an operation which generates airborne lead concentrations at or above the AL for more than 30 days per year. Examinations may include special purpose histories and physical examinations, and laboratory tests designed to detect early signs of lead over-absorption. Refer also to reference (j) for medical protocols and guidance. Commands, units and activities must base inclusion into this program on airborne concentration measurements without regard to respirator use and, therefore, inclusion does not indicate that an individual is overexposed to lead.

b. Program Elements

(1) Pre-placement Evaluation. All Navy personnel who meet criteria of paragraph B2106.a(4) must receive a pre-placement evaluation as described in reference (j) prior to assignment to a position involving potential exposures to lead that equal or exceed the AL.

(2) Blood Lead Levels and Frequency of Monitoring. Navy commands, units and activities must make blood lead analysis and zinc protoporphyrin (ZPP) available every 6 months for all personnel who are or may be exposed to lead above the AL for more than 30 days per year. Supporting medical facilities must perform analysis in accordance with reference (k).

(3) Follow-up Medical Surveillance

(a) Individual Reassignment/Medical Removal. An employee must be reassigned to non-lead work:

1. If an employee's blood lead concentration equals or exceeds the levels specified in reference (k).
2. If the occupational medicine provider recommends removal.
3. Or, if the employee has signs or symptoms of lead toxicity.

NOTE: Additional guidance concerning removal procedures, return to former job status, and removal protection requirements is contained in reference (a) and (k). Commands, units and activities must also reassign pregnant women exposed to lead at or above specified levels or who have a blood lead level of 5 µg/100g blood (refer to reference (h)) to a job without lead exposure, with medical removal benefits.

(b) Follow-up Blood Lead Monitoring. Commands, units and activities must perform follow-up lead monitoring as specified in reference (k), and periodically thereafter according to this criteria.

1. During medical removal (to non-lead work activity), commands must monitor the employee's blood lead concentration monthly until the employee's last two consecutive test results are at or below the level specified in reference (k), at which time the employee may be returned to his/her regular work activity.

(c) Follow-up Evaluations

1. Medical Follow-up. Commands must conduct a medical evaluation in accordance with reference (k). The medical department must notify the cognizant industrial hygiene of each elevated blood lead level which has been verified by follow-up blood lead monitoring.

2. Reassignment - Termination of Employment Follow-up. Commands, units, and activities must conduct a medical evaluation identical to the pre-placement evaluation just prior to the reassignment or termination of an employee from a job requiring medical surveillance, unless a medical evaluation was done within the past twelve (12) months.

3. Physicians Written Opinion. Reference (a) requires a written opinion and reference (j) provides a sample written opinion.

4. Industrial Hygiene Follow-up Investigation. When notified of an elevated blood lead level, perform an investigation to determine whether there is an occupational cause for follow-up blood lead monitoring.

(d) Other Appropriate Medical Evaluations. The cognizant medical activity must perform a medical examination, including those elements of the pre-placement examination, which the physician deems necessary:

1. As soon as possible after notification by an employee that he/she has developed signs or symptoms commonly associated with lead intoxication.

2. As soon as possible after notification that the employee desires medical advice concerning the effects of current or past lead exposure on the ability to procreate a healthful child.

3. As soon as possible after being informed that the employee demonstrates difficulty breathing during a respirator fit test or during respirator use.

4. As medically appropriate for personnel who have been removed from exposure to lead due to risk of sustaining material impairment to health, or otherwise limited pending a final medical evaluation.

5. As a result of airborne exposure monitoring results.

c. Administrative Procedures

(1) Employee Notification. Commands, units and activities must notify the employee in writing, within 5 working days after receipt of results, when his/her blood lead level is at or above the level specified in reference (k):

(a) His/her blood lead concentration level, as reported.

(b) That the regulations require temporary medical removal with Medical Removal Protection benefits when, and if, the employee's blood lead level exceeds the current numerical criterion for medical removal under reference (a) and (k), whichever is lower.

(2) Employee Counseling. The physician must counsel personnel regarding any abnormalities detected during any screening test. The physician must make an entry into the employee's medical record that describes the counseling given. The employee must countersign this entry. A copy of the physician's written opinion countersigned by the employee can satisfy this requirement, and reference (j) provides a sample written opinion with space for an employee signature.

d. Medical Records

(1) Each employee Occupational Health Medical Record (OHMR) will include this identifying information:

(a) Name

(b) Date of birth

(c) Dates of examinations

(d) Job titles, job codes, and/ or primary and secondary Navy Enlisted Classification Code (NEC).

(2) All records of examinations, possible lead-related conditions, related laboratory results, airborne exposure monitoring results, and all forms and correspondence (including the physician's written opinions) related to the employee's medical history must become a permanent part of the

employee health record. The cognizant medical activity must retain such records for the period of employment plus 20 years, or 40 years, whichever is longer.

(3) Medical facilities must enter the judgment of the occupational health physician concerning the adequacy of the diagnostic information to support the impression of lead-related disease in the medical record. Lacking definitive information, the evaluating physician must exercise his/her best medical judgment on each individual case.

(4) The Commands, units and activities cognizant medical authority must make available copies of any examinations, laboratory results, or special studies in an employee's health record or compensation folder to a physician of the employee's choice after execution of a proper release of information form.

(5) Should the Navy select the initial physician, the employee may designate a second physician to review any findings and conduct independent examinations and tests as may be deemed necessary. The Navy must provide to the initial and consulting (second) physician copies of:

- (a) Reference (a) and this chapter.
- (b) Description of employee's duties.
- (c) Employee's exposure level.
- (d) Description of PPE.
- (e) Blood lead determinations.
- (f) All prior written medical opinions.

(6) The cognizant medical activity must maintain these medical records.

(7) Each individual currently or previously employed by Department of the Navy (DON) or any other person he/she may designate must have access to the records within 15 days of the request.

B2108. Work Performed by Private Contractors

a. Reference (1) should be used on construction projects impacting material containing lead and/or paint with lead. Use reference (1) in projects where lead-based paint or paint with lead must be removed/controlled (including paint film stabilization) or lead-based paint hazards abated as defined by Public Law 102-550 Title X - Residential Lead-Based Paint Hazard

Reduction Act of 1992. Use reference (k) for medical surveillance of all lead exposed workers including contract employees.

b. Contract administrators must ensure that each contract, for work performed by an independent contractor in the United States or overseas which may involve the release of lead dust, must incorporate the appropriate references and clauses to ensure that:

(1) The contractor is aware of the potential hazard to his/her employees and Navy personnel.

(2) The contractor complies with references (a), (b), (c), (d), and (m) to protect his/her employees, as well as Navy personnel.

(3) The contractor must control lead dust outside of the work boundary to less than 30 $\mu\text{g}/\text{m}^3$ at all times, and must perform sufficient monitoring to confirm that this level of control is maintained. In addition, the controlled work area(s) must meet these criteria prior to release for unrestricted access. Contractors must provide copies of their monitoring results to the cognizant industrial hygienist via the contract administrator.

B2109. Responsibilities

a. Chief, Bureau of Medicine and Surgery (BUMED) must:

(1) Centrally manage the lead medical surveillance program ashore and afloat as well as maintain an electronic records database to allow for record access and data analysis.

(2) Provide professional industrial hygiene technical support and training assistance to commands, units and activities for the purpose of evaluating the potential for lead exposure.

b. Commanders of echelon 2 and other headquarters commands must:

(1) Provide advice and technical assistance to define appropriate engineering and work practice controls, and to identify acceptable lead free substitute materials.

(2) Ensure program support by budgeting the resources required to meet the regulatory standards for the control of lead as prescribed by this chapter.

(3) Determine the applicability of reference (b) and (c) to any operations within their respective major commands and provide policy and guidance to affected commands, units and activities. This will require procedures to ensure pre-placement medical screening and training are provided to workers based on occupational "task based triggers" specified in reference (b) and (ed).

c. COMNAVFACENGCOM must:

(1) Provide advice and technical assistance concerning lead paint in Navy buildings, particularly housing, childcare facilities and hospitals.

(2) Ensure that contracting officers and representatives receive the appropriate level of training to adequately plan, design, oversee and review lead construction work.

d. Commanders, Commanding Officers, and Officers in charge of commands, units and activities must:

(1) Apply control measures and monitoring procedures prescribed in this chapter to processes using lead or lead containing materials.

(2) Budget resources in order to meet these lead control requirements.

CHAPTER 22

NON-IONIZING RADIATION

- Ref:
- (a) OPNAVINST 5100.27B/MCO 5104.1, Navy Laser Hazards Control Program, 2 May 08
 - (b) Title 29 CFR 1926.53, Subpart Safety and Health Regulations for Construction, Ionizing Radiation
 - (c) Title 21 CFR 1040, Performance Standards for Light-Emitting Products
 - (d) American Council of Government Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices
 - (e) NAVSEA OP 3565 Volume I, Technical Manual, Electromagnetic Radiation Hazards (Hazards to Personnel, Fuel and Other Flammable Material Revision 6 of 29 Jan 03 and Volume II, Technical Manual, Electromagnetic Radiation Hazards (Hazards to Ordnance), Revision, 18 of 19 Jul 11 (NOTAL)
 - (f) DoD Instruction 6055.11 CH-2, Protecting People from Electromagnetic Fields, 31 Aug 18
 - (g) Institute of Electrical and Electronics Engineers, IEEE Recommended Practice for Measurement and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300, IEEE C95.3-2002 (NOTAL)
 - (h) Institute of Electrical and Electronics Engineers, IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0-3 kHz, IEEE C95.6-2002 (NOTAL)
 - (i) SECNAVINST 5100.14E, Military Exempt Lasers, 15 Mar 19
 - (j) DOD Instruction 6055.15 CH-1, 31 Aug 18, DoD Laser Protection Program

B2201. Discussion. The term non-ionizing refers to forms of radiation, which do not have sufficient energy to cause ionization of atoms or molecules. Typically, examples include the electromagnetic emissions radiated by lasers, radiofrequency (RF), and microwave sources.

B2202. Policy. The Department of the Navy (DON) policy is to preserve and maintain the health of its personnel by adopting practices that eliminate or control potentially hazardous radiation exposures. This policy encompasses:

- a. Limiting personnel exposures to levels that are within permissible exposure guidelines.
- b. Identifying, attenuating, or controlling through engineering design, administrative actions, or protective equipment hazardous exposure levels and other dangers associated with non-ionizing radiation sources.
- c. Controlling areas in which harmful exposure to unprotected personnel could occur.

- d. Ensuring personnel are aware of and trained for the potential exposures in their workplaces and duty assignments and the control measures imposed to limit their exposures to levels that are within the permissible guidelines.
- e. Investigating and documenting overexposure incidents.
- f. Appointing non-ionizing radiation subject matter experts to the Department of Defense (DoD) Transmitted EMF Radiation Protection (TERP) Working Group.

B2203. Applicability. All commands, units and activities employing sources of non-ionizing radiation which may affect the safety and health of personnel must observe radiation protection requirements, exposure standards and safety guidelines. Provisions of this chapter do not apply to exposures administered to patients undergoing medical diagnostic or therapeutic procedures. Responsibilities for setting forth DON policy and guidance in the identification and control of laser radiation hazards are set forth in reference (a). Laser products that are used exclusively by DOD components and that are designed for combat or combat training operations or are classified in the interest of national security are set forth in reference (a). Laser systems, regardless of laser hazard classification, including industrial, construction and medical will follow guidance set forth by reference (b) and (c).

B2204. Other Optical Sources. Broadband optical sources such as germicidal lamps, phototherapy, sun lamps, backlights, arc lights, projector lamps, high intensity discharge lamps and infrared arrays are also used in many medical and industrial applications. These types of light sources may require controls to prevent possible acute effects such as skin burns, photokeratitis, cataracts or retinal burns. Exposure guidance can be found in reference (d). Obtain assistance in the evaluation of broadband optical sources, where personnel are considered to be at ocular and skin risk, from an industrial hygienist or radiation health officer.

B2205. Radiofrequency (RF) Electromagnetic Fields (EMF). RF exposure is primarily associated with operation of various radars and communication systems at Navy shore facilities and aboard ships. In addition to personnel concerns, RF fields may generate induced currents or voltages that could cause premature activation of electro-explosive devices in ordnance, equipment interference or sparks, and arcs that may ignite flammable materials and fuels.

B2206. Radiofrequency Ashore and Afloat. Commander, Naval Sea Systems Command (COMNAVSEASYS COM) is the lead agency for shipboard HERP and HERF. Naval Ordnance Safety and Security Activity (NOSSA) is the lead agency for shipboard HERO and shore installation HERO, HERP, and HERF. Reference (e) contains RF hazard (RADHAZ) guidance regarding hazards of RF exposure to personnel. Refer to reference (f) for EMF injury reporting requirements.

B2207. RF Maximum Permissible Exposures (MPEs)

a. Those persons conducting RF hazard analysis and evaluations should consult technical guidance contained in references (f) through (h).

b. Exposure limits are specified for locations that are defined as either controlled or action level environments. Controlled environments are areas where exposure may be incurred by personnel who are aware of the potential for RF exposure as a result of employment or duties, by individuals who knowingly enter areas where higher RF levels can reasonably be anticipated to exist, and by exposure incidental to transient passage through such areas. Uncontrolled environments generally include public areas, living quarters, and workplaces where there is no expectation that higher RF levels should be encountered.

c. The RF exposure limits for controlled environments represent scientifically derived values to limit absorption of RF energy in the body, and to restrict the magnitude of RF currents induced in the body. This means that the amount of energy absorbed is insufficient to produce or cause any adverse effects on health, even under repeated or long-term exposure conditions. The controlled environmental limits are the equivalent of personnel exposure standards for all individuals. In action level environments where access is not restricted or controlled, lower maximum permissible exposure levels have been adopted as a consensus to maintain lower exposure levels outside of well-defined areas. The limits for action level environments should not be interpreted as being imposed to lessen any known adverse health effect, and should not be interpreted as being the limit on personnel exposure for non-technical employees or for members of the public who enter a controlled environment.

d. For shipboard situations, consider the entire ship, both topside and below decks, as controlled environments. For shore stations, consider accessible areas beyond a station's perimeter fence line as action level environments. Within a station's boundaries, differentiation between controlled and action level environments will require individual determinations. For both ship and shore situations, incorporate existing physical structures or areas, such as decks, fences, rooftops, etc., in defining the location of boundaries for controlled environments.

e. No special RF exposure limits or additional exposure restrictions are imposed in the case of pregnancy.

B2208. RF Measurement and Evaluation

a. Facilities must determine RF levels for all areas in which personnel could receive exposures in excess of the exposure limits. In addition, shore facilities must determine RF field levels where locations of RF emitting antennas may be expected to raise concerns among personnel or generate public inquiries regarding levels of RF emissions beyond the base perimeter. Facilities must use proper RF measurement techniques and application of the RF exposure limits to avoid imposing unnecessary restrictions on operations or establishing overly

restrictive protective boundaries. Facilities must obtain RADHAZ analysis or survey RF measurements for certification from the commands, units and activities listed in appendix B22-A.

b. A comprehensive RF hazard evaluation for major platforms, such as warships, communication stations, or training platforms, where multiple RF emitters exist in close proximity to each other, requires considerable technical familiarity with electromagnetic fields. Such surveys may involve determination of boundary locations for protective fences or enclosures, or specifying operational conditions or restrictions necessary for protection of personnel. The engineering activities listed in appendix B22-A are authorized to perform these evaluations.

c. In addition to the technical assistance guidance in appendix B22-A, technically competent personnel may make RF measurements or calculations for situations that primarily consist of determining RF exposure levels for a particular area occupied by personnel.

B2209. Safety Certification

a. Commands, units and activities identified as having radiation hazards which personnel could receive exposures in excess of the exposure limits must obtain a RADHAZ survey certification from the technical activities listed in appendix B22-A to ensure all RF sources have been evaluated, safe separation distances have been determined, warning signs posted, and any other safety measures, such as protective fences, have been defined.

b. Notify the engineering agent in appendix B22-A of planned, new, or unknown RF sources that are installed on the command, unit, or activity. Technical information and a RADHAZ evaluation request will be required from the command, unit, or activity to perform the update analysis. The command, unit, or activity will maintain this analysis with the original RADHAZ survey certification documentation until its next full on-site RADHAZ survey.

c. A NOSSA RADHAZ certification. For most certifications and re-certifications, an instrumented on-site survey must be performed. The engineering agent listed in appendix B22-A will determine if a survey is necessary or if the certification can be completed through a RADHAZ analysis. For all shore facilities, the RADHAZ survey and analysis re-certification periodicities are as listed:

(1) Five-Year Periodicity Elements High density of Transmitter Systems, Frequent Upgrades, Dynamic and Large Scale Operations, New Construction, Major NAVNETSPAOPSCOM transmitter facilities, Site located in populated areas where public exposure to RF emissions may be an environmental concern

(2) Seven-Year Periodicity Elements Moderate Density of Transmitter Systems and Some New Construction

(3) Ten-Year Periodicity Elements Stable Low-density of Transmitter Systems and Consistent Operations

B2210. Warning Signs, Labels, and Devices

a. The RF hazard warning signs, labels, devices, exposure incident procedures, and technical assistance are described in appendix B22-A. Appropriate warning statements are added in the lower triangular portion of the sign. Variations are authorized, such as subdued signs for camouflage or to improve visibility under certain lighting conditions, provided the general wording and layout of the sign remain the same.

b. Commands, units and activities must post RF hazard warning signs at all access points to areas which present radiation, shock, and or burn hazards.

c. Commands, units and activities must post RF hazard warning signs in appropriate areas in which the RF levels exceed the exposure limits for uncontrolled environments as determined by NOSSA and local safety professionals.

d. In areas where access to levels greater than ten times the exposure limits for controlled environments may exist, warning signs alone do not provide sufficient protection. Commands, units and activities must provide other warning devices and controls, such as flashing lights, audible signals, barriers or interlocks, as determined by the NOSSA and local safety professionals, depending upon the potential for exposure.

e. See appendix B22-A for reporting of RF incidents.

B2211. Research, Development, and Acquisition

a. Commands, units and activities performing research, development, testing and evaluation and acquisition of RF systems, including non-developmental items and commercial off-the-shelf items, must identify RF control requirements by incorporating adequate RADHAZ control measures or identifying appropriate operational restrictions to maintain personnel exposures within the exposure limit. System safety studies under reference (g) must use the exposure limits given in reference (f) to define restrictions necessary to limit personnel exposures.

b. Commands, units and activities must include safety information, operational restrictions, and safe exposure distances for systems being fielded in appropriate fielding documents and technical manuals to limit RF exposure of personnel engaged in operation, maintenance, and repair of the system.

B2212. RF Safety Training. Commands, units and activities must provide RF safety training to personnel who routinely work directly with RF equipment or whose work environments contain

RF equipment that routinely emits RF levels in excess of the exposure limits for controlled environments. Commands, units and activities must conduct training before assignment to such work areas, and must focus on awareness of the potential hazards of RF fields, established procedures and restrictions to control RF exposures, and personnel responsibility to limit their own exposures. Commands, units and activities may incorporate RF safety training in periodic safety training programs to satisfy command-training objectives.

a. Commands, units and activities with RF sources must designate a Radio Frequency Safety Officer (RFSO) who has successfully completed appropriate RF safety training provided through ESAMS, NKO, or another DoD training Web site. In addition, commands, units and activities that are not receiving base operating support for safety where RF sources are located in common locations throughout the installation must designate an RFSO who has completed the RFSO training course.

b. Commands, units and activities must include, as part of indoctrination training, awareness training, information on the hazards and safety requirements for RF sources on the installation.

B2213. Hazard Controls. The Navy does not authorize RF-shielded protective clothing for routine use as a means of protecting personnel. This does not preclude use of other protective equipment, such as electrically insulated gloves and shoes, for protection against electrical shock or RF burn, or for insulation from the ground plane. Mitigate the risk from laser, RF, and microwave radiation to an acceptable level using appropriate engineering design, protective equipment, administrative controls, or a combination thereof. Implement engineering controls whenever possible and supplement with additional administrative controls. Refer to Appendix B22-A for list of contacts for technical assistance

B2214. Low Frequency and Static Electric and Magnetic Fields

a. Electric and magnetic fields exist around power lines, electrical devices and appliances. The intensity of these fields decreases rapidly with distance. While questions have been raised about the possibility of health effects from exposure to electric and magnetic fields at levels that are commonly encountered in homes and most workplaces, findings issued by various scientific review panels have not confirmed that such fields pose any risk to health.

b. Since the body is a conductor, electric fields induce a charge on the surface of the body that results in current flow inside the body. Time varying magnetic fields, or body movement in a static magnetic field, induce electric fields and current flow inside the body. For commonly encountered fields near high voltage transmission lines, power distribution systems office equipment, and household appliances, the magnitude of these induced currents will typically be below levels which are perceptible. Existing guidelines given in reference (h) have been established to limit induced current densities in body tissues. This rationale has been used to set a biological endpoint since no other definable risk criterion has been identified for establishing a health standard for electric and magnetic fields.

B2215. Responsibilities

a. Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) must:

(1) Serve as the lead agent for RF radiation safety and hazard analysis for the Navy's Electromagnetic Environmental Effects (E3) program, and as the technical lead agency for laser safety and laser safety hazard analysis in the Navy.

(2) Sponsor reference (e) in providing operating procedures and guidance for electromagnetic hazards to personnel, ordnance, and fuel and for RF hazard certification.

b. Naval Ordnance Safety and Security Activity (NOSSA) must:

(1) Serve as the program manager of the Ashore RADHAZ Program and certifying component for HERP, HERF, and HERO shore surveys. Serve as the program manager for shipboard HERO surveys.

(2) Provide technical information and policy for updating information on the hazards of electromagnetic radiation to personnel and fuels in references (e) through (h)

c. Chief, Bureau of Medicine and Surgery (BUMED) must:

(1) Serve as MLA for laser safety and laser safety hazard analysis in the Navy.

(2) Provide guidance regarding medical surveillance and treatment of personnel occupationally or inadvertently exposed to non-ionizing radiation.

(3) Ensure compliance with laser and RF safety design standards, safety documentation, and training standards for medical laser system at Navy medical and research facilities. Ensure medical providers, technicians, and safety personnel are trained and certified to use medical and research lasers and RF as well as other broadband optical sources.

(4) Serve as the lead agency for guidance on personnel exposure limits for lasers, RF, and other electromagnetic sources.

(5) Provide technical assistance to Navy commands, units and activities addressing non-ionizing exposures or human health effects issues with local governments or state agencies.

(6) Provide assistance through the Navy and Marine Corps Public Health Center for laser and RF hazard evaluations at industrial, research and medical activities.

(7) Sponsor appropriate biological research for addressing the effects of non-ionizing radiation on humans.

d. Navy Surface Warfare Development Center Dahlgren Division (NAVSURFWARCENDAHLGRENDIV) must:

(1) Serve as the single engineering agent (SEA) for RF radiation safety and hazard analysis as a component of the Navy's E3 program for shore facilities.

(2) Provide information to NOSSA for updating information on the hazards of electromagnetic radiation to personnel and fuels in reference (e).

(3) Naval Surface Warfare Center, Dahlgren Division (NSWCDD) Code R44 will conduct laser hazard evaluations. Appendix B22-A lists technical activities for RF surveys.

e. Other echelon 2 and headquarters commands must ensure:

(1) Safety requirements are included in procurement commands, units and activities for the design, operation, maintenance, repair, technical orders, handbooks, manuals and other publications related to lasers and RF systems in accordance with reference (a) and (g).

(2) Laser and RF hazard surveys and certifications are obtained for new equipment, installations, laser training ranges or modifications of existing equipment, installations or ranges when required to define laser or RF exposure levels or determine personnel access restrictions.

f. Commanders, commanding officers, and officers in charge must:

(1) RFSOs must register on the Navy's E3 Team Online Knowledge Management System at <https://www.e3teamonline.org> for access to installation and platform HERO, HERP, HERF E3 data; technical reports; and radiation hazard calculation tools

(2) Ensure personnel are trained to be familiar with potential laser or RF exposure hazards and appropriate protective measures.

(3) Allow laser and RF operations only at installations and ranges that have been certified and approved by appropriate safety personnel (e.g., LSSO, RSSO, etc.) for each specific laser, RF emitter, and tactic to be used.

(4) Obtain RADHAZ certification for RF sources. Obtain updated RADHAZ certification when new items are added, new RF systems are installed, existing antenna and transmitter systems are modified or relocated, and if new construction occurs in the vicinity of a radiating RF system when such changes may affect restrictions or boundaries imposed for limiting personnel exposures to the RF environment. Coordinate and implement the safety-

related recommendations (e.g., signage, training, injury reporting, etc.) in the RF and laser safety certification reports.

(5) Investigate, document, and report results of laser or RF over-exposure incidents in accordance with reference (i) of this manual. Refer also to reference (a) for laser incidents, appendix B22-A for RF incidents, and references (a) and (f).

(6) Ensure that the use and disposal of military exempt lasers follow reference (d).

(7) Prepare and retain on-site an annual inventory of all Class 3B, Class 4, and all classes of military exempt lasers in accordance with reference (a) and reference (j).

(8) Ensure personnel who are at risk of exposure to class 3B and Class 4 laser radiation are enrolled in a medical surveillance (Program 506). Personnel who are exposed to radiofrequency radiation will receive medical surveillance to report the occurrence of RF burns, RF interference with implanted medical devices (e.g., copper intrauterine device, etc.), or the sensation of non-routine heating as a means of identifying potential problem areas. A medical exam will be performed for exposures in excess of 5 times the Maximum Permissible Exposure (MPE) or as deemed necessary by a medical provider to document or investigate the occurrence of RF exposure as noted in reference (j).

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APPENDIX B22-A

RADIOFREQUENCY RADIATION TECHNICAL ASSISTANCE

1. For Laser and RF health hazards, personnel exposures and exposure incidents, all incidents must be reported by the LSSO, RFSO, Safety Officer or medical provider to DoD Tri-Service Laser Injury Hotline by phone at 1-888-232-3764 or by email at esoh.service.center@us.af.mil DoD Electromagnetic Field (EMF) Injury Hotline at 1-888-232-3764 or email at esoh.service.center@wpafb.af.mil.
2. For measurement surveys for shipboard Electromagnetic Environmental Effects (E3) Assessment and Evaluation Branch, Naval Surface Warfare Center Dahlgren Division, 5389 Bronson Road, Dahlgren, VA 21448-5100,21 DSN 249-1419, commercial (540) 653-1419, fax (540) 653-9713.
3. For site certification of shore-based RF emitting systems, contact Naval Ordnance Safety and Security Activity (NOSSA) (Attn: N84 E3 Ordnance Safety) 3817 Strauss Ave., Suite 108 (BLDG D-323), Indian Head, MD 20640-5151, commercial (301)744-4447, DSN 354-4447 fax (301)744-6087
4. For site measurement surveys, technical analyses, and Naval Facilities Engineering Command (NAVFAC) requests for shore-based RF emitting systems, contact Electromagnetic Environmental Effects (E3) Assessment and Evaluation Branch (Code Q52), Naval Surface Warfare Center Dahlgren Division, 5389 Bronson Road, Dahlgren, VA 21448-5100,21 DSN 249-3445, commercial (540) 653-3445, fax (540) 653-9713 or visit E3Online at <http://www.e3teamonline.org>.
5. For RF bio-effects and medical research issues, or assistance in evaluating personnel overexposure incidents, contact the Naval Medical Research Unit-San Antonio, 3650 Chambers Pass, Fort Sam Houston, TX 78234, DSN 429-7061, commercial (210) 539-7061 or 7064, fax (210) 539-7020.
F
6. For guidance on RF exposure limits and health issues, contact the Non-Ionizing Radiation Health Branch (M95), Bureau of Medicine and Surgery, 7700 Arlington Boulevard, Falls Church, VA 22042, DSN 761-9276 or 9285, commercial (703) 681-9276 or 9285, fax (703) 681-5406.
7. For immediate expert medical advice as requested in the event of an injury or suspected injury to DoD personnel from RF Exposure, contact the Tri-Service EMF Injury Hotline, Toll Free 1-800-473-3549, Commercial (937) 938-3764, DSN 798-3764, esoh.service.center@WPAFB.af.mil.

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8. For laser safety contact Lead Naval Technical Laboratory for Laser Safety (LNTL), Naval Surface Warfare Center Dahlgren R44 Lead Naval Technical Lab for Laser Safety, 6078 Norc Avenue, Suite 309, Dahlgren, VA 22448-5131, commercial (540) 653-2442 or email DLGR_lasersafety.fct@navy.mil.

CHAPTER 23

ERGONOMICS PROGRAM

- Ref:
- (a) Physical Risk Factor Ergonomics Checklist
 - (b) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
 - (c) American Council of Government Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices
 - (d) Department of Defense Military Standard, MIL STD 1472G, Human Engineering Design Criteria for Military Systems, Equipment and Facilities, 11 Jan 2012.
 - (e) Ergonomics Guidelines for Office Chair Selection.
 - (f) Department of Defense, DOD-HDBK-743A, Anthropometry of U.S. Military Personnel, 13 Feb 1991.
 - (g) Illuminating Engineering Society (IES), IES Lighting Handbook
 - (h) NIOSH Publication No. 2004-164, Easy Ergonomics: A Guide to Selecting Non-Powered Hand Tools, Dec 2004.
 - (i) NIOSH Publication No. 95-114, Proceedings of a NIOSH Workshop, A Strategy for Industrial Power Hand Tool Ergonomic Research - Design, Selection, Installation, and Use in Automotive Manufacturing, 13-14 Jan 1994.
 - (j) NIOSH Publication No. 94-110, Applications Manual for the Revised NIOSH Lifting Equation, January 1994
 - (k) ANSI/HFES 100-2007 Human Factors Engineering of Computer Workstations
 - (l) National Institute for Occupational Safety and Health (NIOSH) Publication No. 97-117, Elements of Ergonomics Programs – A Primer Based on Workplace Evaluations of Musculoskeletal Disorders, March 1997

B2301. Discussion

a. Ergonomics is the field of study that involves the application of knowledge about physiological, psychological, and biomechanical capacities and limitations of the human body. This knowledge is applied in the planning, design, and evaluation of work environments, jobs, tools, and equipment to enhance worker performance, safety, and health. Ergonomics is essentially adapting and accommodating the workplace to the worker.

b. This program seeks to prevent work-related musculoskeletal disorders (WMSDs) and injuries/illnesses by identifying, evaluating, and controlling physical workplace risk factors. WMSDs are defined as a class of disorders involving damage to muscles, tendons, tendon sheaths, and related bones and nerves. They may also be known more specifically as Repetitive Strain Injuries (RSIs), Cumulative Trauma Disorders (CTDs), and Overuse Syndrome. WMSDs result from the cumulative effect of repeated traumas associated with specific physical workplace risk factors. Physical risk factors include but are not limited to:

(1) Force. The amount of physical effort required to maintain control of equipment or tools or perform a task such as heavy lifting, pushing, pulling, grasping, and carrying.

(2) Repetition. Performing the same motion or series of motions continually or frequently for an extended period of time with little variation. Examples include prolonged typing, assembling components, and repetitive hand tool usage.

(3) Awkward or static postures. Awkward postures refer to positions of the body (limbs, joints, back) that deviate significantly from the neutral position while performing job tasks. Overhead work, extended reaching, twisting, squatting, and kneeling are all examples of awkward postures. Static postures refer to holding a fixed position or posture for extended periods of time. Examples include gripping tools that cannot be set down or standing in one place for prolonged periods.

(4) Vibration. Vibration, such as on the hand and arm, occurs when a specific part of the body comes into contact with vibrating objects such as powered hand tools (e.g., chain saw, electric drill, chipping hammer) or equipment (e.g., wood planer, punch press, packaging machine). Whole-body vibration occurs when standing or sitting in vibrating environments (e.g., operating a pile driver or driving a truck over bumpy roads) or when using heavy vibrating equipment that requires whole-body involvement (e.g., jackhammers).

(5) Contact stress. Results from occasional, repeated, or continuous contact between sensitive body tissues and a hard or sharp object. Examples include resting the wrist on a hard desk edge, tool handles that press into the palms, and using the hand as a hammer.

(6) Duration. The period of time an action continues or lasts. Duration reflects the length or dose of the exposure and magnifies the other risk factors.

c. When present for sufficient frequency, magnitude, or in combination, the above physical risk factors may cause WMSDs. Additionally, environmental conditions, such as working in temperature extremes, may contribute to the development of WMSDs. Personal risk factors, such as physical conditioning, pre-existing health problems, gender, age, work technique, hobbies, and organizational factors (e.g., job autonomy, quotas, deadlines) may contribute, but do not cause the development of WMSDs. Applying ergonomics principles to the reduction of physical workplace risk factors can prevent the development of WMSDs

B2302. Management Commitment

A successful ergonomics program cannot be implemented without commitment by senior leadership or the chain of command to resource and support worker and staff efforts to control ergonomics risk factors and reduce associated injury risk. Aggressive, visible, and coordinated management actions are necessary to prevent WMSDs, control costs related to these injuries, and improve overall readiness.

B2303. Employee Involvement. Employee involvement and feedback are essential to identify physical workplace risk factors and develop an effective means for their abatement through the application of ergonomics. A command, unit, or activity ergonomics program must include worker involvement to assist in ergonomics hazard identification.

a. If the command, unit, or activity has a safety and health committee, the committee must review and analyze ergonomics problem areas and recommend corrective actions.

b. The command, unit, or activity may form worker-based teams to identify physical risk factors, analyze the exposure to the risk factors, and develop solutions. Civilian best business practices reports and military studies have proven worker-based teams to be extremely effective in controlling physical workplace risk factors through the implementation of ergonomics principles to reduce injury.

B2304. Safety and Occupational Health Self-assessment

a. WMSD analyses must include specific departments, codes, or operations experiencing WMSDs to determine where there is greater risk for injury. An accurate trend analysis for WMSDs may include, but is not limited to:

(1) Body part involved;

(2) Specific type of injury or illness;

(3) Number of known WMSD injuries and illnesses or determine rate of WMSD within a defined population;

(4) Number of lost workdays due to WMSD injury and illness or determine rate within a defined population;

(5) Description of job(s) to include ergonomics risk factors; and

(6) Cost of treatment (if known).

b. The command, unit, and activity must consider observations made during safety inspections and other factors, such as absenteeism, high personnel turnovers, fitness and age of workers in the identification of ergonomics risk factors. The command, unit, or activity may also elect to survey personnel in occupations known or suspected to have high risks to determine if they have experienced unreported warning signs or injuries.

c. Additional measures and metrics to assess and monitor the ergonomics program may be developed by each activity as necessary to adequately conduct more detailed analyses.

B2305. Job Task Analysis

a. Activities must identify ergonomics risk factors (see paragraph B2301(b)) as part of, or in conjunction with, workplace inspections required by Chapter 9 of this Manual and industrial hygiene surveys provided in accordance with Chapter 8, paragraph B0802 of this Manual.

b. The command, unit, or activity must review the identified risk factors using reference (a) to determine what action is required to eliminate or reduce the risk factor. There may be situations where action may not be deemed necessary after thorough analysis. If no action is taken, the risk factor analysis and decision rationale must be documented in writing and kept on file for at least five years.

c. Activities must use reference (a) for these situations where appropriate:

- (1) Analysis of a task or operation attributable to a WMSD;
- (2) Analysis of a task or operation identified as causing muscular pain or joint pain;
- (3) Analysis of a task or operation identified as causing numbness or tingling of any body part;
- (4) Analysis of a task or operation identified as causing extreme discomfort or muscular fatigue that is not relieved by rest;
- (5) Analysis of repetitive motion tasks and operations considered significant by the command, unit, or activity, supervisor or workers for presence of ergonomic risk factors including: awkward and static posture, excessive force or repetition, contact stress, segmental or whole body vibration, high hand forces;
- (6) As the initial analysis conducted by a worker-based team; and
- (7) New analysis of jobs, tasks, operations, or workstations modified due to ergonomics concerns.

Note: The Job Requirements and Physical Demands survey (JRPD) is an additional ergonomics tool that may be used by safety and occupational health (SOH) personnel to identify jobs with ergonomics risk factors, employee discomfort, and assess ergonomics stressors. The JRPD may be used as a follow-up tool to Appendix B23-A, B23-B, reference (a), or independently to quantify ergonomics risks and prioritize projects. JRPD information is provided through the resource list in Appendix B23-C. Appendix B23-D contains ergonomic considerations for shift workers.

d. Ergonomics assessments must be assigned Risk Assessment Codes (RACs) consistent with Chapters 9 and 12 of this Manual.

B2306. Command, Unit, or Activity Assistance. The principles and application of ergonomics is a multidisciplinary applied science encompassing the medical, engineering, industrial hygiene, and safety fields. It is recognized that command, unit, or activity personnel may not have the experience necessary to identify, analyze, and resolve all ergonomics situations. Commands, units, and activities may seek technical assistance from the resource list in Appendix B23-C.

B2307. Hazard Prevention and Control

a. Corrective Actions. The preferred priorities for corrective actions of ergonomics risk factors include: ergonomics risk elimination, engineering controls, substitution of materials, tools, and equipment, improved work practices, and administrative controls. Examples of administrative controls are: lifting restrictions, adjustment of work-rest cycles, slowing work pace, and job rotation.

b. Use of Support Belts and Wrist Splints. Activities must not use back support belts or wrist splints as safety protective equipment. These devices are considered medical appliances, and must be prescribed by a credentialed health care provider who must assume responsibility for proper fit of the device, treatment, monitoring, and supervision of the wearer.

c. Engineering Controls. Engineering controls are the preferred mechanism for controlling ergonomics risk factors. These controls may entail redesign of workstations, work methods, and tools to reduce or eliminate the risk factors. References (b) through (l) contain detailed guidance on principles and techniques for implementing engineering controls.

d. Workstation Design. All requirements for new workstation purchases must be adjustable to accommodate the person or persons performing a specific task or job, not just the average worker. The workspace must be large enough to allow the full range of required movements of the user to perform their task.

Note: Alternative seating such as exercise balls, ball chairs, kneeling chairs, etc. are not considered acceptable office seating for the typical work activity. See reference (e) for chair purchasing guidelines.

e. Illumination. Reference (f) includes design criteria for several types of engineering controls, including task illumination. Adequate illumination for highly visual tasks may be one of the primary concerns for some workstations. Both the quantity and the quality of light are important. Glare, contrast, and shadows influence lighting quality and can seriously diminish performance. Illumination design guidance may be found in reference (g). Existing illumination problems must be corrected using guidance from reference (g) or other professional references that meet or exceed the references of this chapter.

f. **Design of Work Methods.** Work methods are the process or standard operating procedure to perform a task. An ideal work method is a process that allows tasks to be completed in the most efficient manner and in an appropriate amount of time by removing stress factors to the worker. When analyzing work processes to identify ergonomics stressors, it is important to consider all the physical and contributing risk factors and their interactions. Redesign of work methods must also consider any changes in the time required to perform tasks. WMSD reduction benefits may not be realized if ergonomics related steps are added to the process, but sufficient time is not allowed to perform such tasks or if the cumulative exposure increases. Changes in work design must address or reduce ergonomics stressors without creating new hazards in the workplace.

g. **Tool Design and Handles.** Ergonomically designed tools and handles increase worker productivity by extending and amplifying manipulative abilities, reducing effort and protecting the workers against concentrated or “point” forces (see reference (h), reference (i), and Appendix B23-E. Commands and subordinate activities must apply human factors criteria to the selection and design of tools and workstation layouts to minimize ergonomics stressors and back injuries. Tools selected must be sized or adjustable to fit the workers using them. Tools must be appropriate for the job to reduce the risk of injury and limit exposure to ergonomics risk factors. Activities and employees must select or design tools and handles to minimize or eliminate the risk factors for both male and female workers:

- (1) High contact forces and static loading;
- (2) Extreme or awkward joint positions;
- (3) Repetitive action of the fingers, wrist, and arm;
- (4) Tool vibration (see reference (c)); and
- (5) Excessive force or grip strength requirements.

Note: Activities can accomplish many workstation and job procedure designs using an approach to ergonomics based on an understanding of human anatomy and physiology without resorting to time-consuming and expensive measurements. For example, selecting hand tools to distribute the applied forces over a wide area of the hand regardless of the job being performed. Sometimes it is possible, on a small scale, to obtain sample tools from manufacturers for trial periods to allow employees and management to test, evaluate, and decide which tool is the best based upon comfort, usability, utility, durability, price and productivity. This process will increase product acceptance and take advantage of worker experience and knowledge.

h. **Administrative Controls.** Administrative controls are procedures and practices that limit exposure by control or manipulation of work schedule or the manner in which work is

performed. Administrative controls reduce the exposure to ergonomics stressors and thus reduce the cumulative dose to any one worker. If you are unable to alter the job or workplace to reduce the physical stressors, administrative controls must be used to reduce the strain and stress on the work force. Administrative controls are most effective when used in combination with engineering controls. Examples of administrative controls include:

- (1) Rotating tasks to use different muscle groups;
- (2) Establishing adequate work/rest schedules or stretch and flex programs;
- (3) Where heavy objects must be handled, activities may calculate a recommended weight limit using the methods contained in references (a), (d), or (j) to specify the maximum lift an unassisted individual should attempt for one or two handed lifts;
- (4) In situations where heavy lifts cannot be avoided, establishing a policy to include the assistance of other personnel in the lift;
- (5) Labeling the actual weight of any object that a worker needs to lift or carry; and
- (6) Ensuring that material in storage is stacked off the floor and placed at no less than knuckle height. Placing materials to reduce reaching over shoulder height or bending or twisting of the torso.
 - i. Planned Facility Modifications and Equipment Purchases. When activities develop plans for new or modified facilities, processes, jobs, tasks, materials, and equipment, they must analyze such plans for opportunities to eliminate or reduce ergonomics hazards. Design process and reviews must include Safety Manager or Industrial Hygienist to ensure hazards are analyzed and eliminated before modification and new equipment purchases. For example, when purchasing office furniture to equip new facilities or replace existing equipment, activities must select equipment that allows easy adjustment of chair height, keyboard and mouse position, and video display screen position. References (d) and (f) provide further information on physical body dimensions to assist with selecting the best tool or workstation layout to fit the worker.
 - j. Centrally-Managed Navy SOH Funds. Some projects developed to address ergonomics hazards that exceed the funding capability of local organizations may qualify for centrally managed Navy SOH funds. Procedures on how to apply for these funds is provided in Chapter 12, Hazard Abatement Program, of this Manual.

B2308. Training

- a. A key to maintaining an effective ergonomics program is the proper training of managers, supervisors, professional staff, ergonomics teams, and employees. General ergonomics awareness training must be provided to all employees. Additional ergonomics training must be

provided as applicable to the employee's role in the workplace. Refresher training is provided in on the Navy Ergonomics website. Training requirements for various personnel are provided in Appendix B23-F.

b. Occupational Safety and Health Professionals and collateral duty staff, responsible for conducting the ergonomics program, must complete the Naval Safety and Environmental Training Center (NAVSAFENVTRACEN) Ergonomics Program course (A-493-0085) or its equivalent. Appendix B23-F provides further information on equivalent training.

Note: General ergonomics awareness training provides an overview of ergonomics, risk factors, hazard management and control comprising the information and basic skills for all personnel to recognize ergonomics concerns and take corrective action. Ten additional ergonomics courses are offered on Navy Knowledge Online (NKO) that will increase ergonomics skill sets and supplement the general ergonomics awareness training required for all personnel.

B2309. Medical Program

a. Occupational and Environmental Medicine (OEM) Program. Cognizant medical command, unit, or activity must collaborate with and provide support to line activity initiatives to reduce WMSDs by providing occupational medicine services as described in Chapter 8, paragraph B0805 of this Manual. Occupational medicine professionals must collaborate with command, unit, or activity, for the purpose of participating in command, unit, or activity ergonomics teams, conducting workplace visits to obtain knowledge of operations, work practices and transitional-duty jobs to provide ergonomics assessments, and facilitating recovery of individuals with WMSDs.

b. Physical Standards Pre-placement and Periodic Examinations. For positions that involve significant risk for WMSDs, the command, unit, or activity, human resources office, and cognizant medical command, unit, or activity must review the presence and adequacy of existing physical requirements of the job and make recommendations for improvement to the command, unit, or activity.

Note: As warranted, consistent with the provisions of 5 CFR 339.301, an agency may require an individual who has applied for or occupies a position which has medical standards or physical requirements or which is part of an established medical evaluation program, to report for a medical examination:

(1) Prior to appointment or selection (including reemployment on the basis of full or partial recovery from a medical condition).

(2) On a regularly recurring, periodic basis after appointment; or

(3) Whenever there is a direct question about an employee's continued capacity to meet the physical or medical requirements of a position.

(4) An agency may require an employee who has applied for or is receiving continuation of pay or compensation as a result of an on-the-job injury or disease to report for an examination to determine medical limitations that may affect placement decisions.

c. Health Education for Ergonomics Hazards. Each cognizant medical command must collaborate with and assist the employing command, unit, or activity in providing health education and lifestyle modification information to individuals with WMSD symptoms and for all identified workers at high risk for WMSDs.

d. Recovery of Injured Employees. The Navy cognizant medical commands, units, and activities must provide medical care, advice, counseling, and physical therapy services to rehabilitate employees with WMSDs. Where such services are not available from the local military medical treatment facility, activities may contract for physical therapy services. The cognizant medical treatment facility must review the procurement specifications for the command, unit, or activity prior to solicitation.

e. Monitoring for Trends. Health care professionals must review occupationally-related care visits quarterly to monitor WMSD trends.

B2310. Responsibilities

a. Echelon 2 Commands must:

(1) Provide guidance and assistance as necessary to subordinate commands, units, and activities on program development and implementation.

(2) Coordinate program implementation among similar activity types and disseminate information on process improvements to eliminate duplication of effort.

b. Commander, Naval Supply Systems Command must take appropriate actions to increase the availability of ergonomically-designed furnishings, equipment and tools through the supply system. Conversely, commands, units, and activities must make efforts to purge the supply system of ergonomically incorrect equipment.

c. Commander, Naval Facilities Engineering Command must:

(1) Perform comprehensive ergonomics risk analysis of WMSD factors as part of the facility design process.

(2) Review plans for new or modified facilities, processes, jobs, tasks, tools, materials, and equipment to ensure that changes will reduce or eliminate ergonomics risk factors for WMSDs.

(3) Develop and implement a Navy-wide program to minimize ergonomics stress through facility design, equipment selection, and maintenance of facilities, equipment, and tools.

(4) Maintain ergonomics SME in Mishap Prevention Hazard Abatement (MPHA) program.

d. Commander, Naval Safety and Environmental Training Center must insure appropriate training is provided consistent with this chapter.

e. Chief, Bureau of Medicine and Surgery (BUMED) must:

(1) Develop technical and administrative guidance for the medical aspects of the ergonomics program.

(2) Provide medical support to Naval shore activities and afloat units by developing therapy and treatment programs, including provision of physical therapists that perform in-house physical therapy to injured employees, serve as part of the education team providing training to prevent injuries, and ergonomically evaluate return-to-work capabilities.

f. Commander, Naval Safety Center must:

(1) Conduct a mishap analysis reviewing available data for a five-year period, to identify WMSDs by command, unit, or activity, including number or rate of WMSD, injury or illness type, and body part.

(2) Provide timely dissemination of ergonomics information to Navy commands, units and activities using briefings, messages, newsletters, magazines, etc.

g. Commanding Officers of Medical Centers, Hospitals, and Health Centers or Clinics must:

(1) Monitor WMSD trends using appropriate records.

(2) Verify low risk of transitional duty assignments.

(3) Provide occupational health education for personnel with a past history or current symptoms of WMSDs and education on preventive measures for high-risk individuals. Conduct exposure monitoring for whole body vibration as required in section 0802.

(4) Assist line activities in the medical recovery of WMSD individuals and the implementation of transitional duty programs.

(5) Assist commands in the development of physical requirements for positions.

h. Commanders, Commanding Officers, and Officers in Charge must:

(1) Ensure the activity has an active ergonomics program consistent with this chapter.

(2) Identify and budget resources to administer an effective ergonomics program consistent with this chapter.

(3) Analyze injury and illness records and other pertinent information to determine the need for ergonomics improvements and corrective actions within the command, unit, or activity on an annual basis.

(4) Ensure all employees receive ergonomics training required by this chapter.

(5) Where rehabilitative services are not available from a local military treatment facility, activities may contract for such services. The cognizant medical treatment facility must review the procurement specifications for the command, unit, or activity prior to solicitation.

(6) Include its ergonomics program as part of the annual command, unit, or activity Safety and Occupational Health program self-assessment. See Chapter 9, paragraphs B0904 and B0905 of this Manual

APPENDIX B.23-A

COMPUTER WORKSTATION GUIDANCE

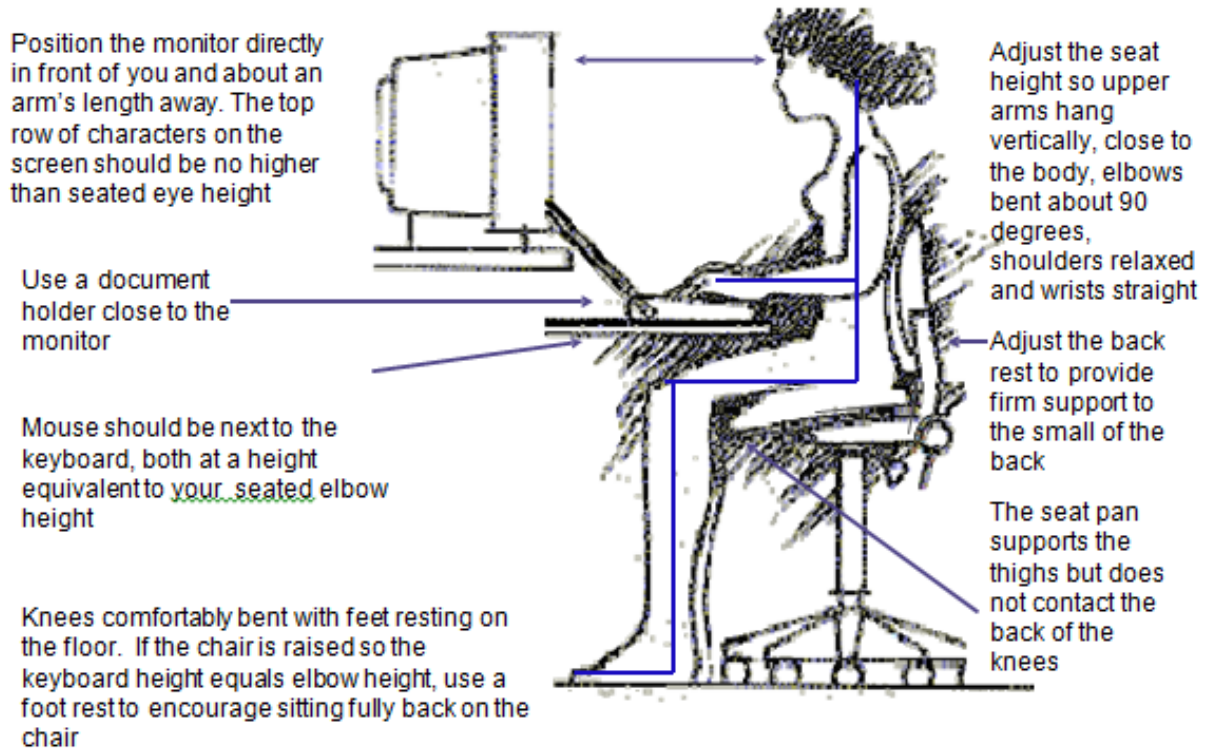
The OPNAV 5100/21 Computer Workstation Checklist is one method available for performing computer workstation assessments. The checklist is designed to be printed as two double-sided pages (front and back). The first page sheet (page one and two) is an educational guide for the employee and is meant to be left at the workstation for the employee's reference. At the beginning of the assessment, the evaluator should define ergonomics and explain the proper- seated neutral position for a computer workstation. The second page sheet (page three and four) contains a checklist, which is intended to guide the evaluator and be kept for the evaluator's records. The checklist is designed to step the evaluator through the workstation evaluation. Answering an item on the checklist with "NO" indicates a potential ergonomics problem. Possible solutions to address the issue are indicated in the far right column.

Thank you for participating in an ergonomic computer workstation assessment.

Ergonomics is the science of fitting the workplace to the worker to reduce the risk of injury. In order to reduce your risk of developing Work-related Musculoskeletal Disorders (WMSDs), it is important to use your computer in a neutral posture. This will help prevent soft tissue WMSDs, such as Carpal Tunnel Syndrome and Tendonitis. The listed illustration is a guide to setting up your computer workstation. The neutral posture is the optimal body position, which provides the greatest strength and control and minimizes stress. Even a neutral posture can be fatiguing if held all day, therefore micro-changes in posture and stretching are recommended (see page 2).

For more information or to report pain or discomfort you feel is associated with your job, please contact your Supervisor or Safety Officer who can refer you as needed to the Industrial Hygienist and/or Occupational Health Provider/Clinic.

Neutral Posture for Computer Use



The information in the figure accommodates 90% of the population. Special considerations may be necessary some workers. Additional guidance can be found on the Navy Ergonomics Program Web Page:

http://www.navfac.navy.mil/products_and_services/sf/products_and_services/ergonomics.html

Tip: 1) Taking 20 second micro-breaks throughout the day to refocus your eyes will reduce fatigue at the end of the day. 20/20 rule: for every 20 minutes of work, rest the eyes 20 seconds.

TIME TO TAKE A COMPUTER BREAK

For every 20 minutes of computer use,
look at an object 20 feet away for
20 seconds. This reduces eyestrain.

Move your eyes side-to-side and top to bottom. This helps moisten your eyes and reduces eyestrain.

Close your eyes and gradually lower your head. This relaxes your eyes and neck.

Cup your eyes with your hands and close your eyes. Do not put any direct pressure on your eyes. This relaxes your face and moistens your eyes.

Extend your arms and fingers and rotate. This reduces stress on the upper extremities.

Rotate your ankle. This promotes blood circulation in your legs.

With your arms at your sides, shake your fingers. This relaxes your arms, hands and fingers.

While seated, elongate your back by pretending there is a cable attached to your head that is slowly pulling upwards. This will promote good posture and relieve some low back pain.

Shrug your shoulders. This eliminates stress from the shoulders and upper back.

Slowly pull your arms back as far as you can, trying to touch your shoulder blades together. This will reduce upper back stress.

APPENDIX B23-B

ERGONOMICS RESOURCES

Naval Facilities Engineering Command Ergonomics Support

Program Manager, Navy Ergonomics Program

NAVFAC Headquarters

1322 Patterson Ave, Suite 1000

Washington, DC 20374-5067

Phone: (540) 653-8257

DSN: 249-8257

Web site:

http://www.navfac.navy.mil/products_and_services/sf/products_and_services/ergonomics.html

The ergonomics page of this Web site provides assessment tools, ergonomics training links and the assistance of ergonomists for situations that are beyond the professional capability of local resources. This site will also have information for the Job Requirements and Physical Demands Survey (JRPD), which is an ergonomics tool to enable SOH professionals to identify ergonomics risk factors and prioritize problem areas.

BUMED Ergonomics Support

Navy and Marine Corps Public Health Center

620 John Paul Jones Circle

Suite 1100

Portsmouth, VA 22708-2103

Phone: (757) 953-0700

After Hours: (757) 621-1967

DSN: 377-0700

Contact: Industrial Hygiene or Occupational Medicine directorates

OPNAV N09F/Naval Safety Center

Web Site: <http://www.public.navy.mil/NAVSAFECEN/Pages/index.aspx>

This web site contains ergonomics best practice examples, public domain documents, government documents, technical information, and links to other ergonomics sites.

Naval Safety and Environmental Training Center

9080 Breezy Point Crescent

Norfolk VA 22511-3998

Phone: (757) 445-8778

Web site:

<http://www.public.navy.mil/NAVSAFECEN/navsafenvtracen/Pages/index.aspx>

CAP, Computer/Electronic Accommodations Program

Web Site: www.cap.mil

CAP provides needs assessments, assistive technology and support services free of charge to federal employees with disabilities and wounded Service members. CAP supports federal employees throughout the employment lifecycle, including, recruitment, placement, promotion and retention.

APPENDIX B23-C

ERGONOMIC CONSIDERATION FOR SHIFT WORKERS

1. Background

Shift work is a risk factor for several medical disorders, poor performance, and decreased vigilance in the job. It presents these problems because of its conflict with normal human biological rhythms, particularly the sleep/wake rhythm and the temperature rhythm, which direct the body to sleep at night.

The problem with night work is that normal time cues are shifted faster than the human circadian rhythm can adjust. More time is required for body temperature and performance rhythms to adjust. Two to 3 weeks are required for complete adjustment of the temperature rhythm to a complete day-night reversal (a 12-hour time shift).

Because different biological rhythms adjust at different rates, not only does the person become desynchronized with respect to external time cues, but individual rhythms no longer have a normal phase relationship.

The most frequent problem for night workers, experienced by at least 60 percent of these workers, is chronic sleep deprivation due to not only fewer total hours of sleep, but disrupted sleep as well. Such sleep deprivation in night workers can be severe. Night work has also been shown to be disruptive with respect to family and social interactions. Shift-workers are at higher risk for psychosocial problems as well as family problems, including divorce.

Personnel with a history of rigid sleep requirements, strong "morning types," and older workers (over 45 years old) are more apt to have difficulty adjusting to night work. Five to 20 percent of night workers will suffer from shift maladaptation syndrome, which can only be treated by removal from the night shift.

This appendix contains minimal guidance on how to address shift work. For more assistance, see section D.

2. Shift Workers Scheduling Guidelines

Supervisors who prepare schedules for night shifts must consider the potential for scheduling practices to affect the ability of individuals to perform assigned tasks safely.

Unless prescribed by current labor contracts, schedules must be rotated in the forward (clockwise) direction. This direction is best because the human clock runs slow with respect to the 24-hour solar day and, therefore, adjusts faster to a phase delay than to a phase advance. The additional guidelines regarding scheduling of night workers, including workers on rotating schedules that include night work, are recommended for consideration when preparing schedules are listed.

- a. At least 48 hours off should follow the night shift rotation.
- b. Overtime should be avoided for personnel adjusting to time shifts.

3. Medical Surveillance for Shift Workers

Being assigned night shift work, by itself, does not obligate an employee to undergo a medical evaluation. Where medical evaluations are required, due to positions covered by medical standards, the requirement to work night shifts should be indicated by the appointing officer on the SF-78 by circling item B-28, "Protracted or irregular hours of work," to alert the examining physician to evaluate fitness to work night shifts or recommend appropriate restrictions.

Supervisors may request medical qualification information from workers who demonstrate persistent performance problems or increased absenteeism after beginning night work. Even workers who have been able to tolerate night work for years may begin to show signs and symptoms of shift work intolerance with increasing age.

Pre-employment evaluation of workers who will be involved in night work and surveillance of shift work employees require attention to medical conditions that may impair an individual's ability to perform assigned tasks safely or be aggravated by shift work schedules:

- a. Diabetes mellitus, epilepsy, cardiovascular disease, asthma, peptic ulcer, irritable bowel syndrome, or use of medication with circadian variation in effectiveness. The examining physician must determine when such medical conditions are severe enough to warrant medical disqualification for night work.
- b. Supervisors are cautioned to consult Federal Personnel Manual (FPM Chapter 339 governing medical qualification determinations.

4. Additional References

- a. LaDou J., Occupational and Environmental Medicine, 2nd ed., pp 592-3, Appleton and Lange, 1997.
- b. Rom W.N., Environmental and Occupational Medicine, 3rd ed., pp 1173-7, Lippincott Williams and Wilkins, 1998.
- c. Scott A.J., "Shift Work and Health," Primary Care, 1 Dec 2000, pp 1057-79.

APPENDIX B23-D

HAND TOOL SELECTION CHECKLIST

This checklist helps identify hand-held tool designs that have minimal health effect on the user. An answer of “NO” to any of the tool category questions is an indication that the tool should be further evaluated before being purchased. A checklist must be filled out for every type of tool purchased or evaluated. The shop evaluator or reviewer must request assistance from the Occupational Safety and Health department prior to procurement of the tool being evaluated if there are any questions regarding the questions below or if there is any sign of ergonomic hazards. An alternative should be pursued for any tool that is shown to present an ergonomic hazard.

1. Hand Tools

- | | <u>Yes</u> | <u>No</u> | <u>N/A</u> |
|--|------------|-----------|------------|
| 1.1 Is the tool handle long enough to support the entire set of fingers, 3.75 in., for a gloved hand? | _____ | _____ | _____ |
| 1.2 Does the tool have a power grip, not a pinch grip precision grip? | _____ | _____ | _____ |
| 1.3 Does the tool come in different sizes to accommodate different hand sizes? | _____ | _____ | _____ |
| 1.4 Has the tool been examined to ensure there are no sharp edges and corners on the handles? | _____ | _____ | _____ |
| 1.5 Can the tool be obtained with rubber or plastic handles or grips? | _____ | _____ | _____ |
| 1.6 Has the tool been examined to ensure the tool handle does not concentrate large forces into the small of the hand? | _____ | _____ | _____ |
| 1.7 Does the tool handle have slip resistant material or design? | _____ | _____ | _____ |
| 1.8 Can the tool be used with either hand? | _____ | _____ | _____ |

2. Pliers-Type Tools

- | | | | |
|---|-------|-------|-------|
| 2.1 Does the tool have spring action to return handles to open position? | _____ | _____ | _____ |
| 2.2 Do the plier-type handles that must be closed or squeezed during tool operation have a handle (open grip span) less than 4.5 in.? | _____ | _____ | _____ |

2.3 Is the closing space between the plier-type handles 1.2 in. or greater? 2 in. or greater for two-handed tools? _____

3.0 Pneumatic Hand Tools:

Yes No N/A

3.1 Has the vendor/supplier provide documented evidence that the tool reduces vibration? _____

3.2 Has the vendor/supplier agreed to provide a demo tool for test and evaluation before purchase? _____

4.0 Power Tools

4.1 Does the tool have a blade or wand-type trigger where all four fingers together operate the trigger or with a thumb trigger (the thumb is stronger)? _____

4.2 If the tool is to be used or held intermittently for short periods of time, is the weight less than 29 lb. with 10 to 12 lb. maximum weight? Tools that are used or held continuously should not exceed 4.4 lb. _____

4.3 Is the center of gravity of the tool aligned with the center of the grasping hand so that the hand will not have to overcome rotational moments or torque of the tool? _____

Score (count all "no" answers): _____

Evaluation Results:

Comments:

Prepared by: _____ Phone #: _____ Date:

Name of Tool (model) _____ Manufacturer:

_____ Approved for Purchase _____ Not Approved (Reason why)

APPENDIX B23-E

ERGONOMICS TRAINING REQUIREMENTS AND METHODS

Trainee Group	Desired Training Objectives	Note
All employees, managers and supervisors	<p>General Ergonomics Awareness</p> <ul style="list-style-type: none"> - Understand what ergonomics is and why it is important in the workplace. - Understand physical, contributing, and personal risk factors for musculoskeletal disorders (MSDs). - Understand the general methods for reducing/controlling workplace risk factors. - Recognize the signs and symptoms of WMSDs. - Identify work activities with ergonomics risks. - Know where to find more information and obtain assistance. 	<ul style="list-style-type: none"> - Formal classroom - Web-based training (Available on Navy Knowledge Online (NKO) and Enterprise Safety Applications Management System (ESAMS))
Supervisors and managers/healthcare providers	<p>Ergonomics Awareness for Supervisors</p> <ul style="list-style-type: none"> - All training objectives of the General Ergonomics Awareness training requirement plus: - Understand the benefits of proper maintenance of facilities, equipment and tools as a technique to minimize workplace risk factors for musculoskeletal disorders. - Understand the benefits of providing ergonomics equipment in the workplace. - Understand the benefits of a team approach to ergonomics and how to form worker-based teams. - Know ergonomics policy of the Navy, Department of Defense and the Occupational Safety and Health Administration and how to get assistance. 	
Engineers, Architects, Designers and Equipment Specialists (responsible for planning, designing or	<p>All training objectives of the General Ergonomics Awareness training requirement plus:</p> <ul style="list-style-type: none"> - Understand the benefits of providing ergonomics equipment in the workplace. 	

Trainee Group	Desired Training Objectives	Note
writing specifications for equipment, tools, jobs, tasks and processes)	<ul style="list-style-type: none"> - Understand various ergonomics planning and design considerations for construction and maintenance of facilities and workstation design. - Be able to select tools and equipment to reduce ergonomics risk factors. - Understand how to evaluate designs to recognize potential ergonomics problem areas. 	
Occupational Safety and Health Professionals and Collateral duty personnel responsible for administering the ergonomics program	<p>Naval Safety and Environmental Training Center’s “Navy Ergonomics Program” (A-493-0085)</p> <p style="text-align: center;">Or</p> <p>Occupational Safety and Health Administration Course #2250-Principles of Ergonomics Applied to Work-Related Musculoskeletal and Nerve Disorders</p> <p style="text-align: center;">Or</p> <p>Course from an accredited university with a minimum of 35 hours of classroom time and a passing grade.</p>	

APPENDIX B23-F

PHYSICAL RISK FACTOR ERGONOMICS CHECKLIST

The OPNAV 5100/20 Physical Risk Factor Ergonomic Checklist can be used as a tool to identify physical workplace stressors. For each category determine whether the physical risk factors rate as a “caution” or “hazard” by placing a check (☐) in the appropriate box. Risk of developing a Work-Related Musculoskeletal Disorder is increased when ergonomic risk factors occur in combination.

If a hazard exists, it must be reduced below the hazard level or to the degree technologically and economically feasible. Ensure workers exposed to ergonomic stressors at or above the “hazard” level have received general ergonomics training and provide a refresher of the ergonomics physical and contributing risk factors.

If the task rates as “caution,” reevaluate at least yearly since changes in the work environment may create new ergonomic stressors. Ensure significant contributing physical or personal risk factors are not present.

This checklist can be used for typical work activities which are a regular and foreseeable part of the job, occurring more than one day per week, and more frequently than one week per year.

CHAPTER 24

CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

- Ref:
- (a) Title 29 CFR 1910.147, Subtitle General Environmental Controls (The Control of Hazardous Energy Lockout/Tagout), 2 May 2011
 - (b) Title 29 CFR 1915.89, Subtitle General Working Conditions (Control of Hazardous Energy Lockout/Tags-plus, Occupational Safety and Health Standards for Shipyard Employment
 - (c) Title 29 CFR 1926.417, Subpart Electrical (Lockout and Tagging of Circuits), Safety and Health Regulations for Construction
 - (d) NAVSEA Technical Manual SO400-AD-URM-010/TUM, 21 November 2013, “Tag-out User’s Manual”
 - (e) American National Standards Institute (ANSI) Standard Z244.1-2016, Control of Hazardous Energy - Lockout/Tagout and Alternative Methods
 - (f) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (g) UFC 3-560-01, Electrical Safety, O&M, 21 Feb 2018
 - (h) U.S. Army Corps of Engineers Safety and Health Requirements Manual EM 385-1-1, 20 Nov 2014

B2401. Discussion

a. This chapter establishes Navy policy and minimum procedures for locking out or tagging the sources of energy to equipment or systems under the requirements of reference (a) for general industry; reference (b) for ship repairing, shipbuilding, shipbreaking work, and related work; and reference (c) for construction. Additional information can be found in references (d) and (e).

b. Scope and Application.

(1) The requirements of this chapter apply to the control of hazardous energy during servicing and maintenance of machinery and equipment ashore. Requirements apply when one or more of these three conditions exist:

- (a) When persons perform energized work.
- (b) Unexpected energizing or movement of machinery or equipment which could cause injury to personnel and/or property damage.
- (c) Release of energy during the maintaining or servicing of such equipment or machinery which could cause injury to personnel and/or property damage.

(2) This policy does not cover routine production operations unless:

- (a) Operations require workers to remove or bypass a guard or other safety device.
- (b) Operations require workers to place any part of their bodies into an area of the machine or equipment where work is actually performed upon the material being processed (i.e., point of operation), or where an associated danger zone exists during the machine operating cycle.

Note: This chapter does not cover minor tool changes and adjustments and other minor servicing activities, which take place during normal production operations if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternate measures which provide effective protection.

(3) The requirements of this chapter do not apply to:

- (a) Shipboard operations that are covered under references (d), (e) and (f).
- (b) Equipment under the exclusive control of electrical utilization installations for the purpose of power generation, transmission, and distribution, including related equipment for communication or metering, which are covered under reference (g).
- (c) Exposure to electrical hazards from work on, near, or with conductors or equipment in electrical utilization installations, which are covered under reference (g).
- (d) Work on cord and plug-connected electrical equipment where exposure to the hazards of unexpected start-up of the equipment is controlled by unplugging the equipment, and the plug is under the exclusive control of the worker performing the servicing or maintenance.
- (e) Hot tap operations involving transmission and distribution systems for substances such as gas, steam, water, or petroleum products performed on pressurized pipelines if:
 - 1. Continuity of service is essential.
 - 2. Shutdown of the system is impractical.
 - 3. Documented procedures are followed and special equipment utilized to protect personnel.
- (f) Training evolutions ashore on shipboard tagout in accordance with references (f), (fj) and (fk). However, the installation of equipment for such training is covered by this Manual.

B2402. General Policy. All commands, units, and activities must comply with the control of hazardous energy requirements of references (a) through (c), as applicable, except as noted in paragraph B2401.

- a. When similar machines and/or equipment are covered with a single generic written procedure, the procedure must list the types of equipment to which the operating procedure applies.
- b. Lockout is the preferred method of energy control and commands, units, and activities must use it ashore where feasible. Commands, units, and activities must not use combination locks for lockout. No two lockout devices (e.g., locks) may have the same key. No more than two keys may exist for any one lock. The worker must maintain one key and the supervisor must maintain the other in a location readily accessible to that supervisor in the event of an emergency.

Note: Lockout must be implemented as part of the overall energy-control program for machinery, equipment, or systems that are capable of being locked out.

- c. Both lockout and tagout devices must indicate the identity of the employee applying the device(s). Lockout/tagout devices must be standardized throughout a region or within each shore command, unit, or activity.
- d. Commands, units, and activities must ensure that all training complies with references (a), through (fi), with other OSHA electrical requirements, and is specific to the command, unit, or activity; but, need not include instruction on energy sources or means of isolation that are not applicable to the command, unit, or activity.
- e. Arc flash guidance is available in Chapter 35 of this Manual.
- f. All work done on electrical systems on Military Sealift Command government-owned, government-operated (i.e., CIVMAR) ships must comply with the MSC Lockout/Tagout procedures and electrical safety and electronic safety contained in Military Sealift Command's Safety Management Procedures Manual, available at a protected web site: <https://www.msc.navy.mil/>
- g. NAVSEA must update their Ships Maintenance and Material Management (3M) Manual and cards for compliance with this chapter.

B2403. Responsibilities

- a. Commanders of echelon 2 and other headquarters commands must:
 - (1) Ensure development and implementation of control of hazardous energy programs are in accordance with the guidance in this chapter for all systems and operations under their cognizance.
 - (2) As necessary, provide amplifying guidance to subordinate commands, units, and activities on command implementation of the control of hazardous energy program to ensure program consistency and effectiveness.

b. Naval Education and Training Command (NETC) and/or Naval Safety and Environmental Training Center must:

(1) Incorporate control of hazardous energy requirements into appropriate Navy Training Systems Plans.

(2) Develop a control of hazardous energy program training syllabus and related performance qualification standards to include the provisions of lockout/tagout.

(3) Provide specialized control of hazardous energy program training, where necessary.

(4) Integrate control of hazardous energy program principles and procedures into the curriculum of the Navy Supply Corps School (Newport, RI) and the Naval Civil Engineer Corps Officers School (Port Hueneme, CA).

(5) Serve as the central source for delivery and dissemination of information on control of hazardous energy program training.

(6) Incorporate control of hazardous energy program information into the curriculum of all appropriate training courses.

c. Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) must provide standard stock OSHA-compliant tags and locks for use within the command, unit, or activity in accordance with the requirements of this chapter.

d. Commanders, commanding officers, and officers in charge must:

(1) Develop and implement written plans and procedures for a control of hazardous energy program that meet the policy of this chapter and the direction of references (a), (b) or (c), as applicable.

(2) Initiate actions to identify and resolve deficiencies in the control of hazardous energy program budget and allocation of resources to bring about effective local program implementation.

(3) Ensure a current roster of trained and qualified employees who are authorized to work on hazardous energy systems and equipment is maintained.

(4) Ensure affected employees receive training about the energy control program (i.e., control of hazardous energy program identification, notification requirements and general energy control program requirements).

e. Command, Unit, or Activity Safety Offices must:

(1) Approve the equipment or applications where a tagout system may be used in place of lockout (and maintain a list of approvals) unless this responsibility is delegated to someone else by the commanding officer. Each request of equipment or application variance allowing only tags must be submitted to the safety office with sufficient documentation demonstrating that an equivalent means of lockout protection will be achieved allowing full employee protection as required by references (a), (b) or (c), as applicable.

(2) Annually review compliance with the provisions of this chapter and any specific procedures developed as a result.

(3) Where lockout is not feasible, a tagout procedure which provides “full employee protection” may be used. Commands, units, and activities must maintain a list of the type of equipment and applications. The official authorizing tagout/tags will ensure compliance with the requirements of reference (a), (b) or (c), as applicable, and this chapter for use of a tag system to achieve equivalent protection to lockout systems.

(4) Ensure periodic inspections and energy control program audits are performed by trained, authorized and qualified employees. Further, periodic inspection must be documented and certified as being performed in accordance with reference (a), (b) or (c), as applicable.

(5) In addition, the command, unit or activity must provide the contractor agency with a copy of the control of hazardous energy program of the command, unit, or activity where the work is to be performed.

f. Requirements for Contractors or Other Outside Agencies

(1) Submit a copy of instructions explaining the contractor’s or agency’s OSHA compliant control of hazardous energy program as required by statement of work or direction by contracting officer representative.

(2) Be familiar with Navy hazardous energy control procedures.

(3) Contractors must comply with references (a), (b) or (c), and (h).

CHAPTER 25

POLYCHLORINATED BIPHENYLS (PCBs)

- Ref:
- (a) Title 40 CFR 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
 - (b) Department of Health and Human Services (DHHS), National Institute for Occupational Safety and Health (NIOSH) Publication No. 77-224, "Criteria for a recommended standard, Occupational Exposure to Polychlorinated Biphenyls," Sep 77
 - (c) DHHS, Agency for Toxic Substances and Disease Registry (ATSDR), Toxicological Profile for Polychlorinated Biphenyls, Nov 2000
 - (d) Title 29 CFR 1910.1000 Subpart Toxic and Hazardous Substances (Table Z-1, Limits for Air Contaminants)
 - (e) OPNAVINST 5090.1E, Environmental Readiness Program Manual, 3 Sep 2019
 - (f) Forsberg, Van den Borre, Henry, and Zeigler, Quick Selection Guide to Chemical Protective Clothing, 6th Edition, 2014
 - (g) NMCPHC Technical Manual OM 6260, Medical Surveillance Procedures Manual and Medical Matrix, Aug 2015

B2501. Discussion. Navy policy is to remove or the potential for polychlorinated biphenyl (PCB) occupational exposure by substitution with non-PCB containing materials, using engineering and administrative controls and using appropriate personal protective equipment (PPE).

B2502. Program Definitions and Health Effects

a. PCBs are no longer produced in the United States; however, many of the Navy's vessels may contain PCBs if constructed prior to 1977. PCBs were common in insulation material, electrical cable, ventilation gaskets and in closed loop applications (e.g., capacitors, transformers, and hydraulic fluids). Workplace exposures could still arise from removing PCB-impregnated felts or gaskets, working with synthetic rubber and plasticizers, retro-filling PCB-containing electrical transformers (ashore), fires or spills involving PCB-containing materials. The Environmental Protection Agency (EPA) believes that there was widespread use of PCB-containing building materials in buildings built or renovated between 1950 and 1979. PCB-containing building materials include: caulking, elastic sealants, paint, flame retardants, and heat insulation, which may create a potential occupational exposure for building occupants working in Navy buildings. Though the presence of PCBs in buildings may be a concern, it is not cause for immediate alarm. If PCBs are present or suspected of being present, EPA recommends building owners a building managers take actions outlined in reference (a) to reduce PCB exposures.

b. Health effects that have been associated with exposure to PCBs include acne-like skin conditions in adults and neurobehavioral and immunological changes in children. PCBs are

known carcinogen. For additional information regarding toxicological evaluation, guidance on occupational and environmental issues and other technical information, refer to reference (b) and reference (c).

c. The Occupational Safety and Health Administration (OSHA) regulates workplace PCBs as air contaminants and provides permissible exposure limits (PELs) in accordance with reference (d), as chlorodiphenyl (42 or 54% chlorine), with a skin designation, which refers to the potential contribution to overall exposure by the cutaneous route, including the mucous membranes and eyes, by either airborne or direct skin contact with PCBs. The lower vapor pressure associated with PCBs suggests that air concentrations above an exposure limit are difficult to achieve. Air sampling, which has been conducted at a variety of occupational worksites for industrial processes involving PCBs, confirms that airborne concentrations of PCBs are rarely detectable.

d. Besides an occupational health hazard, PCBs contaminate the environment by degrading very slowly, and then cycled and transported within the ecosystem, and bioaccumulate as they move up the food chain. PCBs can bioaccumulate in the fatty tissue of fish, birds, and mammals after entering through the lungs, skin or gastrointestinal tract. The EPA regulates PCBs under the Toxic Substances Control Act in reference (e). Reference (f) provides Navy requirements that address federal environmental regulations. Industrial hygiene (IH) guidance on sampling for surface contamination may be found in reference (g).

e. PCBs are a nonflammable liquid, but exposure in a fire results in the formation of a black soot containing PCBs, polychlorinated dibenzofurans, and chlorinated dibenzo-p-dioxins, commonly referred to as chlorinated dioxins and furans.

B2503. Control of PCB Exposure in the Workplace Environment

a. General Workplace Control Practices. Prior to conducting any work with PCB-impregnated materials, contact the cognizant IH office to request a worksite evaluation, which may include air sampling and PPE recommendations. Workers must wear and use PPE, as recommended, upon entering a PCB control area. If PPE is not required, specify that in the PCB removal work plan. For situations not exceeding the Permissible Exposure Limits (PELs) and not involving unprotected PCB skin contact, activities must employ routine work and personal hygiene measures appropriate for any occupational setting.

(1) When working with PCB-impregnated materials, such as insulating felts, or with articles that contain liquid PCB solutions, personnel must strictly observe good housekeeping procedures to avoid the possibility of secondary surface contamination.

(2) Employees involved in PCB-related work activities must not eat, drink, smoke, chew tobacco or gum or apply cosmetics in the work area.

(3) Commands, units, and activities must collect and dispose of PCB-containing waste, scrap and debris, and PCB-contaminated clothing (consigned for disposal) in sealed impermeable bags or other impermeable containers labeled in accordance with applicable federal, state or local environmental regulations. For guidance consult references (a) and (e).

(4) Personnel must not perform hot work in the immediate area when work is performed with PCB material.

b. Personal Protective Equipment.

(1) PPE and respiratory protection should be made by an IH that has conducted an exposure assessment.

(2) All workers who may be exposed to PCB should be equipped with chemical protective clothing to ensure their protection. In the selection of protective clothing, consideration should be given to the utilization of disposable apparel because of the life uncertainty of decontamination of reusable clothing. PPE may include:

(a) Full-body, one-piece disposable coveralls constructed of Tyvek[®] material or comparable substitute material.

(b) Butyl, Neoprene or Viton[®] gloves.

(c) Butyl, Neoprene or Viton[®] foot coverings if the work involves the probability of foot contamination by any means.

(d) Face shields and vented goggles or other appropriate eye protective equipment wherever the possibility of eye contact exists.

c. Respiratory Protection

(1) The best means of protecting personnel from exposure to PCBs is to eliminate them at their source. When elimination of is not possible, the preferred protection method is engineering controls. Command, unit, or activity work center personnel must use respirators where neither elimination of the air contaminant nor use of engineering controls is wholly effective.

(2) Under most conditions, air-sampling data will be used to determine the necessity for wearing respiratory protection. The cognizant industrial hygienist (IH) determines the need to perform air sampling for PCBs.

(3) Use of respirators must comply with the requirements of Chapter 15 of this Manual.

(4) When selecting respiratory protection for PCB decontamination, the cognizant IH should give consideration to the solvent being used, the potential airborne concentration of the solvent, and the possible presence of chlorinated dioxins and furans.

B2504. Medical Surveillance Program. Activities must include personnel who meet the exposure criteria outlined in reference (h), and as determined by the cognizant IH, in the appropriate medical surveillance program.

B2505. Responsibilities

a. Commanders, commanding officers, and officers in charge must:

(1) Ensure that hazard assessments of workplaces are performed, including electrical arc flash analysis and applicable hazardous material data and industrial hygiene survey reports, when it has been determined PCB's existence within their command. Qualified safety and occupational health personnel must perform these assessments. Commands, units and activities must use the results of these assessments to designate appropriate work conditions and work areas as required by the identified PCB. The commands, units and activities must integrate the PPE requirements into local policy and or standard operating procedures.

(2) Ensure notification of findings of assessment, should PCBs be found, is given to cognizant industrial hygienist (IH) office for action.

(3) Ensure prior to conducting any work with PCB-impregnated materials, contact the cognizant IH office to request a worksite evaluation, which may include air sampling and PPE recommendations.

(4) Ensure workers wear and use appropriate PPE, as recommended, upon entering a PCB control area. PCB removal work plan will be established with location to contain and resolution developed for removal of PCB impregnated PPE to appropriate facility.

(5) Ensure PCB-impregnated materials, such as insulating felts, or articles that contain liquid PCB solutions, are strictly contained and observed good housekeeping procedures are conducted to avoid the possibility of secondary surface contamination.

(6) For situations not exceeding the Permissible Exposure Limits (PELs) and not involving unprotected PCB skin contact, activities must employ routine work and personal hygiene measures appropriate for any occupational setting.

b. Commanding Officers of Medical Commands, Units, Activities, and Treatment Facilities must:

(1) Assist commands, units and activities in conducting physical examinations of those personnel that may have been exposed to PCB material.

(2) Ensure cognizant IH conducts air-sampling data to determine the necessity for wearing respiratory protection. The cognizant industrial hygienist (IH) must determine the need to perform air sampling for PCBs.

(3) Ensure those personnel who meet the exposure criteria outlined in reference (h), as determined by both cognizant IH and medical examination are placed in the appropriate medical surveillance program.

CHAPTER 26

CHEMICAL-BIOLOGICAL-RADIOLOGICAL-NUCLEAR-EXPLOSIVE (CBRNE)
INCIDENT EMERGENCY PREPAREDNESS AND RESPONSE

- Ref:
- (a) OPNAVINST 3400.10H DON Installation Chemical, Biological, Radiological, Nuclear and High-Yield Explosive (CBRNE) Emergency Response Guidelines, 17 May 2017
 - (b) OPNAVINST 3440.17A, Navy Installation Emergency Management Program, 1 Aug 2014
 - (c) NTTP 3-11.27, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection 02 Jun 2003, with Change 1, 31 Dec 2009
 - (d) Title 29 CFR 1910.120, Subpart Hazardous Materials (Hazardous Waste Operations and Emergency)
 - (e) Homeland Security Presidential Directive/Hspd-8: National Preparedness, 14 Aug 2018
 - (f) Interagency Board for Strengthen Prepare Respond, the Interagency Board FY 2017 Report
 - (g) National Fire Protection Association (NFPA): NFPA 1991, Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies, 2016 Edition
 - (h) NFPA 1994, Standard on Protective Ensembles for Chemical/Biological Terrorism Incidents, 2018 Edition
 - (i) National Fire Protection Association (NFPA): NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2018 Edition
 - (j) National Fire Protection Association (NFPA): NFPA 1951, Standard on Protective Ensembles for Technical Rescue Incidents, 2013 Edition
 - (k) DoD Instruction 6055.05, Occupational and Environmental Health (OEH), 11 Nov 2008
 - (l) NMCPHC Technical Manual OM 6260, Medical Surveillance Procedures Manual and Medical Matrix, Aug 2015
 - (m) Title 29 CFR 1910, Occupational Safety and Health Standards
 - (n) Title 29 CFR 1926, Safety and Health Standards for Construction
 - (o) Prevention and Treatment of Heat and Cold Stress Injuries NEHC-TM-OEM 6260.6A, June 2007
 - (p) Navy Installation Emergency Management Program Manual CNI 3440.17A, 23 January 2006
 - (q) Federal Emergency Management Agency, FEMA, U.S. Fire Administration, Emergency Incident Rehabilitation FA-314, Feb 2008
 - (r) NAVMED P-5010, Chapter 3, Prevention of Heat and Cold Stress Injuries (Ashore, Afloat, and Ground Forces)
 - (s) NAVSUP P-486 Food Service Management General Messes Paragraph,
 - (t) Title 29 CFR 1910.134, Subpart Personal Protective Equipment (Respiratory Protection)

(u) NMCPHC, A Risk Communication Primer—Tools and Techniques

B2601. Discussion

This chapter provides occupational safety and health guidance and direction on responsibilities for protective equipment, heat/cold stress, and the Chemical, Biological, and Nuclear (CBRN) Respiratory Protection Program as they relate to Chemical, Biological, Nuclear, and High Yield Explosive CBRNE incidents. CBRNE incidents, like industrial explosions, fires or release of chemicals, require plans and policies to mitigate loss of life and property.

B2602. Program Requirements

a. Reference (a), provides Department of Navy Installation CBRNE Emergency Response Guidelines.

b. Reference (b) establishes the overall policy, guidance, operational structure, and assignment of responsibilities for developing, implementing, and sustaining a comprehensive all-hazards Emergency Management Program at Navy installations and regions worldwide. By completing the reference (fu) emergency assessment and emergency management planning processes, Group I and II Installations identify CBRN Respiratory Protection Program Managers (RPPMs) and their assistants along with all Category 5 emergency response personnel and their protective clothing/respirator requirements starting with the Regional and Installation Emergency Management Officers, Incident Commanders down through the whole hierarchy of the emergency management plan. See reference (b) for details. See the Glossary for more information on Category 5 emergency response personnel.

B2603. Personal Protective Equipment

a. Navy policy is that activities provide, use and maintain personal protective equipment (PPE) when competent authority determines that its use is necessary and that such use will lessen the likelihood of injuries and/or illnesses. PPE procurement and enforcement of proper use and maintenance is the responsibility of the command, unit, or activity. Equipment breakdown, poor maintenance, or its misuse can immediately expose the worker to the hazard. Many protective devices, through misapplication or improper maintenance, can become ineffective without the knowledge of the wearer and can have potentially serious consequences. For this reason, proper equipment selection, storage, maintenance and employee training including equipment limitations and mandatory enforcement of equipment use, are key elements of an effective PPE program.

b. The level of respiratory and personal protection that a specific responder will require is primarily dependent on the substance(s) of concern and the nature of the task that the responder is assigned to complete during the incident.

(1) In accordance with reference (c), the use of Mission Oriented Protective Posture (MOPP) gear as directed by the Combatant Commander is specified for all military operations during wartime operations by active duty and reserve military personnel. MOPP gear is graded into seven levels of protection. Each higher level of protection is associated with wearing more components of the protective ensemble. The M-50 military respirator is worn during the highest level of MOPP protection (MOPP IV).

Note: MOPP IV is not equivalent to Level C (Class 3) ensembles because the Joint Service Light-Weight Integrated Suit Technology (JSLIST) will not pass penetration testing of National Fire Protection Association (NFPA) 1992 for hazardous industrial materials or the CBRN ensemble requirements for NFPA 1994 penetration testing with chemical warfare agents. Military personnel stationed overseas are permitted to wear MOPP gear, including military gas masks (e.g., M40A1, M50/53, or MCU-A/P) in lieu of level C protection during first response operations only if and when directed by the Theater Combatant Commander. Also see paragraph B2603.d (2).

Warning:

M61 canisters do not provide protection against several toxic industrial chemicals (TICs), such as ammonia, carbon monoxide, carbon dioxide, nitric oxide, nitrogen dioxide and metal carbonyls. Table (26-1), lists the filtration performance of M61 canisters against TICs.

Table 26-1 - Level of Protection Afforded by Nuclear, Biological & Chemical (NBC) Filters for Selected Toxic Industrial Chemicals*

High Hazard	Medium Hazard	Low Hazard
Ammonia – P	Acetone cyanohydrin – M	Allyl isothiocyanate – E
Arsine – E	Acrolein – P	Arsenic trichloride – M
Boron trichloride – E	Acrylonitrile – P	Bromine – P
Boron trifluoride – E	Allyl alcohol – M	Bromine chloride – M
Carbon disulfide – P	Allyl amine – P	Bromine pentafluoride – M
Chlorine – E	Allyl chlorocarbonate – M	Bromine trifluoride – M
Diborane – E	Boron tribromide – M	Carbonyl fluoride – P
Ethylene oxide – P	Carbon monoxide – P	Chlorine pentafluoride – M
Fluorine – E	Carbonyl sulfide – P	Chlorine trifluoride – M
Formaldehyde – P	Chloroacetone – M	Chloroacetaldehyde – M
Hydrogen bromide – E	Chloroacetonitrile – M	Chloroacetyl chloride – M
Hydrogen chloride – E	Chlorosulfonic acid – E	Cyanogen – E
Hydrogen cyanide – E	Crotonaldehyde – M	Diphenylmethane-4 diisocyanate – E
Hydrogen fluoride – E	Diketene – M	Ethyl chloroformate – M
Hydrogen sulfide – E	1,2-dimethyl hydrazine – P	Ethyl chlorothioformate – E
Nitric acid, fuming – P	Dimethyl sulfate – E	Ethylene imine – P
Phosgene – E	Ethylene dibromide – M	Ethylphosphonothioicdichloride – E
Phosphorus trichloride – E	Hydrogen selenide – P	Ethyl phosphonous dichloride – M
Sulfur dioxide – E	Iron pentacarbonyl – M	Hexachlorocyclopentadiene – E
Sulfuric acid – E	Methanesulfonyl chloride – E	Hydrogen iodide – P
Tungsten hexafluoride – E	Methyl bromide – P	Isobutyl chloroformate – M
	Methyl chloroformate – P	Isopropyl chloroformite – M
	Methyl chlorosilane – P	N-butyl chloroformate – M

High Hazard	Medium Hazard	Low Hazard
	Methyl hydrazine – M	Nitric oxide – P
	Methyl isocyanate – P	N-propyl chloroformate – M
	Methyl mercaptan – P	Isopropyl isocyanate – P
	N-butyl isocyanate – M	Parathion – E
	Nitrogen dioxide – P	Perchloromethyl mercaptan – E
	Phosphine – M	Sec-butyl chloroformate – M
	Trichloroacetyl chloride – M	Sulfuryl fluoride – P
	Phosphorus oxychloride – M	Tert-butyl isocyanate – M
	Phosphorus pentafluoride – P	Tetraethyl lead – E
	Selenium hexafluoride – E	Tetraethyl pyrophosphate – E
	Silicon tetrafluoride – P	Tetramethyl lead – M
	Stibine – P	Toluene 2,4-diisocyanate – E
	Sulfur trioxide – M	Toluene 2,6-diisocyanate – E
	Sulfuryl chloride – P	
	Tellurium hexafluoride – P	
	Tert-octyl mercaptan – E	
	Titanium tetrachloride – E	
	Trifluoroacetyl chloride – P	
Legend: Filter Effective (E); Marginally (M); Poor (P).		

*Source: NTTP 3-11.27 (FM 3.11.4), Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, reference (g).

c. Selection of PPE. Selection of the appropriate PPE is a complex process. Key factors involved in this selection process are identification of the hazards, or suspected hazards; their potential routes of exposure to employees (inhalation, skin absorption, ingestion, and eye or skin contact); and the performance of the materials (and seams) in providing a barrier to these hazards. The amount of protection provided is material-hazard specific. Protective equipment materials will protect well against some hazardous substances and poorly, or not at all, against others. In many instances, protective equipment materials cannot be found which will provide continuous protection from the particular hazardous substance. In these cases, the breakthrough time of the chemical through the protective material must exceed the work duration.

(1) Appendix B of reference (d) describes four levels of protective ensembles required for protecting employees working at hazardous waste sites, treatment, storage, and disposal facilities, or performing emergency responses involving hazardous materials. These four levels of protection, which were used to describe CBRN first responder protective ensembles in the previous edition of this chapter are:

(a) Level A is the highest and most protective ensemble selected when the greatest level of skin, respiratory (SCBA), and eye protection is required.

(b) Level B is selected when the highest level of respiratory protection (SCBA) is necessary but a lesser level of skin protection is needed.

(c) Level C is worn when concentration(s) and type(s) of airborne substances are known and the criteria for using air-purifying respirators are met.

(d) Level D is a work uniform affording minimal protection: used for nuisance contamination only - escape only respirators are issued as applicable.

(2) Standards for first responder protective ensembles continue to evolve. According to the Department of Homeland Security Presidential Directive (HSPD) – 8, reference (e), CBRN first responder protective ensembles must comply with nationally-recognized equipment standards such as those from NFPA and National Institute for Occupational Safety and Health (NIOSH). These standards require third-party certification, listing and labeling certified ensemble components. For NFPA standards, several commercial entities are able to provide the appropriate testing and certification, including Underwriters Laboratory and Safety Equipment Institute. For NIOSH respiratory protection certification standards, all testing and approval is provided by the NIOSH National Personal Protective Technology Laboratory. Table 26-2, modified from reference (f), can assist emergency response organizations in transitioning from Level A, B, and C nomenclature to NFPA protection-based standards.

TABLE 26-2 Ensemble Description Using Performance-Based Standards ¹	OSHA/EPA Level
NFPA 1991-2016 (reference (g)) Class 1 vapor-protective ensembles, including totally encapsulating suits with NIOSH CBRN SCBA are designed to provide the highest level of protection against chemical warfare and industrial gases, vapors, liquids, and particulates.	A
NFPA 1994-2012 (reference (h)) Class 2 encapsulating or non-encapsulating protective ensembles are designed to protect emergency first responder personnel at terrorism incidents involving residual vapor/gas or liquid chemical hazards where the concentrations are at or above IDLH and are worn with NIOSH CBRN SCBA.	B
NFPA 1971-2013 (reference (i)) structural firefighting ensembles or proximity firefighting ensembles equipped with NIOSH CBRN SCBA and meeting the additional NFPA 1971 CBRN option to provide protection from CBRN terrorism agents. The performance levels set in the NFPA 1971 CBRN option are based on the Class 2 requirements contained in NFPA 1994-2007.	B
NFPA 1994-2012 Class 3 CBRN protective ensemble consisting of full body one- or multi-piece suit, gloves, and footwear designed to protect emergency first responder personnel at terrorism incidents involving low levels of vapor or liquid chemical hazards where the concentrations are below IDLH permitting the use of CBRN full face air-purifying respirators or CBRN tight-fitting powered air purifying respirators (PAPRs).	C
NFPA 1994-2012 Class 4 CBRN particulate protective ensemble is designed to protect emergency first responder personnel at terrorism incidents involving biological hazards or radiological particulate hazards where the concentrations are below IDLH permitting the use of CBRN full face air-purifying respirators or CBRN tight-fitting PAPRs. The suit and component parts do not offer protection from gases, vapors, or aerosols. Limited liquid protection is offered, primarily to enable wet decontamination.	C
NFPA 1951-2013 (reference (j)) protective ensembles for technical rescue incidents, combined with either a CBRN full face air-purifying respirator or a CBRN tight-fitting PAPR and meeting the additional NFPA 1951 option to provide protection from CBRN terrorism agents. Specific performance levels are consistent with Class 3 requirements established in NFPA 1994-2007.	C

¹ Ensemble Class certifications under these NFPA standards are issued only to complete ensembles. Ensemble certification is voided when ensemble elements (e.g., gloves, footwear) not included in a specific ensemble certification are used with that ensemble, even when the gloves and footwear have been separately and independently certified as compliant with NFPA as individual elements (of a different ensemble). The NFPA CBRN protective ensembles listed in Table 26-2 are certified with specific make/model CBRN respirators.

(3) Navy command, unit, or activity first responders must wear protective ensembles compliant with the NFPA standards in Table 26-2 with the exception of Class 3 Ensembles

designed so that the respirator canister must be connected to the respirator through a pass-through opening in the suit hood visor. This non-approved configuration negates the NIOSH certification. Therefore, the Navy must not purchase or wear this type of protective ensemble unless the respirator is submitted to and passes NIOSH approval with the protective ensemble as part of the complete respirator assemblage.

d. Notable Exemptions

(1) It is permissible for Navy civilians in the DoD Civilian Expeditionary Workforce, who deploy in support of military combat operations, to be issued MOPP gear. Reference (k) requires that members of the DoD Civilian Expeditionary Workforce must be organized, trained, cleared, equipped, and ready to deploy in support of military combat operations. This includes medical evaluation to ensure these DoD civilians are medically fit for deployment and will include medical evaluation for wearing any type of respiratory protection, including military gas masks (e.g., MCU-2A/P, M40, and M50/53). Medical evaluation for Navy civilians in the DoD Civilian Expeditionary Workforce are established in the OCONUS Deployment Medical Examination (program #798) of reference (l). For personnel needing vision correction, a written prescription must be provided to the supporting military medical component so that eyeglass inserts for use in a compatible military gas mask can be prepared.

(2) Where the safety and health of the contractor's employees are affected, references (m) and (n) specify that the contractor is responsible directly to Occupational Safety and Health Administration (OSHA) or appropriate state office where OSHA has approved a state plan.

(a) In accordance with Chapter 15, paragraph B1502.b.1 of this Manual contractors are responsible for providing their own respiratory protection programs and respiratory protective equipment.

(b) Certain contractors are authorized to accompany the force (CAAF) in order to provide support to deployed military contingency operations (e.g. transporting munitions and other supplies, performing maintenance functions for military equipment, and providing private security services, etc.). In accordance with reference (o), under the terms and conditions of their contracts, defense contractors must provide medical examination and clearance (i.e., certification) to ensure that CAAF personnel are medically and physically qualified to perform duties, in applicable contingency operations, including wearing MOPP gear, when necessary. This medical and physical qualification must follow the guidelines established in the OCONUS Deployment Medical Examination (program #798) of reference (g) and will include medical evaluation for wearing any type of respiratory protection, including military gas masks (e.g., MCU-2A/P, M40, M50, etc.). For personnel needing vision correction, reference (o) requires that a written prescription must be provided to the supporting military medical component so that eyeglass inserts for use in a compatible military gas mask can be prepared.

B2604. Category 5 Emergency Responder Training

Category 5 emergency response personnel are the backbone of an effective emergency response and they must be well trained in operations and procedures that will enable them to work as safely as possible. For job specific training requirements see *Section 1: Emergency Management Program Standards, Standard 8: Training* of reference (p). See paragraph B2608 for respiratory protection program training requirements.

B2605. Heat and Cold Stress

Mandatory levels of protection for first responders require full or partially encapsulating ensembles of PPE. Protective ensembles can rapidly become hot, heavy, and restrictive, even with mild activity. As heat and sweat accumulate, they become first a discomfort, then a distraction that could impair job performance, and finally a serious and possibly life-threatening heat-related injury or illness.

a. The IC should consider the circumstances of each incident and make suitable provisions for rehydration and cooling of members operating at the scene (reference (q)). These considerations should include fluid replenishment, appropriate limitations of heat and cold stress exposure (“stay times”), and medical evaluation and treatment. The command structure should be utilized to request relief and reassignment of fatigued members and of members over-exposed to heat or cold stress. References (o) and (r) have guidance on limiting heat and cold stress exposure. All those responsible for determining exposure of personnel to heat or cold stress should be familiar with that guidance. Heat exposure stay times and cooling/warming rest periods should be carefully followed as much as possible. Heat or cold stress should be considered by the IC when establishing hydration and rehabilitation including specific areas outside of the hot or warm zone for cooling or warming. CBRN air-purifying respirator procurement decisions should include hydration capability. Hydration via respirator drinking tubes must only be accomplished as directed by the Incident Commander in a manner that prevents contamination from entering the respirators.

b. Responders regularly exposed to heat stress (i.e., not just when there is a fire) should be enrolled in the heat stress surveillance program in accordance with reference (l).

(1) Medical monitoring. Changes in gait, speech, or behavior that require entry personnel to undergo immediate decontamination, doffing of protective clothing, and assessment should be monitored. If entry personnel complain of chest pain, dizziness, shortness of breath, weakness, nausea, or headache, they should undergo immediate decontamination, doffing of protective clothing, and assessment.

(2) The IC should also be aware that post-entry medical monitoring procedures based upon potential chemical exposures are also recommended for any first responder requiring medical treatment.

c. There are only two effective methods of preventing heat stress related illness -limited stay times and cooling equipment.

(1) The preferred method is limited stay times with rehabilitation periods built into the crew rotations. The maximum recommended length of an excursion into a “hot zone” while wearing Level A (Class 1) or Level B (Class 2) PPE may be significantly less than rated SCBA bottle life depending on equipment limitations and depth of exclusion zone. This limited time takes into account the time to enter and begin work mitigating the incident, travel back to the decontamination line and time to process through decontamination. The main reason for the limited time is the finite time of the supplied air in the SCBA and assumes an SCBA bottle rated for 60 minutes.

(2) The second method, cooling equipment, is also effective, but there are several drawbacks. First the equipment itself adds weight and limits movement. Next, unless the equipment comes with a power source, the cooling medium will warm to the skin temperature over time and thus not cool at all but become extra weight/insulation to the wearer. Finally, cooling equipment may give a false “sense of security” because the equipment cools the skin surface but does not prevent a gradual increase in the core body temperature of the wearer. Core body temperature, not skin surface temperature, is the primary factor in heat stress. The best method of combating these drawbacks is to maintain the limited entry time standard for the entry crew. Heat stress exposure guidelines are found in reference (r).

d. Reference (q) recommends these summary guidelines to prevent heat stress, and fatigue among first responders:

(1) Rehabilitation. Incident command staff officers should consider the establishment of rehabilitation areas during the initial planning stages of an emergency response.

(2) Hydration. A critical factor in the prevention of heat injury is the maintenance of water and electrolytes.

(3) Nourishment. In accordance with reference (s), and NAVSUP Notice 7330, if the Commanding Officer has declared an emergency, or disaster exists, emergency feeding may be set up for emergency responders.

(4) Rest. Members should rehydrate (at least eight ounces) while SCBA cylinders are being changed.

(5) Recovery. Members in the Rehabilitation Area should maintain a high level of hydration.

e. Medical Evaluation.

(1) Medical Response Group. The Medical Response Group will provide qualified personnel to evaluate vital signs, examine members, and make proper disposition (return to duty, continued reconstitution, or medical treatment and transport to medical facility).

B2606. Confined Space Entry. Entry into a confined space must not be performed during a CBRNE incident without the order of the IC. All confined space entries will be conducted in accordance with Chapter 27 of this Manual.

B2607. CBRN Respiratory Protection Program

a. Reference (t) requires that a respiratory protection program be established where respiratory protection is necessary to protect employees against inhalation hazards. The CBRN Respiratory Protection Program includes all elements of the respirator program described in reference (t) and Chapter 15 of this Manual. This chapter contains additional requirements for respirator selection; respirator use and limitations; respirator inspection, cleaning, and decontamination; respirator training; fit testing; program evaluation; and respirator cartridge change out schedules.

b. The RPPM having cognizance over the first responders will be assigned as the CBRN RPPM. At commands, units, and activities where there is no RPPM, the Commanding Officer will appoint an RPPM to manage the CBRN Respirator Protection Program. Alternatively, they may also obtain RPPM services from another command, unit, or activity via an inter-service support agreement. RPPMs may have as many assistants as necessary to implement the respirator program. All of the prerequisite requirements for wearing respiratory protection, including medical evaluation, respirator selection, fit testing, and training, must be completed prior to responding to a CBRNE incident.

c. CBRN-Specific Respiratory Protection Program Elements.

(1) Respirator Selection. Respirator selection for first responders is based on the same principles discussed in Chapter 15, paragraph B1507.c. of this Manual and as directed by the IC. Should it become necessary to respond to incidents involving CBRN agents, only NFPA CBRN protective ensembles listed in Table 26-2 must be worn. NFPA CBRN protective ensembles are certified with specific make/model CBRN respirators. Purchasers and users of NFPA certified CBRN protective ensembles are encouraged to visit the NAVSEA CBR-Defense Web site (<https://www.navsea.navy.mil/>) for specific information on currently approved and fielded CBRN protective ensembles and associated respirators. Points of contact for assistance in ordering CBRN respirators that are required components of NFPA certified ensembles are also available at the NAVSEA CBR-Defense Web site under Organizations/NAVSEA & NAVAIR Points of Contact/Personal Protective Equipment. NIOSH approved CBRN respirators are listed on the NIOSH Certified Equipment List (http://www2a.cdc.gov/drds/cel/cel_form_code.asp).

(a) NIOSH CBRN approved SCBA. NIOSH CBRN approved SCBA service life must be rated for 60 minutes. See “NFPA 1981 Compliant SCBA” in the Glossary for more information on NIOSH CBRN SCBA approval requirements.

(b) NIOSH CBRN approved full face air-purifying respirators.

(c) NIOSH CBRN approved full-face Powered Air Purifying Respirators (PAPRs). The [NIOSH CBRN PAPR approval standard](#) sets forth CBRN approval criteria for both tight-fitting PAPRs and loose-fitting PAPRs. NIOSH classifies both full face CBRN PAPRs and tight neck-sealing hooded CBRN PAPRs as [tight-fitting PAPRs](#). Tight-fitting CBRN PAPRs were designed for first responders, are equipped with canisters, and receive approval under the *Gasmask Approval Schedule 14G*. Loose-fitting CBRN PAPRs were designed for hospital first receivers, are equipped with cartridges, and are approved under the *Chemical Cartridge Respirator Approval Schedule 23H*.

(d) If determined through the operational risk management process that command, unit, or activity personnel require CBRN escape only respirators, then only NIOSH CBRN approved escape respirators may be issued. Currently, all NIOSH CBRN approved escape respirators are air-purifying devices and not air-supplied, therefore they will not provide protection against oxygen deficient atmospheres. Hooded CBRN approved escape only respirators are not fit tested.

(2) Use and Limitations.

(a) NIOSH CBRN approved SCBA must not be used beyond six hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation.

(b) NIOSH CBRN approved air-purifying respirators must not be worn into IDLH atmospheres or atmospheres containing less than 19.5% oxygen. They must not be used beyond eight hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation. If liquid exposure is encountered, the respirator must not be used for more than two hours.

(c) A limitation of both tight- and loose- fitting CBRN PAPRs is that neither is intrinsically safe because of the powerful batteries needed to pull contaminated air through the large amount of sorbent materials used in the canisters and cartridges. Therefore, CBRN PAPRs must not be worn in flammable atmospheres.

(d) Additional limitations of NIOSH CBRN approved respirators are addressed further on the NIOSH approval labels and in respirator manufacturers’ instruction manuals. All of these limitations must be understood by all personnel in the CBRN respirator program and by personnel implementing this program.

(3) Inspection, Cleaning, Decontamination, and Storage.

(a) Inspection. Manufacturer's instructions will be used for inspecting full-facepiece air purifying respirators, powered air purifying respirators (PAPRs) and SCBA. In accordance with paragraph (h) of reference (t), since these respirators will be used for emergency use, they must be inspected monthly and a written inspection record will be maintained for the life of the respirator. Employees must inspect their respirators for serviceability prior to donning them. They are also responsible for ensuring that cartridges are inserted correctly into the respirator (e.g., not cross threaded). Defective or dirty respirators must not be used.

(b) Cleaning and Decontamination. Respirator cleaning procedures are covered in Chapter 15. Respirators exposed to contaminants must be properly decontaminated. Decontamination requirements are specified in Navy Shore Installation Emergency Management Program, reference (b). Guidelines for decontaminating emergency response personnel and their equipment after exposure to hazardous materials, and for planning for decontamination before an incident occurs are in reference (p). If contaminated with liquid chemical warfare agents, dispose of the respirator after decontamination.

(c) Storage. CBRN gasmasks and tight-fitting PAPRs must be stored in the manufacturer-specified minimum packaging configuration (MPC) to maintain their NIOSH certification. Examples of minimum packaging configurations include hard plastic carriers, clamshell containers, canvas carry bags, drawstring plastic bags, and sealed canister bags. Each manufacturer has unique MPC requirements. The manufacturer's user instructions and the NIOSH full approval label will identify the MPC.

(4) Fit Testing. Personnel wearing tight-fitting respirators must be quantitatively fit tested by activities initially and annually thereafter according to the OSHA accepted quantitative fit testing methods and procedures set forth in Appendix A of reference (t). Positive pressure respirators will be fit tested in the negative pressure mode by either converting the facepiece into a negative pressure air-purifying respirator or using a surrogate negative-pressure air-purifying respirator made by the same manufacturer and having identical sealing surfaces and facepiece materials. When fit testing tight neck- sealing CBRN hoods, the requirements for full facepiece respirators must be used. Employees will not be fit tested unless they have been medically evaluated.

(5) Program Evaluation.

(a) On-Scene Inspections. The incident Safety Officer will conduct frequent inspections of the incident site to ensure that the correct respirators are being used, are being worn properly, and are in good working condition. The Incident Safety Officer will convey this information to the CBRN RPPM, who will maintain a record of inspection dates and findings.

(b) Periodic program audits are performed according to Chapter 15, paragraph B1513 of this Manual. Also see this Web site (<https://www.med.navy.mil/sites/nmcphc/Pages/Home.aspx>) for further guidance on program evaluation.

(6) CBRN Gas Mask Canister Interchangeability. NIOSH requires that CBRN gasmask canisters all have 40 mm threads so that they are interoperable between different manufacturers' makes and models of CBRN gasmasks. Using a CBRN gasmask with a canister from a different manufacturer voids the NIOSH approval and this practice is in violation of the OSHA Respirator Standard. However, NIOSH incorporates this provision to help alleviate logistical complications caused by potential shortages of canisters for a specific manufacturer's respirator at emergency response scenes involving large numbers of first responders. In these situations, several different brands of gasmasks may be used and this provision allows for interchanging canisters when the incident commander decides it is appropriate. CBRN gasmask canister interoperability is only allowed when authorized by the incident commander; when the CBRN canister being used in place of the original canister is of the same capacity as the one approved with the respirator being used, (e.g., both canisters are CAP 1); and this interoperability provision only applies to CBRN gasmask canisters - IT DOES NOT APPLY TO CBRN PAPR CANISTERS OR CARTRIDGES.

(7) Respirator Cartridge Change-Out Schedules.

(a) In recovery situations only, where exposure levels are known, chemical cartridge air-purifying respirators may be used (up to their maximum use concentration) for protection against gases and vapors including substances without good warning properties, as long as a cartridge change-out schedule is developed and implemented.

(b) In the absence of industrial hygiene air sampling data, CBRN full face air-purifying respirator canisters used by security guards and PAPR cartridges must be changed after every eight-hour shift. CBRN full face PAPR canisters used by personnel assigned to secondary decontamination stations and by security guards stationed at the decontamination corridor must be changed every two and a half hours; Military gas mask canisters, when MOPP gear is allowed to be worn by the Theatre Combatant Commander, must be changed according to reference (g). More detailed information on respirator cartridge/ canister change out schedules, including a method for validating estimated change out schedules, is provided in articles addressing this issue on the Navy and Marine Corps Public Health Center respirator homepage located at this Web site address: http://www.nmcphc.med.navy.mil/Occupational_Health/

B2608. Training

a. CBRN RPPM must complete the NAVOSHENVTRACEN Navy RPPM Course A-493-0072. The A-493-0072 Course includes CBRN respirator training and quantitative fit testing, including a hands on quantitative fit testing workshop.

b. First responders, their supervisors, and persons who issue and/or maintain respirators must be trained on the aspects of respiratory protection specified in Chapter 15, paragraph B1511 of this Manual, as they specifically relate to wearing respirators for protection against CBRN agents during first response to CBRN terrorist attack (see paragraph B2608.(a)).

Additional first responder training requirements are located in paragraph B2604.

B2609. Risk Communication

a. Risk Communication requirements are specified in Navy Shore Installation Emergency Management Program, reference (b). In addition, the Navy and Marine Corps Public Health Center “Risk Communication Primer: A Guide for Conveying Controversial or Sensitive Environmental, Health and Safety Information to a Concerned Audience,” reference (u) is a useful tool for use by commanding officers, public health officials, emergency response personnel, medical personnel and safety, and health and environmental personnel.

B2610. Responsibilities

a. Navy Shore Installation Commanders, Commanding Officers, and Officers in Charge must provide these support capabilities:

(1) Emergency Planning Management Team, whereby the designated safety representative:

- (a) Participate in planning for selection of personal protection equipment.
- (b) Participate in planning for emergency equipment acquisition and review.
- (c) Assist in integrating safety into training plans (formal and exercise).
- (d) Participate in preparing hazard and risk communication plans.
- (e) Participate in vulnerability assessments.
- (f) Participate in preparing plans for notification/recall of essential personnel.
- (g) Participate in communication of emergency plans.

(h) Participate in development of Navy policy and doctrine, for Tactics, Techniques, and Procedures (TTP).

(i) Participate in risk analysis and threat assessments.

(j) Ensure employees who respond to CBRNE incidents are appropriately enrolled in medical surveillance and respiratory protection programs.

(k) Emergency Response, whereby the designated safety representative:

(l) Participate in development of site-specific Health and Safety Plans (HASP).

(m) Serves as Incident Command System, Regional Operations Center (ROC) representative and Emergency Operating Center (EOC) safety representative.

b. Chief, Bureau of Medicine and Surgery (BUMED) must provide all commands, units, and activities with technical industrial hygiene and occupational medicine response capability to support installation emergency responders.

(1) Industrial hygiene technical representatives must:

(a) Emergency Planning Management Team, whereby the industrial hygiene representative:

1. Provide industrial hygiene support including consultation on such issues as hazardous materials, chemical detection and identification, and personal protective equipment.

2. Provide technical assistance on decontamination planning.

3. Assist, in the development of health risk communication plans for shore installations.

4. Participate in medical surveillance planning.

5. Participate in collective protective shelter system planning.

6. Provide risk assessment interpretation and maintenance of record of exposure documentation.

7. Conduct review and implementation of exposure monitoring plans.

8. Provide PPE evaluation in relation to incident.

(b) Emergency Response. Regional response capabilities must be implemented to provide a high level of analytical and risk assessment capabilities that will focus on hazard recognition exposure level determination and risk assessment guidance. Where technical industrial hygiene support exists on the installation, the existing industrial hygiene support must:

1. Provide consultation before and during an incident on the capabilities and limitations of CBRN detection methods and the interpretation of monitoring data.
2. Participate in the interpretation and communication of sampling and monitoring information provided by detection equipment.
3. Provide technical IH reach back support to the emergency operations center where coordination with the Incident Command Safety Officer will help to ensure a comprehensive health and safety plan is developed and that health risk is well communicated to the Incident Commander (IC).
4. Participate in monitoring collective protective shelter systems.

(2) Occupational Medicine Support. (See Chapter 8, paragraph B0805 for further detail)

Note: Military personnel, who have been confirmed by their command, unit, or activity as having no deployment limiting medical conditions, and with a current annual Periodic Health Assessment in accordance with SECNAVINST 6120.3 Chapter 1 are considered medically qualified to wear any type of respiratory protection.

d. Navy Safety & Health Environmental Training Center (NAVSAFENVTRACEN) must provide CBRN respirator training through course number A-493-0072 and must ensure the course content remains current.

CHAPTER 27

CONFINED SPACE ENTRY (CSE) PROGRAM (NON-MARITIME)

- Ref:
- (a) Title 29 CFR 1910.146, Subpart General Environmental Controls (Permit-Required Confined Spaces), Occupational Safety and Health Standards
 - (b) NAVSEA S6470-AA-SAF-010, REV 04, Naval Maritime Confined Space Program, Jan 2016
 - (c) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (d) NAVSEA S9086-CH-STM-030/CH-074, Naval Ships Technical Manual, Gas Free Engineering
 - (e) NAVAIR 01-1A-35, Maintenance Instructions Organizational, Intermediate and Depot, Aircraft Fuel Cells and Tank Confined Spaces
 - (f) Title 29 CFR 1926, Safety and Health Standards for Construction

B2701. Discussion

a. Confined spaces are enclosures that have limited means of entry and exit, and although they are large enough to get into, they are not designed for continuous employee occupancy. Examples include storage tanks, pits, vaults, vats, water towers, chemical reactors, process vessels, and manholes.

b. This Manual explains the minimum requirements for an acceptable written, site-specific confined space program in situations where a conflict exists, the most restrictive requirement prevails. This chapter establishes Navy policy and minimum procedures for confined space operations under the requirements of reference (a) for general industry and standards that have been incorporated by reference that are listed in Appendix B27-A.

B2702. Applicability

a. The provisions of this chapter apply to all Navy personnel performing entry into permit-required confined spaces. This chapter does not apply to construction or shipyard employment (except as noted).

b. Naval maritime facilities (NMF) such as naval shipyards, Ship Repair Facilities (SRFs), Regional Maintenance Centers (RMCs), Intermediate Maintenance Facilities (IMFs), Trident Refit Facilities (TRFs), and other Navy commands, units, and activities (including Navy shore non-maritime commands, units, and activities as well as ship's force during maintenance availabilities) that perform shipbuilding, ship repair, or ship breaking are governed by reference (b).

(1) NMF personnel entering land side permit-required confined spaces to perform work related to shipbuilding, ship repair, or ship breaking are governed by reference (a). All other entry into permit-required confined spaces will follow the requirements of this Manual.

(2) Navy shore non-maritime commands, units, and activities (such as NAVAIR VRTs and NSWCs) performing ship repair operations must comply with reference (b) Except that those commands, units, and activities Confined Space Program Manager (CSPM) will perform applicable training, administrative duties, and responsibilities applicable to reference (a) requirements. Navy Competent Person duties must be performed by personnel who have completed the training and OJT specified in reference (b). Except that the amount of required shipbuilding, ship repair, or ship breaking experience and OJT may be limited to the appropriate types of operations to be performed by the command, unit, or activity as determined by the CSPM and verified by the NMF GFE or Maritime CSPM where work is to be performed. A certified NFPA Marine Chemist or Board Certified Navy GFE must still be used as required by chapter B8 of reference (c).

c. Gas free engineering operations for ship's force personnel aboard Naval ships afloat are governed by reference (d).

d. Aircraft fuel cell requirements are found in reference (e).

B2703. Program Management

a. Commanders, commanding officers, or officers in charge are ultimately responsible for all safety and health issues at their commands, units, and activities. In cooperation with other members of their management team, they must provide continuing support, both motivational and financial; to ensure that an installation's confined space entry program remains effective. They must appoint a qualified CSPM.

b. The CSPM is the only person authorized to amend an installation's confined space program. They have the full authority to make necessary decision to ensure the program's continued success.

c. The CSPM must successfully complete course number A-493-0030, Confined Space Safety, conducted by the Naval Occupational Safety and Health and Environmental Training Center (NAVSAFENVTRACEN), or equivalent. The command, unit or activity OSH office must keep verification of such training on file along with the written appointment to the position. In addition to formal classroom training, the command, unit, or activity must establish a proficiency program to ensure that the CSPM possess the understanding, knowledge, and skill necessary for the safe performance of their duties. The evaluation must be in writing and document any findings/recommendations as result of the evaluation. The command, unit, or activity must take actions based on the evaluation to ensure the safe performance of the duties of the CSPM. The confined space program evaluation must be performed within 6 months of appointing the CSPM, and as part of the periodic echelon 2 Safety and Occupational Health Management Evaluation (SOHME).

d. The CSPM has the authority to appoint additional personnel as necessary to perform duties in support of the confined space program as listed:

(1) Assistant Confined Space Manager (ACSPM). The ACSPM must meet the same qualifying criteria as the CSPM. The CSPM must appoint the ACSPM in writing.

(2) Qualified Person (QP). A Qualified Person is a person who has received formal classroom or proficiency training conducted by the CSPM or ACSPM, must perform duties as assigned by the CSPM or ACSPM. The CSPM must appoint the QP in writing. The QP must be re-appointed annually by the CSPM through demonstration that the individual has been actively engaged in confined space work (i.e. performed atmospheric testing in confined spaces at least 10 times per year) and has performed such work satisfactorily. QPs who have not been actively engaged in confined space work will be evaluated by the CSPM and be able to demonstrate their knowledge, skills, and abilities prior to re-designation by the CSPM.

e. Tenant commands, units, and activities or shore installations participating in a command, unit, or activity safety and occupational health (SOH) program may have the command, unit, or activity CSPM manage and administer the program through a written agreement signed by both parties. In situations where a number of commands, units, or activities that are working in the same confined space and have their own program requirements, the installation that owns the confined space must take the lead to coordinate between all parties the applicable confined space requirements through a written agreement and signed by all parties.

B2704. Entry Options. Three options are available with respect to entry into permit-required confined spaces:

a. Reclassify a permit-space as a non-permit space in accordance with paragraph B2707.

b. Implement alternative procedures that require continuous forced mechanical ventilation and continuous air monitoring in situations where the only hazard posed is an atmospheric hazard which can be controlled by ventilation,

c. Establish a permit-entry procedure, which includes provisions for:

(1) Designate authorized entrants, authorized attendants, and authorized entry supervisors as described in paragraph B2708.

(2) Implement a process for issuing, canceling, reviewing and archiving written entry permits as described in paragraph B2708.

(3) Provide for emergency rescue services as described in paragraph B2709.

(4) Implement, if necessary, procedures for entry into atmospheres that are immediately dangerous to life or health (IDLH), as described in paragraph B2710.

B2705. Identification of Confined Spaces. The written program will describe the process the installation will use to identify on-site confined spaces. The process must ensure that both permit and non-permit spaces are identified.

B2706. Reclassification Procedures. If a permit space poses no actual or potential atmospheric hazards prior to entry, and if all the other hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated. The command, unit, or activity written program must describe the process used for reclassification of permit-required confined spaces. At a minimum this process must include provisions for:

- a. Explaining the basis for determining that the permit space poses no actual or potential atmospheric hazards and that all other hazards can be eliminated without the need to enter.
- b. Issuing an “entry certificate” that contains the date, the location of the space, atmospheric test results, and the signature of the person making the determinations described within Chapter 27.
- c. Making sure an “entry certificate” is made available and posting it at the site so that each employee entering the space or the employee's authorized representative can be informed of the hazards and conditions of the space.
- d. The entry certificate is only valid for a period of time as determined by the CSPM.
- e. Canceled entry certificates will be retained for at least 1 year to facilitate the review of the permit-required confined space program-

B2707. Permit-Required Program Elements. A permit--will be entered under the auspices of a written, site-specific, entry permit procedure, which at a minimum, describes the process for: Appendix B27-B provides minimum requirements for entry permits.

- a. Issuing, canceling, reviewing and archiving entry permits.
- b. Designating employees authorized to participate in the entry, including entrants, attendants, and entry supervisors.
- c. Rescue response planning, including the process used to identify, evaluate, and select a rescue service provider.
- d. Establishing procedures for entry into atmospheres that are immediately dangerous to life or health.

B2708. Permit System. The written program will include an explanation of the process used for issuing, canceling, reviewing and archiving entry permits. The process will include provisions that require that:

a. The Entry supervisor sign issued permits indicating that all specified precautions have been taken, that conditions are acceptable for entry and that authorized entrants may proceed into the space.

b. The duration of the permit does not exceed one shift or the time required to complete the assigned task or job identified on the permit, whichever is less. A system can be established to allow an original permit to be amended in order to keep the permit current with entry team members and their activities.

c. A new permit will be issued or the original permit re-issued whenever changing work conditions or work activities introduce hazards into the confined space that were not addressed by the original permit.

d. Completed permits be made available at the time of entry to all authorized entrants or their authorized representatives, by posting at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry hazards have been controlled. Any problems encountered during an entry must be noted on the permit so that appropriate revisions to the confined space program can be made.

e. Canceled permits be retained for at least 1 year to facilitate the review of the permit-required confined space program Permits that contain atmospheric testing information that constitutes an employee exposure record will be maintained for the employee's duration of employment plus 30 years as stipulated by 29 CFR 1910.1020.

B2709. Rescue Procedures. The written, site-specific plan will describe the process used to:

a. Credible scenarios that may require rescue.

b. Identify potential providers of rescue services.

c. Evaluate the capabilities of potential rescue service providers to assure that they are capable of providing timely rescue services consistent with the nature of the anticipated emergencies, and are in fact able to rescue incapacitated entrants from the space.

d. Develop procedures for summoning rescue services.

e. Provide necessary aid to rescued employees.

B2710. Procedures for Entry into IDLH Atmospheres. Entry into, work in, or on a confined space that is immediately dangerous to life and health (IDLH) will not be permitted under normal operations and is only authorized in cases of rescue efforts and extreme emergencies. The written program will describe the site-specific procedures that are followed when entry must be made into spaces that are immediately dangerous to life and health (IDLH). These procedures will include provisions for ensuring that:

- a. Installation commanders, commanding officers officers in charge or their designees are notified, specifically to authorize the entry into the IDLH atmosphere and provide necessary assistance appropriate to the situation.
- b. One employee or, when needed, more than one employee, is located outside the IDLH atmosphere during entry.
- c. Visual, voice, or signal line communication is maintained between the employees in the IDLH atmosphere and those located outside the IDLH atmosphere.
- d. The employees located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.
- e. Employees located outside the IDLH atmospheres are equipped with:
 - (1) Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA.
 - (2) Appropriate retrieval equipment for removing the employees who enter these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employees and would not increase the overall risk resulting from entry; or provide equivalent means for rescue where retrieval equipment is not feasible.

B2711. Hot Work. The written program will either describe the process used to control hazards associated with hot work, or refer to the installation's hot work program. If reference is made to the installation's hot work program, the CSPM will evaluate that program to determine if it meets the requirements necessary to allow it to be used for confined space entry. Minimum work practices that the hot work program will address are described in Chapter 5 of reference (gi).

B2712. Employee Training. Employees who enter confined spaces will possess the understanding, knowledge, and skill necessary for the performance of their duties as described in appendix B27-C. The written program will explain the process the installation uses to ensure that employees are trained and have demonstrated proficiency in confined space entry. Training will be documented and records kept in accordance with Chapter 6 of this Manual.

B2713. Contractor Management Provisions

a. Whenever contractors perform work in an installation's confined spaces, the job will be coordinated so that neither the contractor nor the installation's employees jeopardize each other's safety. The written installation's program will describe the process for managing work contractors perform in the installation's confined spaces. At no time will contractor personnel enter a confined space under the installation's permit or certification. If contractor personnel and Navy personnel occupy the same space certification will be for Navy personnel only and stated so on the permit or certificate.

b. Construction Operations. Construction contractors who enter confined spaces at naval facilities must have a written confined space program that meets the minimum requirements prescribed by reference (f).

c. Trenches and Excavations. Although trenches and excavation appear to meet the definition of a permit-space, specific trenching and excavation regulations more appropriately address the hazards they pose. However, since hazards posed are similar to those associated with confined space entry, procedures must exist that address such things as atmospheric testing, ventilation, and emergency response planning. A separate site-specific trenching and excavation policy rather than the installation's confined space program should address entry into trenches and excavations.

d. Telecommunication, and Electrical generation, distribution and transmission
This section applies to operation conducted in manholes, un-vented vaults or any other confined space covered under reference (f).

e. Confined space operations conducted on a Naval Maritime Facility or ship repair operations at any location must comply with paragraphs B2702.b, except;

(1) If a space contains or has contained liquids, gases, or solids that are toxic, corrosive, or irritant and cannot be ventilated to within the PELs or is IDLH, a certified NFPA Marine Chemist, a Board-Certified Navy GFE, or Certified Industrial Hygienist must re-test the space until the space can be certified SAFE FOR ENTRY or SAFE FOR ENTRY WITH PPE.

(2) In situations that apply to paragraph B2702.b, the CSPM or appointed representative will be trained and knowledgeable of reference (a) procedures that are applicable to the operations being performed.

B2714. Program Evaluation. The CSPM or other appointed qualified person will evaluate the effectiveness of the installation's confined space program at least annually and whenever there is reason to believe that the program may not providing adequate protection to employees. The purpose of this evaluation is to identify program deficiencies and correct them before authorizing

subsequent entries. The site-specific written program will describe the process used for conducting and reviewing the installation's confined space program.

B2715. Responsibilities

a. CSPM's must:

(1) Ensure a survey to identify existing and potential confined spaces on a base can be conducted.

(2) CSPM must appoint the QP in writing.

(3) Reclassify spaces as "non-permit required" in accordance with the Command, units, or activities written program.

(4) Review and approve the purchase of equipment required for confined space entry.

(5) Ensure, to the extent feasible, that entry permits/entry certificates are reviewed on a periodic basis sufficient to allow identification of problems that could compromise the confined space entry program, and to assure that identified deficiencies are investigated and corrected prior to subsequent entry into the installation. This includes work performed by independent contractors.

b. Assistant Confined Space Program Manager (ACSPM). The ACSPM may be authorized to perform duties equivalent to those of the CSPM. The CSPM must delineate in writing the specific duties and responsibilities of the ACSPM.

c. Qualified Person (QP) must:

(1) Perform atmospheric testing and inspecting for physical hazards in confined spaces.

(2) Determine whether acceptable entry conditions exist, authorizing the entry, overseeing entry operations, terminating the entry, and canceling the entry permit.

(3) The QP must be re-appointed annually by the CSPM through demonstration that the individual has been actively engaged in confined space work (i.e. performed atmospheric testing in confined spaces at least 10 times per year) and has performed such work satisfactorily.

(4) QPs who have not been actively engaged in confined space work will be evaluated by the CSPM and be able to demonstrate their knowledge, skills, and abilities prior to re-designation by the CSPM.

d. Attendants, Authorized Entrants, and Entry Supervisor duties and responsibilities are specified in Appendix B27-C.

APPENDIX B27-A

STANDARDS INCORPORATED BY REFERENCE

Occupational Safety and Health Administration
Government Printing Office <http://www.gpo.gov>
General Industry Standard 29 CFR 1910.146, Permit-required confined space
Shipyard Industry Standard 29 CFR 1915 Subpart B – Confined and Enclosed Spaces and Other
Dangerous Atmospheres in Shipyard Employment
Construction Industry Standards 29 CFR 1926 Final Rule 4 May 2015
National Fire Protection Association, NFPA 350, Guide for Safety Confined Space Entry and
Work, 2016 Edition, <http://www.nfpa.org>
Battery March Park
Quincy, MA
<http://www.nfpa.org>
American National Standards Institute, ANSI/ASSE Z117.1 – 2016 Safety Requirements for
Entering Confined Spaces
Instrument Society of America
American Petroleum Institute Washington, DC
<http://www.api.org>
EM-385-1 U.S. Army Corps of Engineers Safety and Health Requirements Manual,
http://140.194.76.129/publications/eng-manuals/em385-1-1/2008_English/toc.html
Information on hazards of chemicals can be found in the National Institute for Occupational
Safety and Health (NIOSH) Pocket Guide to Chemical Hazards,
<https://www.cdc.gov/niosh/npg/default.html>

APPENDIX B27-B

ENTRY PERMIT/CERTIFICATE MINIMUM REQUIREMENT

Entry Permit/Certificate Minimum Requirements

Confined space entry permit/certificate must minimally contain the listed information in accordance with 29 CFR 1910.146:

1. The permit/confined space entered.
2. The purpose of the entry.
3. The date and the authorized duration of the entry permit/certificate.
4. The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space.

NOTE: This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.

5. The personnel, by name, currently serving as attendants.
6. The individual, by name, currently serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry.
7. The hazards of the permit space to be entered.
8. The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;

NOTE: Those measures can include the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.

9. The acceptable entry conditions.
10. The results of initial and periodic tests performed, accompanied by the names or initials of the testers and by an indication of when the tests were performed.
11. The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services.

12. The communication procedures used by authorized entrants and attendants to maintain contact during the entry.
13. Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this section.
14. Any other information whose inclusion is necessary, given the circumstances of the particular confined space, in order to ensure employee safety.
15. Any additional permits, such as for hot work that have been issued to authorize work in the permit space.
16. Include a section for reclassification/or alternative entry procedure to allow for explanation for basis of downgrading the permit for personnel entry.

APPENDIX B27-C

DESIGNATION OF EMPLOYEES

1. Supervisors. Supervisors will cancel permits if a condition not allowed under the permit arises in or near the permit space and remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations. Consequently, they will either remain at the space for the duration of entry, or they must transfer that authority to a new attendant. The latter is possible only if the new attendant possesses the requisite knowledge and skill to act as the supervisor under conditions present at the time of the entry. The supervisors' responsibilities will include:

a. Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposures.

b. Verifying, by checking the permit, that all tests the permit specifies have been conducted and that all procedures and equipment the permit specifies are in place before endorsing the permit and allowing entry to begin.

c. Terminating the entry and canceling the permit when the entry operations covered by the permit have been completed, or when a condition that is not allowed under the entry permit arises in or near the permit space.

d. Verifying that rescue services are available, and that the means for summoning them are operable.

e. Removing unauthorized individuals who enter or who attempt to enter the permit space during entry operations.

f. Determining, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

2. Authorized Attendants. Authorized confined space attendants will:

a. Know the hazards that entrants may face during entry, including information on the mode, signs or symptoms, and consequences of exposure.

b. Be aware of possible behavioral effects in authorized entrants.

c. Keep an accurate count of authorized entrants in the permit space and ensure that any means used to identify authorized entrants such as a badge-in/ badge-out board is accurately maintained.

- d. Remain outside the permit space during entry operations until relieved by another attendant.
 - e. Communicate with authorized entrants as necessary to monitor their status and to alert entrants of the need to evacuate the space.
 - f. Monitor activities inside and outside the space to determine if it is acceptable for entrants to remain in the space.
 - g. Order entrants to immediately evacuate the space under any of the listed conditions:
 - (1) A prohibited condition is detected.
 - (2) Behavioral effects associated with potential hazards to which entrants may be exposed are observed.
 - (3) A situation develops outside the space that could endanger the entrants.
 - (4) The attendant cannot effectively and safely perform all the required duties.
 - h. Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
 - i. Take action when unauthorized person approach or enter a permit space while entry is underway:
 - (1) Warn the unauthorized persons that they must stay away from the permit space.
 - (2) Advise the unauthorized persons that they must exit immediately if they have entered the permit space.
 - (3) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
 - j. Perform non-entry rescues as specified by the rescue procedure.
 - k. Perform no duties that might interfere with their primary duty to monitor and protect the authorized entrants.
3. Authorized Entrants. Authorized confined space entrants will:
- a. Know the hazards they may face during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

- b. Be able to demonstrate proficiency with any equipment they are expected to use, including under emergency conditions such as equipment failure.
- c. Communicate with the attendant as necessary to enable the attendant to monitor their status, and to enable the attendant to alert them of the need to evacuate the space if necessary.
- d. Alert the attendant whenever:
 - (1) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - (2) The entrant detects a prohibited condition.
- e. Exit the space as quickly as possible whenever:
 - (1) An order to evacuate is given by the attendant or the entry supervisor.
 - (2) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - (3) The entrant detects a prohibited condition.
 - (4) An evacuation alarm.

CHAPTER 28

BLOODBORNE PATHOGENS

- Ref:
- (a) Title 29 CFR 1910.1030, Subpart Toxic Hazardous Substances (Bloodborne Pathogens), Occupational Safety and Health Standards
 - (b) NMCPHC Technical Manual OM 6260, Medical Surveillance Procedures Manual and Medical Matrix, Aug 2015
 - (c) Navy and Marine Corps Public Health Center Technical Manual NMCPHC-TM-OEM 6260.7, Blood borne Pathogen Exposure Control Manual, Nov 2010

B2801. Discussion. Bloodborne pathogens (BBP) are infectious microorganisms in human blood or other body fluids that can cause disease in humans. BBP can be spread through contact or contamination by blood and other body fluids. These pathogens include, but are not limited to, hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV). Navy personnel in many occupations, including first responders, housekeeping, physicians, nurses, other healthcare personnel, and research and clinical laboratory personnel may be at risk for exposure to BBP. The Occupational Safety and Health Administration (OSHA) generated the BBP standard to protect personnel from occupational exposures to infectious microorganisms in human blood or other body fluids. This chapter implements the requirements of reference (a), the OSHA BBP standard.

B2802. Applicability. This chapter applies to all occupational settings where there are exposures to blood or other materials potentially containing BBP or where exposure is reasonably anticipated.

B2803. Program Requirements. Commands, units and activities with personnel who have an occupational exposure or are reasonably anticipated to have an occupational exposure to blood or other materials potentially containing BBP will implement the requirements of references (b), (gm), and (gn). Requirements include:

- a. An exposure determination to identify personnel with occupational exposures.
- b. A written exposure control plan designed to eliminate or minimize occupational exposures.
- c. Use of engineering controls and work practice controls.
- d. Use of personal protective equipment.
- e. Housekeeping to maintain worksite in a clean and sanitary condition.
- f. Communication of hazard to personnel through training, signs, and labels.
- g. Providing Hepatitis B vaccination and post-exposure evaluation and follow ups.

h. Medical recordkeeping.

Guidance to implement program requirements are found in references (a) and (c).

The requirement for first aid and cardiopulmonary resuscitation training alone does not necessarily dictate the need to include individuals in programs designed to meet the BBP standard's requirements. Personnel who perform "Good Samaritan" acts that result in potential exposure must receive the same prompt medical evaluations and follow-up as occupationally exposed personnel.

B2804. Responsibilities

a. Echelon 2 and other Headquarters Commanders must provide guidance and assistance to subordinate commands, units and activities to ensure the effectiveness of this program, including assistance in determining the job classifications of covered employees.

b. Chief, Bureau of Medicine and Surgery (BUMED) must:

(1) Review and provide technical and administrative guidance on the medical aspects of the BBP program.

(2) Provide guidance for the review of medical records for BBP information and trends.

(3) Centrally manage the BPP and maintain an electronic records database to allow for record access and data analysis.

c. Commanders, Commanding Officers, and Officers in Charge must:

(1) Implement the requirements of a BBP program outlined in paragraph B2803.

(2) Develop local BBP exposure control plans covering the elements in reference (c) and annually review and update exposure control plans.

(3) Develop local training programs covering the program elements in reference (c); ensure that all personnel at risk for exposure receive training at initial assignment and annually thereafter; and ensure that records of employee BBP training are properly maintained as outlined in reference (c).

(4) Ensure that all employees at risk for to BBP have completed a baseline medical surveillance examination in accordance with reference (b).

CHAPTER 29

OCCUPATIONAL REPRODUCTIVE HAZARDS

- Ref:
- (a) OPNAVINST 6000.1D, Navy Guidelines Concerning Pregnancy and Parenthood, 12 Mar 2018
 - (b) Title 5 CFR 339 - Medical Qualification Determinations
 - (c) Title 5 CFR, Part 630, Subpart L 2011, Family and Medical Leave Act (FMLA)
 - (d) Public Law 95-555 (92STAT 2076) of 1978, Prohibition of Sex Discrimination on the Basis of Pregnancy
 - (e) Title 5 CFR part 335 of 1 Jan 04, Promotion and Internal Placement
 - (f) Title 29 CFR 1604.10, Employment Policies Relating to Pregnancy and Childbirth
 - (g) Navy and Marine Corps Public Health Center Technical Manual, NMCPHC-TM-OEM 6260.01C April 2010, Reproductive and Developmental Hazards: A Guide for Occupational Health Professionals
 - (h) Supreme Court Ruling, 89-1215 of 20 Mar 91, International Union, United Automobile, Aerospace and Agricultural Implement Workers of America, UAW, et al., Petitioners v. Johnson Controls, Inc.
 - (i) OSHA Safety and Health Topics Page on Reproductive Hazards

B2901. Discussion

a. A reproductive hazard is any biological, chemical, or physical stressor that has the potential to adversely affect the human reproductive process. These effects may occur prior to conception or during the development of the fetus. A reproductive hazard that has its effect during fetal development is a developmental hazard.

b. Many potential stressors which are considered reproductive hazards also cause injury to other human organ systems. The federal government already regulates many of them based on these other effects. In some cases, reproductive effects occur at lower exposure levels than these other effects, and the current exposure standards do not protect the reproductive system. These hazards are the primary concern of this chapter.

c. Much is not known about reproductive hazards. Flexibility in handling these issues is, therefore, a necessity to allow changes to procedures and processes as knowledge is gained.

B2902. Policy

a. Navy policy is to provide safe and healthful working conditions for all military and civilian employees. This includes protection of employees' reproductive capacity and their future or developing offspring from untoward effects of employee exposures.

b. Only a few occupational exposure criteria (Permissible Exposure Limits (PELs,) etc.) were developed to protect the reproductive system. The goal is to keep the utilization of known

reproductive stressors as low as reasonably achievable. Commands, units and activities must document efforts to achieve this goal in accordance with paragraph B2903.

c. In most cases, the potential for exposure to reproductive hazards should not automatically force the removal of an individual from a job. Job modification or removal from a particular task within a position may be necessary. In no case must commands, units or activities use the potential for exposure to reproductive hazards to deny employment or promotion. If, as a last resort, job removal is necessary based upon operational requirements coupled with an inability to control workplace reproductive hazards, command, units or activities must not deny any individual pay or promotion.

d. Reference (a) provides policy and procedures regarding the management of pregnant service women. References (b), (c) through (f) contain guidance on civilian personnel issues related to pregnant workers. The safety office must refer all civilian employee questions regarding pregnancy employment issues to the human resources office.

B2903. Control of Reproductive Hazards in the Workplace

a. Identification and Evaluation of Reproductive Stressors

(1) For simplicity, reference (g) provides a list of common reproductive hazards that may be present in general Navy workplaces. Safety personnel must routinely look for these hazards during inspections or visits.

(2) Industrial hygiene personnel must identify reproductive stressors that are listed in reference (g) during surveys of all Navy workplaces, as paragraph B0802 of this Manual requires.

(3) Where stressor-specific exposure standards developed with the intent to protect the reproductive system exist, Command, units or activities must quantify the degree of exposure using conventional means, and then compare the results to those exposure standards (i.e., PELs, Threshold Limit Values (TLVs[®]), etc.). Where stressor-specific standards either do not exist, or were developed without consideration of reproductive health risk, commands, units and activities must determine the quantitative evaluation of the exposure if possible. An Industrial Hygienist (IH) and an occupational physician must review the results of sampling. They must determine the significance of any potential reproductive risk to male and female employees or developing fetuses and incorporate the findings into the report, along with recommended mitigation procedures, if necessary.

(4) The IH must include a reproductive hazard assessment (including negative determinations) as part of the routine industrial hygiene survey submitted in accordance with Chapter 8, paragraph B0803 of this Manual. If the exposure assessment indicates an

unacceptable risk level, recommendations to reduce exposures in accordance with paragraph B2903b should be made.

(5) Commands, units and activities should contact the Navy and Marine Corps Public Health Center (NMCPHC) if they need additional assistance, (757) 953-0700 (DSN: 377-0700).

b. Hazard Abatement

(1) Chapter 12 discusses basic principles for controlling all hazards in the occupational environment. These include substitution with less hazardous materials, engineering controls (local exhaust ventilation systems, etc.), administrative controls (job rotation, work time limits, etc.), and the use of PPE. Commands, units and activities must not consider the routine prolonged removal of an individual (or subpopulation) from a particular worksite an appropriate administrative control.

(a) Commands, units and activities must consider all products that they currently use containing a composition or concentration of greater than or equal to 0.1 percent by weight. Reference (g) lists stressors for possible elimination by substitution with a less hazardous material. Commands, units, and activities must consider all products they currently use containing a composition or concentration of greater than or equal to 0.1 percent by weight. They should serve as a general guideline with regard to consideration of hazardous materials control or substitution initiatives.

(b) Commands, units and activities must consider products containing chemicals in reference (g) for elimination or reduction in accordance with reference (h).

(c) Commands, units and activities must also consider these chemicals (reference (i)) for substitution issues in the development of hazardous material inventories and authorized use lists that Chapter 7 of this Manual prescribes.

(d) The Navy and Marine Corps Public Health Center (NMCPHC) is a resource and will provide assistance to any command, unit, or activity.

(2) The use of PPE, including respirators, is the last resort method for hazard abatement. If activities use PPE, they must exercise caution to ensure that the PPE does not pose a heat stress, heavy lifting, or other hazard in itself.

c. Training

(1) All safety and occupational health professionals should receive training concerning reproductive hazards. The training should address Navy policy, legal considerations, risk communication, and technical issues (hazard identification, evaluation, and control). The Navy

considers training provided in Navy-sponsored workshops as well as Naval Education and Training Command-approved courses sufficient to satisfy this requirement.

(2) Commands, units and activities must also specifically address reproductive hazards in safety training programs for personnel responsible for or working with reproductive stressors (e.g., management personnel, civilian personnel officers, supervisors, employee representatives, and non-supervisory personnel) in accordance with Chapter 6 of this Manual.

d. Counseling

(1) Commands, units and activities must afford all employees who have potential exposure to occupational reproductive hazards counseling by a credentialed occupational medicine provider, if requested.

(2) Medical commands, units, and activities, including contract facilities, must question pregnant women seen at the facility regarding their and their spouses' potential exposure to developmental hazards. A referral to occupational medicine for evaluation is recommended if commands, units or activities determine there is a possibility of exposure.

(3) Reference (a) requires servicewomen who become pregnant to notify their command, unit, or activity. Civilian employees are strongly encouraged to notify their commands, units, and activities as soon as possible after becoming pregnant. Upon notification, the command, unit, or activity must perform these evaluations:

(a) The pregnant servicewoman or civilian employee must be given the Developmental Hazard Questionnaire from reference (g). A command, unit, or activity supervisor knowledgeable about the pregnant servicewoman or civilian employee workplace must fill out the Supervisor's Statement found in reference (g). If the potential for exposure to a developmental hazard is present in the workplace, or if activities have not determined the possibility of such potential, command, units and activities must arrange for an occupational health physician to evaluate the pregnant servicewoman or civilian employee as soon as possible.

(b) If the most recent industrial hygiene survey documents that no potential for exposure to a developmental hazard exists in the pregnant servicewoman or civilian employee workplace, then an occupational medicine evaluation should occur if either the pregnant servicewoman or civilian employee or her commander, commanding officer, or officer in charge requests it.

(c) Place a copy of the appropriate sections of the completed evaluation in the employee's medical record and in the employee's command, unit or activity safety office.

(4) Commands, units and activities must encourage all male employees anticipating conceiving children within 120 days, or whose partner is currently pregnant, to notify their

commanding officer so that command, units and activities can conduct a reproductive or developmental hazard evaluation.

(5) Male and female infertility evaluations should include consultation with occupational medicine to determine if occupational or environmental exposures may be related to the disorder.

B2904. Responsibilities

a. Commanders, Commanding Officers, and Officers in Charge must:

(1) Ensure all safety supervisors are aware of the reproductive hazards listed in reference (g) that are utilized at the command, unit, or activity. Medical Treatment Facilities and other medical commands, units, and activities must utilize the list in reference (g), paying particular attention to medications and anti-neoplastic drugs that are listed.

(2) Train employees, who have potential exposure, concerning the importance of occupational reproductive hazards, specifically concerning the hazards present at the command, unit or activity, and the importance of notification of pregnancy as part of routine hazard awareness.

(3) Upon notification of pregnancy, ensure that female military and civilian employees are provided the questionnaire in reference (g) and are made aware of the availability of evaluation by an occupational health physician in accordance with paragraph B2903.d.(3)(a) of this Manual.

(4) Maintain exposures of all personnel to reproductive hazards below applicable standards where available or below limits that occupational health professionals recommend where no standards are yet established.

b. Chief, Bureau of Medicine and Surgery (BUMED) must:

(1) Provide for professional and technical assistance relative to reproductive hazards to all commands, units, and activities

(2) Publish guidance for occupational health professionals on industrial hygiene and medical issues concerning occupational reproductive hazards. Such guidance must include:

(a) Workplace surveillance for the presence of reproductive hazards and their exposure levels.

(b) A current list of known reproductive stressors that may be present in general Navy workplaces. Reference (g) contains the 2010 edition of this list.

(c) Information on reproductive stressors considered, but not selected, for the list along with the rationale for non-selection.

(d) Appropriate training for all safety and occupational health professionals.

(e) Appropriate counseling to personnel potentially exposed to reproductive hazards.

(3) Review references (a), (h), (i), and this chapter to ensure that Navy policy is consistent with the Supreme Court ruling and other related legislation.

(4) Review possible candidate-substitute materials identified by Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) to identify potential reproductive toxicants, upon request.

c. COMNAVSUPSYSCOM must identify products currently in Navy use that contain reproductive stressors listed in reference (g) for substitution, elimination, and annotation in the HMIRS.

CHAPTER 30

INDOOR ENVIRONMENTAL QUALITY

- Ref:
- (a) ANSI/ASHRAE 62.1-2013, “Ventilation for Acceptable Indoor Air Quality.”
ANSI/ASHRAE
 - (b) Industrial Hygiene Field Operations Manual NMCPHC-TM6290.91-2, latest version
 - (c) Interim Technical Guidance (ITG) FY03-4, NAVFAC Mold Response Manual,
June 2003
 - (d) United Facilities Guide Specifications (UFGS) 02 85 00.00 20, Mold Remediation,
Nov 18
 - (e) ASTM D7338 “Standard Guide for Assessment of Fungal Growth in Buildings”
(Contact HQ command or Naval Safety Center)
 - (f) Indoor Environmental Quality, Testing and Remediation of Dampness and Mold
Contamination
 - (g) U.S. Department of Health and Human Services (DHHS), NIOSH Publication No.
91-108 June 1991, Current Intelligence Bulletin 54: Environmental Tobacco
Smoke in the Workplace - Lung Cancer and Other Health Effects
 - (h) SECNAVINST 5100.13E, Navy and Marine Corps Tobacco Policy, 31 July 08
 - (i) Federal Leadership in High Performance and Sustainable Buildings Memorandum of
Understanding (2006)
 - (j) ANSI/ASHRAE 55-2010, Thermal Environmental Conditions for Human Occupancy
 - (k) Guiding Principles for Sustainable Federal Buildings
 - (l) U.S. Environmental Protection Agency (EPA)/NIOSH, Building Air Quality: A
Guide for Building Owners and Facility Managers, DHHS (NIOSH) Pub. No. 91-114
(EPA/400/1-91/033)
 - (m) UFGS-01 91 00.15 Total Building Commissioning, Feb 2019
 - (n) UFGS-01 78 24.00 20 Facility electronic Operation and Maintenance Support
Information (EOMSI), Feb 2015
 - (o) ASHRAE Guideline 1.1-2007, HVAC & Refrigeration Technical Requirements for
the Commissioning Process

B3001. Discussion

a. This Chapter includes all specialties, hazards and risks in the work environment that are typically associated with Indoor Environmental Quality (IEQ) which encompasses thermal comfort, indoor air quality (IAQ), noise, and lighting in accordance with the Environmental Protection Agency (EPA), American Society of Heating, Refrigerating, and Air Conditioning Engineering (ASHRAE), and Navy Industrial Hygiene Field Operations Manual (IHFOM). Poor IEQ detracts from the quality of the work environment. Problems such as uncomfortable air temperature and humidity can decrease productivity. To increase the level of comfort and productivity in the work environment, an effort should be made to evaluate, maintain, and improve IEQ.

b. IEQ includes such parameters as chemical and biological contaminants, physical hazards, and individual perceptions or reactions to these parameters. Multiple causes of poor IEQ exist with any condition and could decrease the quality of the work environment. Some examples are:

(1) Unacceptable Humidity Ranges (generally recognized to be below 30 percent and above 60 percent. Low humidity may lead to dryness and irritation of the nose, throat, skin, and eyes. High humidity aids in the growth of certain molds. Susceptible individuals may experience allergic reactions to mold spores and particulate matter from the breakdown of mold protein.

(2) Insufficient Ventilation. Inadequate fresh air can cause fatigue, drowsiness, poor concentration, and the sensation of temperature extremes without actual temperature changes. An increase of carbon dioxide (CO₂) levels is an indicator of poor ventilation. CO₂ levels only correlate with the ability of the ventilation system to provide and circulate fresh air, and dilute, remove, and recirculate “stale” air. As detailed in appendix of reference (a), maintaining CO₂ levels below 700 parts per million (ppm) over outdoor air levels should satisfy a large majority (about 80%) of people with respect to human bio effluents. Acceptable levels of CO₂ in outdoor air typically range from 300 to 500 ppm, and so indoor levels should generally be below 1000 to 1200 ppm. Such acceptable indoor levels of CO₂ generally indicate that the ventilation is adequate to manage the occupant density.

(3) Chemicals. Many modern office furnishings and equipment may emit chemicals (i.e., of f-gas) used in their manufacture. Some examples include adhesives, carpeting, upholstery, manufactured wood products, copy machines, pesticides, and cleaning agents.

(4) Biological Contamination. Biological contaminants such as bacteria, molds, pollen, and viruses may be present in stagnant water, air ducts, humidifiers, drain pans, and water-damaged materials. Bird droppings and body parts from insects, rodents, and other pests also contribute to biological contamination. Biological contaminants can trigger allergic reactions and some types of asthma and can cause some common infectious diseases.

(5) Combustion Products. Combustion products, such as Carbon Monoxide (CO) and nitrogen oxides, can be released by vehicle exhaust, improperly burning furnaces, appliances, and Environmental Tobacco Smoke (ETS).

(6) Building Modifications. Physical modifications within buildings can generate dust. Improper isolation techniques during renovations can release asbestos, lead, mold, and other contaminants into the building and ventilation systems.

(7) Poor Air Distribution. Poorly distributed air in a building can lead to temperature fluctuations, dead air zones and improper air mixing.

c. Design Considerations. Proper design for new and renovated buildings precludes many IEQ problems. However, modified structures may experience heating, ventilation, and air conditioning

(HVAC) problems such as the system not providing adequate outside air for new uses or increased population density of the space.

B3002. IEQ Investigations. Individuals working in buildings with indications of poor IEQ will report the problem(s) to their immediate supervisors.

a. If the Navy maintains the building, the supervisor will coordinate with the designated local facilities maintenance command, unit or activity safety manager. If local and regional assets are unable to determine the cause of the problem, the safety manager must request assistance from the Naval Facilities Engineering Command (NAVFACENGCOM) for building related issues. If there are documented medical issues, the safety manager must also request investigation assistance from the local Chief, Bureau of Medicine and Surgery (BUMED) occupational health service. Chapter 13 of reference (b) provides guidance on IEQ and performing IEQ investigations.

b. If the building contains Navy personnel, but is maintained by a private enterprise, report the problem(s) to the appropriate facility maintenance organization. If they are unable to resolve the problem(s), contact the command, unit, or activity safety manager to resolve or elevate to higher authority, if needed, and continue the same sequence, described within Chapter 30, as for buildings maintained by the Navy.

c. If the IEQ investigation reveals visible mold contamination, the command, unit, or activity should follow the procedures in references (b), (c) and (d) for assessment and remediation. Facilities must provide a building evaluation to determine the area(s) of water intrusion and make appropriate repairs. After the water source is secured, abate the mold. Mold sampling and analysis are not part of the initial mold evaluation process and is generally not required when mold is present. Routine sampling for mold will not be conducted as part of an IEQ investigation. There are no health standards for what are "unacceptable" levels of mold in the indoor environment and, therefore, there are no health standards to which to compare mold sampling results. The sampling results do not change the requirement to stop the water intrusion and clean up the contamination, and may further confuse the issue simply because there are no mold exposure standards. Reference (e) and (f) provides additional information.

d. If unable to resolve the IEQ issues using the process in paragraph B3002, the safety manager will request further assistance through the cognizant regional NAVFACENGCOM or BUMED offices.

B3003. Environmental Tobacco Smoke

a. A prime source of poor IEQ is environmental tobacco smoke (ETS) which includes electronic smoking devices. As well as being a documented health hazard, many nonsmokers find ETS offensive and irritating in accordance with reference (a). The National Institute for Occupational Safety and Health (NIOSH), in reference (g), states the preferable method to protect non-smokers is elimination of smoking indoors.

b. In accordance with reference (hc), Department of the Navy (DON) policy on ETS is to protect all personnel in working and public living environments from involuntary exposure to ETS. Navy commands, units and activities must:

(1) Prohibit smoking in all DON vehicles, aircraft, and work buildings. This applies to all Navy active duty, civilian personnel, their dependents, and visitors in DON-controlled locations.

(2) Permit smoking only in facilities/locations designated for smoking. Do not re-circulate air from smoking quarters with air entering non-smoking quarters.

(3) Prohibit smoking in common spaces of multiple housing units (e.g., family housing apartment complexes, bachelor quarters, Navy Lodges, etc.). Any space within a building common to all occupants and visitors, such as corridors, elevators, lobbies, lounges, stairways, rest rooms, cafeterias, snack bars, barber shops, laundry rooms, etc. is defined as common space.

(4) Not locate outdoor areas designated for smoking in areas commonly used or transited by non-smokers. Locate the smoking area away from supply air intakes and building entryways and egresses to prevent ETS entering the building according with reference (h).

B3004. Building Design and Maintenance

a. Leadership in Energy and Environmental Design (LEED) is the leading green building certification program in the United States and a criterion, among other parameters, is indoor environmental quality. DoD has demonstrated a commitment to leadership in the design, construction, and operation of high-performance and sustainable buildings.

b. In compliance with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings set forth in reference (i), U.S. Navy installations will strive to incorporate and adopt, as appropriate and practical, the “green building” principles into new and renovated buildings to meet existing safety and occupational health standards for indoor environmental quality areas:

(1) Ventilation and thermal comfort conditions will meet the most recent requirements as stated in references (a) and (j).

(2) Moisture control strategy must be developed and implemented for controlling moisture flows and condensation to prevent building damage and potential mold contamination.

(3) New construction and renovation will specify materials and products with low airborne emissions including adhesives, sealants, paints, carpet systems and furnishings. For further information, refer to reference (k). IEQ problems can be precluded through proper planning in the design of new and renovated buildings. Reference (l), (m), and (n) provides

guidance. In addition, the EPA has established an IEQ Information Hotline (1-800-438-4318) and Web site: <https://www.epa.gov/indoor-air-quality-iaq>.

c. Design and renovation parameters that should be considered include: ventilation design, air flow and mixing and thermal comfort conditions; accessibility for routine inspection and preventative maintenance and for plan review by HVAC engineers; moisture control strategies; using materials and products with low airborne emissions (e.g., adhesives, sealants, paints, carpet and furnishings); and intended uses of the space. See references (a), (j), (m), (n), and (o).

d. Building designers frequently use modular office systems to conserve space. These systems often block airflow to parts of the office. During the design and purchasing process, confirm the modular office systems are compatible with the airflow patterns proposed by the HVAC engineers. Ensure the thermal and ventilation requirements in references (a) and (j) are still met.

e. Personnel are not authorized to make modifications to the HVAC systems (e.g., by blocking off vents, cutting into duct work to create new vents, removing inspection panels and ceiling tiles, etc.). Personnel will report ventilation problems according to the guidance given in paragraph B3002.

f. Ensure employee concerns or complaints of IEQ problems are investigated and resolved in a timely manner using procedures in paragraph B3002.

g. Commanders, commanding officers, and officers in charge will ensure effective programs of routine inspection and preventive maintenance of all HVAC systems and spaces.

B3005. Responsibilities

a. Echelon 2 and headquarters commanders, commanding officers, and officers in charge.

(1) Provide guidance and assistance to subordinate commands, units, and activities to ensure effectiveness of this program.

b. Chief, Bureau of Medicine and Surgery (BUMED)

(1) Budget adequate resources for Navy Medicine to support this policy.

(2) When requested, provide support for health related IEQ investigations as requested in accordance with paragraph B3002 of this Manual.

c. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM)

(1) Ensure employee concerns or complaints of IEQ problems are investigated and resolved in a timely manner using the process in paragraph B3002 of this Manual.

(2) Ensure building construction and modification plans reflect consideration of IEQ issues and comply with requirements described in paragraph B3004 of this Manual.

(3) Ensure HVAC systems in new buildings and renovation or replacement of HVAC systems in existing buildings meet the specification in the AHSRAE standards in references (a) and (he).

(4) When appropriate and requested in accordance with paragraph B3002 of this Manual, provide engineering support for building and engineering related IEQ investigations.

(5) Ensure mold is properly abated by trained Navy personnel or through contracts using reference (d).

(6) Inspect HVAC systems (at least semiannually or annually is recommended) to prevent the buildup of dust, mold, or parasites. Change filters as needed.

d. Commanders, commanding officers, and officers in charge

(1) Establish smoke-free buildings and zones complying with requirements described in paragraph B3003 of this Manual and reference (h).

(2) Ensure IEQ issues are considered in the design of new buildings and during modification of existing buildings complying with requirements described in paragraph B3004 of this Manual.

(3) Coordinate with COMNAVFACENCOM to ensure that HVAC systems in new buildings meet the specifications in ASHRAE standards contained in references (a) and (j).

(4) Ensure HVAC systems in new or existing buildings meet specifications in ASHRAE standards contained in references (a) and (j) and paragraph B3004 requirements of this Manual.

(5) Ensure effective programs for routine inspections and preventative maintenance are implemented for all HVAC system and spaces, including HVAC accessibility, in accordance with paragraph 3004 of this Manual.

(6) Ensure employee do not interfere with the air movement or thermostats by covering air vents or obstructing air flow from registers with furniture equipment or materials.

(7) Ensure employee concerns or complaints regarding IEQ problems are investigated properly and resolved in a timely manner using the procedures in paragraph B3002 of this Manual.

e. Safety Manager, Collateral Duty Safety Officer, or Base Operating Support safety liaison. If personnel in the building are having medical issues, the safety manager will request assistance

from the cognizant BUMED occupational health service. Guidance and information resources are in reference (b) and on the NMCPHC Indoor Environmental Quality and Mold Resources webpage, <http://www.med.navy.mil/sites/nmcphc/industrial-hygiene/Pages/Industrial-Hygiene-Topics.aspx>.

(1) Refer personnel with medical complaints to the supporting occupational health department for evaluation.

(2) Industrial hygiene will provide assistance as needed to help facilities resolve IEQ issues. Note that investigation assistance from BUMED IH does not typically include sampling and analysis for mold, especially when visible mold is present.

f. Employees

(1) Report IEQ problems to immediate supervisor.

(2) Do not interfere with the air movement or thermostats by covering air vents or obstructing air flow from registers with furniture equipment or materials (e.g., blocking off vents, cutting into duct work to create new vents, removing inspection panels and ceiling tiles, etc.).

CHAPTER 31

WEIGHT HANDLING SAFETY

- Ref:
- (a) SECNAVINST 11260.2B, Navy Weight Handling Program for Shore Activities, 26 Mar 2019
 - (b) NAVFAC P-307, Management of Weight Handling Equipment June 2016
 - (c) Title 29 CFR 1910, Occupational Safety and Health Standards
 - (d) Title 29 CFR 1915, Occupational Safety and Health Standards for Shipyard Employment
 - (e) Title 29 CFR 1926, Safety and Health Standards for Construction
 - (f) Title 29 CFR 1918, Safety and Health Regulation for Longshoring
 - (g) Title 29 CFR 1917, Safety and Health Regulations for Marine Terminals
 - (h) Title 29 CFR 1919, Safety and Health Regulations for Gear Certification
 - (i) NAVCRANECENINST 11450.1C, Acquisition of Navy Shore Based Weight Handling Equipment, 11 Jul 2019

B3101. Discussion. Safe and reliable weight handling is critical to the operation of the Navy. The minimum requirements and applicable standards for the safe use of all types of weight handling equipment (WHE) and rigging equipment at Navy shore activities and shore based commands, units, and activities are summarized.

B3102. Program Requirements

- a. Reference (a) provides weight handling policy for Navy shore commands, units, and activities. Shore-based commands include the naval construction organizations and other operating forces that own or operate WHE equipment ashore.
- b. Reference (b) is a single source document and complies with reference (c) through (h) which are the Occupational Safety and Health Administration (OSHA) standards applicable to weight handling and rigging equipment.
- c. The commander, commanding officer or officer in charge is responsible for ensuring safety of the command, unit, or activity weight handling program, which includes certification of equipment, training, and qualification of personnel.
- d. OSHA requires activities using cranes and derricks in cargo transfer operations, and floating cranes and floating derricks in shipbuilding, ship repair, and shipbreaking to be certified by an OSHA accredited certification agency (third party certification). References (d), (f), (g), and (h) address OSHA certification requirements. Activities must use reference (hl) as an alternate standard to the OSHA certification requirements for Navy-owned equipment, and the Navy Crane Center, Naval Facilities Engineering Command must perform the certification. Non-floating cranes and derricks that activities use in shipbuilding, ship repair, and ship breaking do not require third party certification.

(1) Cargo Transfer Definition. Reference (b) defines the term “cargo” as “any materials or equipment intended for transport to other ships or shore activities.” The term “cargo transfer” is defined as “the loading, unloading, moving, or handling of cargo, into, in, on, or out of any vessel.” The certification program includes mobile cranes, placed aboard barges or other vessels, and used to transfer cargo into, on, in, or out of a vessel.

(2) Certification Requirement. The Navy Crane Center must certify all Navy-owned equipment requiring third party certification. For contractor-owned equipment operated on Navy installations, a private OSHA-accredited certification agency must provide the third party certification.

(3) Procedures. Reference (b) addresses specific procedures for third party certification.

e. Reference (b) contains special reporting requirements concerning WH accidents.

f. To ensure design safety, Navy shore based weight handling equipment design will be in accordance with reference (i).

B3103. Responsibilities

a. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) must manage the Navy's WH programs ashore through its Navy Crane Center. , Navy Crane Center responsibilities include: procuring designated types of WHE in accordance with reference (i); establishing policy regarding design, maintenance, testing, certification, and operation of WHE; establishing training and qualification requirements for WHE personnel; evaluating activities who own or operate WHE; validating activity certifications for cranes in special programs; certifying WHE and related equipment for which accredited certification is required by OSHA standards; tracking equipment deficiency trends and issuing crane safety advisories and deficiency notices; collecting data on crane accidents, investigating severe accidents, and disseminating lessons learned; reviewing and approving crane alterations; maintaining configuration control of designated WHE; and providing in-service engineering support. These responsibilities are specifically addressed in reference (a).

b. Naval Education and Training Command (NETC) and/or Naval Safety and Environmental Training Center must support COMNAVFACENGCOM in establishing and maintaining weight handling training programs.

c. Commanders, Commanding Officers, and Officers in Charge must develop and implement weight handling programs in accordance with reference (a) and reference (b) and adequately budget to ensure compliance and safe operation of weight handling equipment. Ensure required Weight Handling/Crane Operator medical surveillance certification exam is

completed for licensed operators.] Reference (i) should be consulted prior to procuring weight handling equipment to ensure proper coordination with Navy Crane Center.

d. Cognizant Safety Offices and/or designated representatives must provide oversight of the weight handling safety program, including safety inspections, evaluations, self-assessments and risk assessments, and mishap investigation.

CHAPTER 32
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CHAPTER 33

MATERIAL HANDLING WITH POWERED INDUSTRIAL TRUCKS

- Ref:
- (a) NAVSUP Publication 538 Sixth Revision of 1 April 2012, Management of Material Handling Equipment (MHE) and Shipboard Mobile Support Equipment (SMSE)
 - (b) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
 - (c) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (d) Title 29 CFR 1910, Occupational Safety and Health Standards
 - (e) DOD Regulation 4145.19R-3, Storage and Materials Handling, 1 Aug 2019
 - (f) NAVFAC PUB P-300 Sep 2003 Management of Civil Engineering Support Equipment
 - (g) NAVFACENGCOM PUB P-307, Management of Weight Handling Equipment, June 2016
 - (h) Title 29 CFR 1917, Safety and Health Regulations for Marine Terminals
 - (i) NAVSEA SW023-AH-WHM-010 On- Station Movement of Ammunition and Explosives by Motor Vehicle
 - (j) NAVFACENGCOM PUB P-307, Management of Weight Handling Equipment, June 2016

B3301. Discussion. Safe and reliable material handling equipment (MHE) is critical to the operation of the Navy. Efficient handling of materials provides a continuous flow of parts and assemblies through the workplace and ensures that materials are available when needed. Each year, injuries related to MHE (e.g., powered industrial trucks to include forklifts) occur in Navy workplaces. Navy workers may be injured when MHE and shipboard mobile support equipment (SMSE) are inadvertently driven off loading docks, fall between docks and unsecured trailers, or when workers are struck by lift trucks or fall from elevated pallets. Most mishaps involve significant property damage which is caused by operator error, unsafe operating procedures, lack of safety-rule enforcement, or insufficient or inadequate training. The minimum requirements and applicable standards for the safe use of all types of MHE and SMSE at Navy shore activities are summarized in this chapter.

Note: Please refer to Chapter 34 of this manual for aerial work platform safety, and NAVSUP Publication 538 which documents the management, maintenance, and safe use of MHE and SMSE.

B3302. Program Requirements. Reference (a) is a single source document and complies with references (b) through (i), of which references (c) and (d) are Occupational Safety and Health Administration (OSHA) standards applicable to materials handling equipment and maritime operations.

B3303. Responsibilities

a. Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) is Navy's single manager for MHE and SMSE, responsible for providing proper and safe MHE and SMSE and appropriate operating guidelines. COMNAVSUPSYSCOM must:

(1) Support resource requests to improve safety performance and eliminate costly mishaps.

(2) Monitor and analyze all Navy MHE and SMSE mishaps as reported in the Navy and Marine Corps consolidated safety data repository, at least annually, and as necessary, make recommendations to prevent recurrence. Share this analysis with echelon 2 commands.

(3) Monitor and analyze all OSHA MHE citations (as posted on the OSHA Web site) to Navy activities at least annually, and as necessary make recommendations to prevent recurrence. Share this analysis with Navy echelon 2 commands.

(4) Coordinate with all echelon 2 and headquarters commands to improve safe operation of MHE and SMSE.

(5) Coordinate with other activities, e.g., COMNAVSAFECEN, Naval Education and Training Command (NETC), Naval Safety and Environmental Training Center, to develop a list of MHE and SMSE safety training resources and provide to COMNAVSAFECEN for dissemination as appropriate.

(6) Coordinate periodic reviews of MHE and SMSE (forklift) training available on the Enterprise Safety Applications Management System (ESAMS).

b. Naval Surface Warfare Center Indian Head Division Detachment Picatinny, Naval Packaging, Handling, Storage and Transportation Center, has been designated by COMNAVSUPSYSCOM to serve as the MHE and SMSE in-service engineering agent (ISEA). Specific mission responsibilities include the maintenance of MHE and SMSE integrated logistics support plans, to conduct technical evaluations, to provide fleet and user engineering support, and to monitor and approve MHE and SMSE training programs for Navy users, ensuring all training programs are OSHA-compliant with the provisions of 29 CFR 1910.178.

c. Commanders, Commanding Officers, and Officers in Charge must:

(1) Develop and implement MHE and SMSE programs in accordance with references (b) and (hw) to ensure safe operation of MHE and SMSE and adequately budget to ensure compliance.

(2) Ensure that any modifications made to powered industrial trucks such as front-end attachments are approved by manufacturer prior to use, in accordance with 29 CFR 1910.178(a)(4) and (5). NAVFAC P-307, reference (j). Provides life and rigging requirements when using lift attachments with hooks.

(3) Document initial and, as required, refresher training in appropriate records.

(4) Provide refresher training in relevant topics any time there is reason to believe there is a need.

(5) Provide an adequate fire extinguisher for internal combustion engine powered aerial lifts. Size, type and location must be determined by the installation and owning organization, and will be based on the risk assessment for the operation being conducted.

(6) Ensure the maximum load capacity is posted on each piece of lifting equipment, in view of the operator.

(7) Ensure required Forklift Operator/Material Handling Equipment medical surveillance exam is completed.

CHAPTER 34

AERIAL WORK PLATFORM (AWP) SAFETY

- Ref:
- (a) NAVFAC P-300, Management of Civil Engineering Support Equipment, Sep 2003
 - (b) Title 29 CFR 1910.67, Subpart Powered Platform, Man Lifts and Vehicle-Mounted Work Platforms (Vehicle-Mounted Elevating and Rotating Work Platforms), Occupational Safety and Health Standards
 - (c) Title 29 CFR 1926.453, Subpart Scaffolds (Aerial Lifts), Safety and Health Regulations for Construction
 - (d) American National Standards Institute (ANSI)/Scaffold Industry Association (SIA), ANSI/SIA A92.2-2015, American National Standard for Vehicle-Mounted Elevating and Rotating Aerial Devices
 - (e) ANSI/SIA A92.3-2006, American National Standard for Manually Propelled Elevating Aerial Platforms
 - (f) ANSI/SIA A92.5-2006, American National Standard Boom-Supported Elevating Work Platforms
 - (g) ANSI/SIA A92.6-2006, Self-Propelled Elevating Work Platforms
 - (h) NAVSUP Publication 538 Management of Materials Handling Equipment (MHE) and Shipboard Mobile Support Equipment (SMSE), 1 Jul 2010
 - (i) COMNAVAIRFORINST 4790.2C, The Naval Aviation Maintenance Program (NAMP) of Jan 2017, Chapter 10, NAMP Standard Operating Procedures
 - (j) Individual AWP Operating Manual as provided by the Manufacturer and required by Refs 33-4 through 33-7
 - (k) EM 385-1-1, United States Army Corps of Engineers Safety and Health Requirements Manual, 5 July 2011

B3401. Discussion. Various aerial lifts are used throughout the Navy by civilians, military personnel and contractors. Aerial lifts encompass self-propelled elevating work platforms (e.g., scissor lifts), manually-propelled elevating aerial lifts (e.g., uprights), extensible and articulating boom-supported elevating work platforms (e.g., aerial man-lifts), and vehicle-mounted elevating and rotating aerial devices and work platforms (e.g., bucket trucks). These conditions occurring during aerial lift operations can result in property damage, personal injury, or death:

- a. A fall from an elevated level.
- b. Falling objects or items falling out of lifts.
- c. Exceeding the load capacity of the lift, which may result in tip-over or structural failure.
- d. Electrical hazards (e.g., overhead power lines, extension cords, bridge crane bus bars).
- e. Contact with stationary objects (e.g., walls, buildings, other vehicles, ceilings, floors, piping) that may result in an entrapment or crushing hazard.

- f. Uneven terrain that may cause the vehicle to tip, topple over or eject the operator. Some examples may include slopes, holes, drop-offs, bumps, debris, and utility vault covers.
- g. High winds or inclement weather such as rain, hail, snow, or lightning.
- h. Operation of an internal combustion engine vehicle indoors, which can cause asphyxiation or toxic exhaust-gas exposure.

B3402. Program Requirements

- a. Reference (a) is a single source document and complies with references (b) and (c) which are the Occupational Safety and Health Administration (OSHA) standards applicable to aerial work platforms and references (d) through (g), which are national consensus standards applicable to aerial work platforms.
- b. The vast majority of AWP equipment is Civil Engineering Support Equipment (CESE) governed by reference (a). Some shipboard AWP equipment is categorized as Shipboard Mobile Support Equipment (SMSE), in accordance with reference (h). Some airfield AWP equipment is categorized as Aviation Support Equipment (SE), in accordance with reference (i). Additional Plant or Facility equipment is governed by local instructions but must meet the requirements of this chapter and references (b) through (g).

B3403. Prior to Operations. In accordance with references (b) through (g), before an AWP is used and during its use, the operator must check the work area for: overhead obstructions and high voltage conductors; a firm, level operating surface; the load and its distribution on the platform is according to the manufacturer's rate capacity and does not exceed the rated workload; and check all occupant's' safety harnesses and lanyards, making sure they are attached properly to a staple or pad eye inside the man basket. Do not attach lanyards to objects outside the basket and must inspect the AWP in accordance with reference (j).

Note: If the aerial lift fails any part of the inspection, remove the key and secure all copies of the key (if applicable) to prevent unauthorized operation; report the problem to the supervisor. Repairs should not be attempted by persons not trained and authorized to conduct repairs. All repairs must be documented and any makeshift repairs must be reported to the supervisor.

B3404. Operations on Floating Platforms and Near Water

- a. In accordance with references (d) through (g), AWP's must be authorized in writing by the manufacturer or qualified person for use on floating platforms. A qualified person is someone who has significant experience and knowledge of AWP's and the platforms upon which they will be utilized.

b. When work will take a platform over water, personnel floatation devices must be worn by platform personnel in addition to the PFAS in accordance with the requirements of Chapter 13 of this Manual.

(1) Where the distance from the working surface to the water is 25 feet or more, PFAS is required; personnel flotation devices are not required.

(2) Where the distance from the working surface to the water surface is less than 25 feet and the water depth is less than 10 feet, or hazards (i.e., machinery, barges, camels, or other structures) are present, PFAS is required; personnel flotation devices are not required.

c. Occupants may disconnect the PFAS from the anchor point when the platform is over water. As the operator is trained in both the capabilities of the AWP and as an Authorized End User of Fall Protection, they, with their supervisor, are in the best position to make this risk decision. This decision will depend on the unit in use, operator experience, height above water, depth of water, wind conditions, and structures that potentially create tunneling effect of wind.

B3405. Contract Operations

a. Contractors involved in construction or maintenance must adhere to requirements identified in reference (b), (c) or (k), as appropriate.

b. Contractors are not required to be licensed in accordance with references (b) through (g), but must have available documentation of training for operators.

B3406. Rented or Leased Equipment. Any rented or leased equipment must be accompanied by the last inspection report completed by the rental agency.

B3407. Scaffolding. The use of scaffolding to include the qualifications of personnel, strength of scaffold and design that is not addressed in this chapter must meet the requirements of reference (d).

B3408. Responsibilities

a. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) must manage the Aerial Lift equipment via requirements in reference (a). Specific mission responsibilities include providing and maintaining policy to establish design standards and manage equipment and operations.

b. Commander Naval Sea Systems Command (COMNAVSEASYSCOM) must manage Aerial Lift equipment for shipboard and shipyard operations.

c. Commander Naval Air Systems Command (COMNAVAIRSYSCOM) must manage specific Aerial Lift Equipment for aviation maintenance as defined in reference (i).

d. Commander, Naval Supply Command (COMNAVSYPSYSCOM) must manage AWP equipment that is Shipboard Mobile Support Equipment as defined in reference (b).

e. Commanders, Commanding Officers and Officers in Charge must develop and implement training, licensing, and maintenance programs in accordance with references (a).

f. Cognizant Safety Offices must provide oversight of the safety program, including safety inspections, evaluations, assessments and audits, risk assessments and mishap investigations.

g. Supervisors must:

(1) Ensure operators are trained in accordance with references (a) and (b) through (k).

(2) Ensure all occupants are provided with a personal fall arrest system (PFAS) and training in accordance with Chapter 13 of this Manual. The non-shock absorbing lanyard is utilized primarily for fall restraint, but potentially for fall arrest so should be short as practicable considering anchor points and occupants.

(3) Designate a safety observer for all AWP operations that pose a high risk. High risk operations include AWP with outriggers, vehicle mounted AWP's, and those with moving locations. For AWP's considered lower risk, such as scissor lifts, a pre-job check must be done by a safety observer to provide approval to proceed.

h. Operators must:

(1) Be trained and licensed in accordance with reference (a), (h), (i), or local instructions (for plant or facility equipment) as appropriate.

(2) Be trained as an End User of fall protection, in accordance with Chapter 13 of this Manual.

(3) Ensure all occupants of basket utilize PFAS, in accordance with Chapter 13 of this Manual, unless in accordance with reference (k) dictates otherwise.

(4) Ensure platforms are appropriately loaded, in accordance with reference (j), taking into account worker weights, as well as, consumables (paint, grease, etc.). In general, baskets and platforms are rated at a maximum load of 500 pounds.

(5) Ensure the weight or force imposed by hoses or welding leads which are led from the basket, does not compromise stability of AWP.

i. Safety Observers must:

- (1) Be assigned for all AWP operations that pose a high risk.
- (2) Warn AWP operators of hazardous conditions.
- (3) Ensure that personnel on the ground do not enter danger areas around or below the AWP.
- (4) Raise an alarm or initiate the rescue plan as required.

Note: The rescue plan may be the employment of safety observer utilizing emergency descent controls from the lower operating station to return the platform to ground in event of an incapacitated operator.

- (5) Meet all requirements as an operator of AWP.

j. Passengers must:

- (1) Follow the instructions of the operator.
- (2) Be trained as an End User of fall protection, in accordance with chapter 13 of this Manual.

CHAPTER 35

ELECTRICAL SAFETY

- Ref:
- (a) Title 29 CFR 1910.335, Subpart Electrical (Safeguards for Personnel Protection)
 - (b) Title 29 CFR 1910.269 Electric power generation, transmission, and distribution.
 - (c) Title 29 CFR 1926 Subpart K Electrical
 - (d) Title 29 CFR 1910.137, Subpart Personal Protective Equipment (Electrical Protective Equipment), Occupational Safety and Health Standards
 - (e) National Fire Protection Association (NFPA) 70E, Electrical Safety in the Workplace, most recent edition
 - (f) UFC 3-560-01, Electrical Safety, O&M, 21 Feb 2018
 - (g) National Fire Prevention Association (NFPA) 70 National Electrical Code
 - (h) OPNAVINST 11310.3C, Operation and Maintenance Policy for Shore-to-Shore Power, 29 Dec 2015
 - (i) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, And Record Keeping Manual, 7 Jan 2005
 - (j) Naval Ships Technical Manual, S9086-KC-STM-010 Chapter 300 Electric Plant – General

B3501. Discussion

a. This chapter provides requirements to establish electrical safety programs to protect Navy civilian and military personnel from electrical hazards, and to prevent mishaps that could cause injuries and extensive damage to equipment. Navy military and civilian personnel include both those whose jobs involve electrical work (i.e., qualified electrical workers) and those who do not work with electrical energy but who may inadvertently come in contact with electrical energy (i.e., unqualified workers).

b. While this chapter does not repeat the OSHA standards, references (a), (b) through (d), it pulls some key requirements from them, as well as the National Fire Protection Association (NFPA) Standard for Electrical Safety in the Workplace, reference (e), and Unified Facility Criteria Electrical Safety Operations and Maintenance Standard, reference (f), to assist all Navy personnel ashore to navigate through the standards and to work safely. Electrical lock out tagout and lock out tags plus policy continues to be included in the chapter on energy control, Chapter 24.

B3502. Program Definitions and Hazards. The OSHA standards and those incorporated by reference provide general requirements for working safely with electrical and electronic equipment ashore. Electrical hazards are particularly dangerous because the human body usually does not sense electrical energy until contact is made and significant injury has already occurred. Workers must always be aware of the location of energized equipment and its voltage level at each job site. Additionally, workers must be aware of the possible sources of electrical feedback

from other energized power sources into the work site. These hazards must be determined prior to starting work. Examples of the hazards present during electrical and electronic work include:

a. Electric Shock. Voltages as low as 30 volts may be fatal, depending upon the path of the current, whether it passes through the heart, the amount of current, and the length of time the current is flowing.

b. Fire. Electronic equipment fires generally occur from electrical short circuits, overloaded circuits, improper use of electrical equipment, overheated motors, and use of flammable liquids in the presence of an electric spark or hot surface as well as paper in contact with an overheated surface.

c. Arc Flash. An arc flash is the sudden release of electrical energy through the air when a high-voltage gap exists and there is a breakdown between conductors. An arc flash gives off thermal radiation (heat) and bright, intense light that can cause burns. Temperatures have been recorded as high as 35,000 °F. High-voltage arcs can also produce considerable pressure waves by rapidly heating the air and creating a blast. This pressure burst can hit a worker with great force and send molten metal droplets from melted copper and aluminum electrical components great distances at extremely high velocities. These and other hazards can be eliminated or reduced by pre-job planning (e.g., job hazard analysis) which must include engineering guidance in understanding the system's operation and review of up-to-date single line and schematic as-built drawings. All apparel, tools, and other equipment required for worker safety must be identified and available before beginning the job.

B3503. Electrical Safety Program General Requirements

a. The electrical safety program must be an integral part of the command, unit, or activity safety program.

b. The electrical safety program must be designed to provide an awareness of potential electrical hazards for persons who might occasionally work in an environment influenced by the presence of electrical energy as well those who use electrical tools and equipment.

c. An electrical safety program must include all the elements needed to provide guidance to employees in addition to:

(1) Ensuring that electrical safety is included in design, contracts and procurement of electrically powered equipment.

(2) Updating training as necessary.

(3) Providing current procedures for working within the Limited Approach Boundary of energized electrical conductors or parts operating at 30 volts or more that guide worker actions.

- (4) Reviewing work processes to ensure that procedures are changed when necessary.
 - (5) Requiring personal protective equipment (PPE) for different work tasks.
 - (6) Auditing processes that identify and monitor developing knowledge or changes about equipment and maintenance requirements.
 - (7) Ensuring that electrical safety requirements are included in acquisition of new facilities, ships, tools, etc.
 - (8) Providing electrical safety expertise to the investigation of electrical mishaps or near miss events. The optional OPNAV 5100/39T Electrical Mishap Investigation form may be used to assist in this effort. Chapter 14 and reference (i) provide additional information on mishap investigation and reporting.
- d. The electrical safety program must identify the hazard and risk evaluation procedure to be used before work is started within the Limited Approach Boundary for energized circuits operating at 30 volts or more or where an electrical hazard exists.

B3504. General Electrical Safety

- a. All electrical equipment must be installed in accordance with reference (g).
- b. All equipment will be used following the underwriters laboratory listing guidance and will be used following the manufacturer's instructions or technical manuals.
- c. Maintenance will be performed on electrical equipment following manufacturer's instructions and technical manual instructions.
- d. Precautions for equipment commonly found in workplaces. The equipment in paragraphs f through k is found in many environments. Specific precautions and instructions for these will be applied.
- e. Adapters. Adapters to plug 3-prong electrical plugs into 2-prong receptacles are prohibited. These defeat the electrical grounding circuit and can create a hazard.
- f. Extension cords. Use extension cords only when necessary and only on a temporary basis, not to exceed 90 days.
 - (1) When disconnecting cords, pull the plug body, rather than the cord itself. Pulling on the cord damages the conductors and the terminations in the plug.
 - (2) Use only 3-wire extension cords for appliances and power tools with 3-prong plugs. Never remove the third (round or U-shaped) grounding prong, which is a safety feature designed

to reduce the risk of shock and electrocution. Appliances, refrigerators, microwave ovens, and space heaters must be plugged directly into wall outlets never into an extension cord.

(3) Stringing of extension cords, surge protectors, or uninterruptible power supplies (i.e., daisy chain or splitting), or going from one cord to several (i.e., tree branching), is prohibited unless approved by local safety authority.

(4) Do not use extension cords to raise and lower equipment.

(5) Do not plug extension cords into plug strips or surge protectors.

(6) Do not run extension cords through walls, ceilings, floors, doors, or windows. Do not conceal behind walls, dropped ceilings, or floors.

(7) Do not place extension cords where they will be walked on, nor ran over by equipment. If extension cords must be placed in travel lanes, they must be protected by housings, bridges, or covers approved for such use.

g. Portable cord- and plug-connected equipment and flexible cord sets (e.g., extension cords) will be visually inspected for external defects (e.g., loose parts, deformed and missing pins, or damage to outer jacket or insulation) before use on any shift, and for evidence of possible internal damage (e.g., pinched or crushed outer jacket). Cord-and plug connected equipment and flexible cord sets (e.g., extension cords) which remain connected once they are put in place and are not exposed to damage need not be visually inspected until they are relocated. If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item will be removed from service, and no employee may use it until repairs and tests necessary to render the equipment safe have been made by a qualified electrician.

h. Multi-receptacle surge protectors are typically rated for a total of 15 amperes. The total ampere load to be plugged into a 15-ampere rated surge protector must not exceed 12 amperes.

i. Ground fault circuit interrupters (GFCI)

(1) All GFCI protected outlets must be installed as required by reference (g).

(2) Periodic testing with a GFCI tester is recommended to ensure the GFCI is functioning at the correct current levels. Replace defective GFCI receptacles.

(3) A GFCI is required for receptacles, tools, and equipment in wet or damp locations, including outdoors. A portable GFCI must be used when a permanently installed GFCI receptacle is not available.

j. Portable electric heaters. The local command, unit, or activity will establish a policy on portable electric heaters. Portable electric heaters are high-wattage appliances that have the potential to overload circuits and/or cords.

(1) Do not operate a heater suspected of being damaged. Before use, inspect the heater, cord, and plug for damage. Follow all operation and maintenance instructions or visit <http://www.recalls.gov> to see if that model of electric heater has been recalled. Also, visit the Consumer Safety Product Services Web site at <http://www.cpsc.gov> for additional information.

(2) Do not leave the heater operating while unattended or while sleeping.

(3) Keep combustible material such as beds, sofas, curtains, papers, and clothes at least 3 ft (0.9 m) from the front, sides, and rear of the heater.

(4) Be sure the heater plug fits tightly into the wall outlet. If not, do not use the outlet to power the heater.

(5) During use, check frequently to determine if the heater plug or cord, wall outlet, or faceplate is hot. If so, discontinue use of the heater and have a qualified electrician check and, if necessary, replace the plug or faulty wall outlet(s). If the cord is hot, disconnect the heater, and have it inspected and, if necessary, repaired by an authorized repair person.

(6) Do not power the heater with an extension cord or power strip.

(7) Ensure that the heater is placed on a stable, level surface, and located where it will not be knocked over.

(8) Always keep electric heaters away from water, and do not touch an electric heater if skin or clothing is wet.

(9) In older buildings, consult with supporting facility electricians to determine if the building wiring can support the additional load of portable electric heaters.

k. Requirements for Temporary Wiring. Temporary electrical power and lighting installations 600 volts or less, including flexible cords, cables and extension cords, may only be used during and for renovation, maintenance, repair, or experimental work. The duration for temporary wiring used for decorative lighting for special events and similar purposes may not exceed 90 days.

l. Shore-to-Ship Power. A malfunction or misapplication of shore-to-ship power equipment could cause at least an inconvenient interruption of electrical service to a ship. At worst, it could threaten the lives of personnel, damage critical shipboard, and shore power equipment, or completely disable a ship. When connecting and disconnecting, all steps in

procedures must be followed and total compliance is critical to mitigating the hazards of shore power connections and disconnections. Refer to reference (h).

- m. Unplug all electrical decorations when work area is unoccupied.

B3505. General Electrical Work Principles

- a. General work principles.

- (1) Assume all conductors are live until tested.

- (2) Safety related work practices must be used while persons are exposed to electrical hazards from electrical conductors or circuit parts that are or can become energized. Specific safety-related work practices must be consistent with the nature and extent of the associated electrical hazards.

- b. Wet or Damp Locations. Work in wet or damp work locations (i.e., areas surrounded or near water or other liquids) should not be performed unless it is absolutely critical. Electrical work should be postponed until the liquid can be cleaned up. These special precautions must be incorporated while performing work in damp locations:

- (1) Only use electrical cords that have (GFCIs).

- (2) Place a dry barrier over any wet or damp work surface.

- (3) Remove standing water before beginning work.

- c. All electrical wiring and equipment must be a type listed by a nationally recognized testing laboratory for the specific application for which it is to be used.

B3506. Electrically Safe Work Condition

- a. The normal condition required for performance of electrical work is an electrically safe working condition. Energized electrical conductors and circuit parts to which personnel might be exposed must be put into an electrically safe work condition before work is performed, if personnel are within the limited approach boundary, or there is an interaction with the equipment where conductors are not exposed, but an increased risk of injury from an exposure to arc flash hazard exists.

- b. Before work is begun, the qualified person must ascertain whether any part of an electric power circuit (exposed or concealed) is located such that the performance of work could bring any person, tool, or machine into physical or electrical contact with it. Some equipment has

more than one source of power that requires opening multiple breakers or switches and/or removing multiple fuses.

c. Steps to establish an Electrically Safe Work Condition

(1) De-energize the circuit and equipment. The circuit and equipment to be worked on must be disconnected from all electric energy sources. Control circuit devices, such as pushbuttons, selector switches, and interlocks, may not be used as the sole means for de-energizing circuits or equipment. Stored electric energy which might endanger personnel must be released.

(2) Apply lock or tag to the disconnecting means using the control of hazardous energy, in accordance with Chapter 24.

(3) Verify the de-energized condition. Use appropriate test equipment to test the circuit elements and electrical parts of equipment to which personnel will be exposed and verify that the circuit elements and equipment parts are de-energized.

B3507. Energized Work. Energized work is where work is being performed inside the Limited Approach Boundary or where exposed, energized electrical conductors or circuit parts are readily accessible by inadvertent contact with tools or personnel when the electrical conductor or circuit parts have not been placed in an Electrically Safe Work Condition.

a. A qualified worker can perform work on or near exposed energized conductors or circuit parts under these conditions:

(1) De-energizing the conductors or equipment could result in an increased hazard.

(2) De-energizing the conductors or equipment could require a complete shut-down of an essential process.

(3) The work to be done is infeasible in a de-energized state due to equipment design or operational limitations.

b. Work on energized electrical equipment when not placed into an electrically safe work condition requires an energized electrical work permit approval by the commander, commanding officer in charge or in his or her absence, the command duty officer (CDO). The commander, commanding officer, or officer in charge may designate a senior manager to approve energized work permits. Permits that cover routine work tasks to be performed by trained and qualified persons can be written to cover a long period of time, for example if the worker is trained and wearing the necessary PPE, a permit might be issued for three months to replace a fuse that involves an exposed energized electrical conductor.

c. Work permits must include but are not limited to:

- (1) A description of the circuit and equipment to be worked on and its location.
- (2) Justification why the work must be performed in an energized state.
- (3) A description of safe work practices to be employed.
- (4) Results of the shock analysis.
- (5) Determination of shock protection boundaries.
- (6) Results of the arc flash hazard analysis.
- (7) The necessary personal protective equipment.
- (8) Means employed to restrict the access of unqualified persons from the work area.
- (9) Evidence of completion of a job briefing including a discussion of job specific hazards.

d. An energized electrical work permit is not required for the instances listed. However, all of the appropriate electrical safety practices do apply.

- (1) Performing a voltage verification to establish an electrically safe working condition.
- (2) Testing, troubleshooting, and voltage measuring where
 - (a) There are no exposed energized electrical circuits or parts, and
 - (b) There is no interaction with the equipment that would increase the likelihood of an arc flash.

B3508. Training

a. Training requirements must apply to all persons who face an electrical hazard. The training must include: what electrical hazards are present in the workplace; understand how each electrical hazard affects the human body; how to determine the degree of each hazard; understand how exposure to each electrical hazard might exist in each step in the work task; safety related work practices; how to minimize risk by body position; understand the characteristics of what PPE is needed; how to select and inspect PPE; what electrical safety program SOPs must be implemented; how to determine limited, restricted and prohibited approach boundaries; recognizing symptoms of electrical shock, electrical shock trauma; and

how to request emergency assistance and emergency first aid responder techniques if their duties warrant such training.

b. Training should include classroom or on-the-job and actual performance of the work under the supervision of knowledgeable persons. The degree of training needed must be determined by the employee's associated work tasks.

c. A qualified person (QP), i.e., those permitted to work on or near exposed energized parts, will, at a minimum, be trained in and familiar with:

(1) The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.

(2) The skills and techniques necessary to determine the nominal voltage of exposed live parts, and

(3) The clearance distances specified in 1910.333(c) and the corresponding voltages to which the qualified person will be exposed.

d. For a person to be considered qualified, they must have the craft training necessary to be knowledgeable in the operation of the equipment associated with the work task or the specific work method.

B3509. Personal Protective Equipment

a. When a worker is working within the Arc Flash Protection Boundary he or she must wear arc-rated clothing and other PPE as required by the job task.

(1) Arc-rated clothing must be worn wherever there is possible exposure to an electric arc flash above the threshold incident energy level for a second degree burn.

(2) PPE used for protection from the thermal hazards associated with an arcing fault must be arc-rated.

(3) The garment manufacturer's instructions for arc-rated clothing washing, laundering and maintenance must be followed.

b. Workers must wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with energized electrical conductors or circuit parts or from flying objects resulting from an electrical explosion.

c. Workers must wear protective eyewear, footwear, hand and arm protection which conform to applicable ASTM and ANSI standards. Properly tested rubber insulating gloves must be rated for the voltage for which the gloves will be exposed.

d. Workers must use insulated tools and/or handling equipment when working inside the Limited Approach Boundary of exposed energized electrical conductors or circuit parts where tools or handling equipment might make accidental contact. References (a) and (g) provide further information for tasks that require insulated tools.

e. Personnel must be adequately trained to administer first aid and cardiopulmonary resuscitation, refer to chapter 6 for additional guidance.

B3510. Responsibilities

a. Commanders, Commanding Officers, and Officers in Charge must develop and implement an electrical safety program.

(1) The electrical safety program will directly address all electrical hazards that exist at the installation.

(2) The electrical safety program will provide the appropriate guidance for determining and mitigating the electrical hazards associated with the voltage, arc flash energy level, and circuit conditions of the work being performed. The electrical safety program must be written and available to all affected persons.

(3) Supervisors and managers at the command, unit, or activity level must enforce the applicable principles as they pertain to the systems under their cognizance.

(4) Supervisors and managers will ensure mishap, near miss, and hazard reports are made to Naval Safety Center in accordance with Navy and Marine Corps Hazard and Mishap Notification and Record Keeping Manual, reference (i).

b. The Naval Education and Training Command must perform those duties identified in paragraph B0206e as well as:

(1) Develop electrical safety training and establish training guidelines for electrical safety.

(2) Evaluate training to ensure courses meet the training guidelines.

c. NAVFAC and their field activities must:

(1) Ensure electrical safety is integral to construction and repair work, including contracts.

(2) Provide assistance to activities for arc flash hazard analysis.

(3) Participate in update of the unified facilities requirements for electrical safety, reference (f).

d. All echelon 2 commands (except CNIC) must ensure their field activities establish electrical safety programs for mission safety and echelon 2 commands must audit these programs as outlined in Chapter 3.

e. Naval Supply Systems Command and their field activities must provide electrical safety support to ensure that equipment available for purchase throughout the Navy supply system meets electrical safety requirement.

f. Naval Air Systems Command and their field activities must provide electrical safety support to ensure that naval aircraft are maintained to meet electrical safety requirements.

g. Chief, Bureau of Medicine and Surgery and their field activities must provide occupational medicine support as outlined in Chapter 8.

h. Naval Sea Systems Command and their field activities must ensure that electrical safety is integral to their ship-related mission via this chapter and their Naval Ships Technical Manual 300, reference (j).

i. Commander, Navy Installations Command is responsible for electrical safety in administrative buildings on installations (i.e., base operating support (BOS)), excluding the construction and repair work conducted by Naval Facilities Engineering Command.

j. Commands, units, and activities that design and build electrical equipment must have a program in place to ensure that the equipment is built to the applicable standards so that personnel using the equipment are not exposed to electrical hazards.

CHAPTER 36

TRAFFIC SAFETY PROGRAM

- Ref:
- (a) DoD Instruction 6055.04 Change 4, DoD Traffic Safety Program, 31 Aug 2018
 - (b) Title 49 CFR 571, Federal Motor Vehicle Safety Standards
 - (c) NAVFAC P-300, Management of Civil Engineering Support Equipment, Sep 2003
 - (d) OPNAVINST 3500.39D, Operational Risk Management, 29 March 2018
 - (e) OPNAVINST 11200.5D, Motor Vehicle Traffic Supervision, 22 May 2006
 - (f) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, And Record Keeping Manual, 7 Jan 2005

B3601. Discussion. This chapter assigns responsibilities and establishes policy for the Navy Traffic Safety Program at commands, units and activities.

B3602. Background

a. The primary goal of the Navy Traffic Safety Program is to reduce, and ultimately eliminate, motor vehicle mishaps and the deaths, injuries, and property damage associated with them. Motor vehicle mishaps remain an ever present threat that causes significant harm to our sailors, civilian employees, communities, and the ability to successfully complete our mission. Commanders, Commanding Officers, and Officers-In-Charge at all levels must fully incorporate the requirements of this chapter into all operations. Deliberate and seamless integration from the command level on down is vital to ensure an effective traffic safety program is implemented across the Navy Enterprise.

b. The Navy Traffic Safety Program will be managed in concert with all applicable federal, state, local, and host-nation laws or regulations. No listed requirement should be assumed to allow or direct circumvention of any legal requirement.

B3603. Scope

- a. This chapter applies to:
- (1) All Navy military members at all times, on or off duty.
 - (2) All Navy civilian employees operating a vehicle in the performance of their assigned duties.
 - (3) All individuals on a Navy installation.
 - (4) All operators or passengers in a vehicle owned, rented, or leased for Navy use.

b. Violation of provisions of this chapter by military members may be punishable under the Uniform Code of Military Justice (UCMJ).

c. Violations of the provisions of this chapter by civilian employees may subject them to adverse personnel action, per applicable civilian personnel instructions.

B3604. General Traffic Safety Requirements

a. Government Motor Vehicle (GMV) Requirements.

(1) All motor vehicles owned, rented, or leased for Navy use must meet the requirements of references (a) and (b). Tactical and combat vehicles must only comply with reference (a).

(2) All Government-maintained vehicles (including non-appropriated fund vehicles, Government-owned, and contractor-operated vehicles) must pass a safety inspection at least annually. This safety inspection will include technical requirements of local, state, or host-nation vehicle inspection standards. These systems and components will be evaluated, at a minimum: safety belts, air bags, lighting, glazing (windshields and side glass), exhaust system, wipers, horns, brake systems, steering systems, suspension, tires, and wheel assemblies.

b. General Operator Licensing.

(1) All operators of government and privately-owned motor vehicles must be properly licensed or permitted when operating these vehicles on public and Navy owned or controlled roadways. Vehicle operators will follow and stay aware of applicable host-nation, federal, or state licensing procedures including Status of Forces Agreements.

(2) Licensing guidance, policy, and procedures for driver testing and issuance of Optional Form (OF) 346 U.S. Government Motor Vehicle Operator's Identification Card is contained in reference (c).

(3) Motorcycle Operator Licensing.

(a) CONUS. All operators of government and privately-owned motorcycles must be properly licensed or permitted when operating these vehicles on public and Navy owned or controlled roadways. For tactical motorcycle operators, a valid OF-346 with a motorcycle endorsement accompanied with a valid state driver's license fulfills this requirement.

(b) OCONUS. Operators of government-owned and privately-owned motorcycles in countries that do not accept U.S. motorcycle safety training courses for licensing purposes may be issued certificates or endorsements to ride provided they complete a COMNAVSAFECEN approved motorcycle safety course. These certificates or endorsements are issued by the commander, commanding officer, or designated representative. Certificates must not violate any host-nation or other command agreements, regulations, or orders and will not be valid in the United States.

c. Maximum Driving Time.

(1) Official Duty

(a) The operational risk management (ORM) process required under reference (d) will be applied when planning trips and all risk factors that could lead to a motor vehicle mishap will be considered. It is strongly encouraged for supervisors to review all travel plans, including mode of transportation, driving distance and time, rest periods, and accommodations prior to approval of official travel.

(b) No one may drive or require another person to drive more than a total of 11 hours in a 24-hour period. A 14-hour duty day, including driving and all other duties, will be the maximum allowed unless required under exceptional conditions. Exceptions to these limits may only be approved at the Commanding Officer Officer-In-Charge, or Executive Officer level upon completion of a formal risk assessment meeting the requirements of reference (d). Emergency vehicle operators assigned to rotating shifts with sleeping accommodations are exempt.

(c) Operators will follow any host-nation, federal, or state guidelines that may exist regarding maximum driving time.

(d) Use of alcohol or potentially impairing drugs within the 8 hours prior to operating a GMV or PMV for official duty is prohibited.

(e) Drivers carrying explosives or other hazardous cargo will comply with 49 CFR 395, NAVSEA SW020-AG-SAF-010 and NAVSEA SW020-AF-HBK-010.

(2) Off-Duty

(a) Military members will apply the ORM process required under reference (d) when planning trips and will consider all risk factors that could lead to a motor vehicle mishap. It is strongly encouraged for supervisors to review all travel plans, including mode of transportation, driving distance and time, rest periods, and accommodations prior to leave approval. The use of TRiPS is highly recommended to meet this requirement.

(b) Military members, while in a leave or liberty status, will be aware of defined liberty limits and regulations constantly taking into consideration the local situation, including the surrounding facilities, availability of transportation, commuting distances, and other factors.

(c) All personnel will follow any host-nation, federal, or state guidelines that may exist regarding maximum driving time.

d. Occupant Protection. All operators and occupants will follow host-nation, federal, or state laws regarding occupant protection.

(1) Safety Belts – GMV.

(a) GMVs will be equipped with safety belts meeting the requirements of reference (b). Safety belts will be maintained in a serviceable condition.

(b) Vehicle occupants will properly wear safety belts. Occupants will not ride in seating positions where safety belts have not been installed, have been removed, or rendered inoperative.

(c) Passengers will not ride in the cargo areas of motor vehicles when prohibited by host-nation, federal, state, or local laws. When not prohibited by law, passengers in cargo area must use safety belts that meet the requirements of reference (b). Occupants in tactical vehicles without seat belts will remain wholly seated inside the body of the vehicle.

(d) The use of child safety seats in vehicles will be consistent with host-nation, state, or local laws. The safest location for an installed child safety seat is in the center of the rear seat. Do not install child safety seats in the front seat of a vehicle equipped with a passenger side air bag.

(e) Vehicle drivers always hold responsibility for ensuring all occupants comply with safety belt and child safety seat requirements. For military member occupants, the senior ranking person is also responsible.

(f) If any part of the safety belt assembly or air bag system malfunctions, is recalled, or otherwise deemed inoperable the driver will ensure it is reported immediately and the vehicle will be placed out of service until repaired or replaced.

(2) Safety Belts – PMV.

(a) All military members and civilian employees on a Navy installation will properly wear safety belts when occupying a motor vehicle in operation. Individuals will not ride in seating positions where safety belts have not been installed, have been removed, or rendered inoperative.

(b) Passengers will not ride in the cargo areas of motor vehicles when prohibited by host-nation, federal, state, or local laws. When not prohibited by law, passengers in cargo area must use safety belts that meet the requirements of reference (b).

(c) The use of child safety seats in vehicles will be consistent with host-nation, state, or local laws. The safest location for an installed child safety seat is in the center of the rear seat. Do not install child safety seats in the front seat of a vehicle equipped with a passenger side air bag.

(d) Vehicle drivers always hold responsibility for ensuring all occupants comply with safety belt and child safety seat requirements.

e. Motorcycles. Motorcycles are motor vehicles with a seat or saddle for the rider(s) and designed to travel on not more than three wheels. They are normally steered with a handlebar and may or may not have a sidecar. They include mopeds, motor scooters, and pocket bikes.

(1) Only motorcycles that meet the requirements of reference (b) will be operated on DON owned and controlled roadways.

(2) Motorcycle use will comply with local installation, host-nation, federal, state, and local laws and regulations.

(3) Motorcycles designed for off-road use only, gas-powered or electric mini-bikes, pocket bikes, Segways, and similar type vehicles that do not meet reference (b) will not be operated on DON owned and controlled roadways.

f. Autocycles. Autocycles are broadly defined as three-wheeled motor vehicles designed for on-highway use with a steering wheel, foot pedals for acceleration and braking, occupant seating, and seat belts. They are driven similar to a standard passenger vehicle and may or may not have enclosed cabins, airbags, or rollover protection. They are required to meet the motorcycle requirements in reference (b), as they are not currently recognized at the federal level. However, many states have established their own definitions, laws, and limitations for their use. Autocycles that do not meet federal safety standards for passenger vehicles will not be owned, rented, or leased for Navy use. Operators of autocycles that fully comply with all current federal, state, local, and host-nation laws and regulations will be allowed on Navy owned and controlled roadways. Operators of autocycles will not be required to meet the motorcycle operator training requirements of this chapter.

g. All-Terrain Vehicles (ATV). ATVs are four-wheeled vehicles that generally do not provide occupant protection features and are not designed for on-highway use. They are normally steered with a handlebar, have throttle controls, hand levers for breaking, and require riders to straddle a seat and shift their body weight to steer the vehicle.

(1) ATVs that do not meet the requirement of reference (b) will not be operated on Navy owned or controlled roadways. Where allowed, their use will be restricted to off-road areas. Installation commanders will designate areas approved for use.

(2) Commands using these vehicles will establish standard operating procedures, authorized areas of usage, perform annual vehicle inspections, and ensure the vehicles are operated and maintained in accordance with the manufacturer's guidance. Vehicles utilized off the installation will comply with host-nation, federal, state, local laws and regulations.

h. ROHV and Similar Off-Road Vehicles. Recreational off-highway vehicles (ROHV), utility terrain vehicles (UTV), and other types of off-road vehicles (ORV) generally provide some level of occupant protection features and are not designed for on-highway use. These vehicles generally have a steering wheel, foot pedals for acceleration & braking, seats, side retention features, and rollover protection. They may or may not have doors, windshields or windows.

(1) ROVs, UTVs, and similar types of ORVs that do not meet the requirement of reference (b) will not be operated on Navy owned or controlled roadways. Where allowed, their use will be restricted to off-road areas. Installation commanders will designate areas approved for use.

(2) Commands using these vehicles will establish standard operating procedures, authorized areas of usage, perform annual vehicle inspections, and ensure the vehicles are operated and maintained in accordance with the manufacturer's guidance. Vehicles utilized outside Navy installations will comply with host-nation, federal, state, local laws and regulations.

i. Emergency Vehicles (EV). Vehicles used to transport people and equipment for emergency response. They may include vehicles used for fires, medical emergencies, law enforcement, crash and rescue, explosive ordnance disposal, hazardous material responses, and other types of emergencies. Commands utilizing EVs will establish standard operating procedures, authorized areas of usage, perform annual vehicle inspections, and ensure the vehicles are operated and maintained in accordance with the manufacturer's guidance, where applicable.

j. Government Vehicle Other (GVO). Government owned vehicles primarily for off-highway operation that may be used to provide transport for one or more individuals. They include, but are not limited to, multi-tracked or multi-wheel vehicles, forklifts, aircraft tugs, motorized scooters, golf carts, agricultural vehicles, amphibious vehicles, ground effect air cushion vehicles, wind powered vehicles, or other means of transportation deriving motive power from a source other than muscle (hand or foot) power.

(1) Commands utilizing GVOs will establish standard operating procedures, authorized areas of usage, perform annual vehicle inspections, and ensure the vehicles are operated and maintained in accordance with the manufacturer's guidance, where applicable.

(2) GVOs will meet host-nation, federal, state, local laws and regulations, where applicable.

(3) GVOs not designed for on-highway use will not be operated on Navy owned or controlled roadways.

k. Low Speed Vehicles (LSVs). LSVs are motor vehicles designed to operate at least 20 miles per hour, but no greater than 25 miles per hour. LSVs operated on roadways will be marked with the slow moving vehicle emblem in accordance with reference (c). All LSVs will meet the safety requirements of reference (b) such as windshields, exterior mirrors mounted on driver and passenger sides of the vehicle, head lamps, tail lamps, brake lamps, emergency flashers and turn signals, reflectors, parking brake, safety belts, and vehicle identification number. They also will meet host-

nation, federal, state, and local safety requirements. Non-standard vehicles modified to match the speed of a LSV for operation on Navy owned or controlled roadways will comply with this paragraph.

l. Cell Phones, Texting, and Driver Distractions. All motor vehicle operators on Navy installations, operators of government owned, rented, and leased vehicles, and operators performing official assigned duties, on and off Navy installations, will not use cell phones or other hand-held electronic devices unless the vehicle is safely parked. Additionally, the wearing of any portable headsets, earbuds, or other similar listening devices while operating a motor vehicle is prohibited. Military members and civilian personnel who operate PMVs off base will comply with host-nation, state, and local laws. All personnel are encouraged to refrain from any activity that may be a distraction while driving and lead to traffic mishaps (e.g., eating; text messaging; adjusting the radio; shaving; applying make-up; reading maps, newspapers, magazines, or books, etc.). Exceptions are allowed for operators of emergency or tactical vehicles during performance of official duties.

m. Activity Vehicle Transportation. Provisions will be made to reduce the danger of death or injury to occupants while they are being transported to and from school or related activities, in Navy or contractor-owned multi-passenger vehicles. Navy school buses will be marked, equipped, operated, and maintained consistent with reference (c). Private contractors will comply with host-nation, federal, state, or local requirements in addition to any contractual requirements imposed by the applicable Navy component.

n. Headlights and Daytime Running Lights (DRLs). Vehicles will be operated with headlights turned on during periods of precipitation or reduced visibility on all Navy owned or controlled roadways. Examples are, but not limited to, periods of light or heavy rain, snow, fog, smoke, or darkness.

o. Open Alcohol Containers. While driving on any Navy installation, the operators and passengers of motor vehicles are prohibited from having open containers of alcoholic beverages in their ready possession.

p. Traffic Infractions. All traffic infractions, other than impaired driving (e.g., driving under the influence), occurring on Navy installations (in the United States or U.S. territories) will be referred to the appropriate U.S. magistrate, state, or local judicial authorities; as determined by base or regional agreement regarding jurisdiction on board the installation [see reference (e)]. Any vehicle operator convicted of a moving traffic infraction will comply with the penalty imposed by the court. Any associated cost or use of leave is the responsibility of the individual.

q. Pedestrians and Bicycles.

(1) Pedestrians.

(a) Pedestrians will be separated from motor vehicle traffic. This may be accomplished through the use of crosswalks, sidewalks, paths, trails, ramps, dedicated travel lanes, vehicle traffic restrictions, or other suitable protection measures. All applicable accessibility standards will be met.

(b) Individuals running/jogging on Navy owned or controlled roadways will face oncoming traffic, in single file, and obey traffic rules. General pedestrians will not be allowed to traverse roadways during high traffic periods. Installation commanders will designate roadways and times where pedestrian traffic restrictions apply (includes marching formations).

(c) Strong emphasis will be placed on the protection of children walking to and from school, entering and leaving school buses, and playing in Navy housing areas.

(d) Personnel exposed to traffic hazards as a part of their assigned duties will wear applicable high-visibility or reflective clothing or PPE (e.g., gate sentries, troops in marching formations, traffic control personnel, road construction crews, electricians, or telephone repair personnel working on outside overhead lines).

(e) Personnel exposed to traffic hazards for non-duty purposes should wear reflective outer garments during periods of reduced visibility or darkness.

(f) Use of motorized (electric, gas, etc.) or human powered scooters, skateboards, roller-skates, roller-blades, and other similar equipment will only be used in approved areas on Navy installations. As a minimum, users of this equipment will wear head protection on Navy installations. Motorized scooters, skateboards, and similar equipment capable of traveling 20 miles per hour or higher that do not meet the requirements of reference (b) will not be operated on Navy owned or controlled roadways. The use of these devices will always comply with the manufacture's guidance and all applicable federal, state, local, and host-nation laws or regulations.

(2) Bicycles and other Pedal-Driven Vehicles.

(a) Cyclists on Navy installations will comply with local installation, host-nation, state, or local laws and regulations. Where allowed on roadways, cyclists will ride with the flow of traffic, in single file, obeying the rules of the road.

(b) At shipyards and other high hazard areas with vehicle traffic, cyclists will be separated from motor vehicle traffic through the use of dedicated travel lanes, physical barriers, vehicle traffic restrictions, or other suitable protection measures.

(c) All military members will properly wear an approved helmet when riding a bicycle. Others will wear an approved helmet while on a Navy installation. Helmets must meet the requirement of the Consumer Product Safety Commission (16 CFR 1403). Commanders will determine helmet requirements for bicycle operators at industrial work sites.

(d) Cyclists will ensure bicycles are in proper operating condition (e.g., tire inflated properly, brakes and steering work properly, appropriate reflectors are in place, etc.).

(e) Required safety equipment for bicycles includes working brakes and reflectors. Additionally, for bicycles ridden between sunset and sunrise, a white light on the front with the light being visible from a distance of at least 500 feet, and a red light on the rear that is visible at a distance of at least 600 feet is required. These lights may be steady burning or blinking.

(f) The wear of high-visibility or reflective outer garments is strongly recommended during periods of darkness or reduced visibility.

(3) Listening Devices. Pedestrians and cyclists are prohibited from using any listening device that may impair recognition of emergency signal, alarm, announcement, approaching vehicle, etc., while on Navy owned or controlled roadways. This includes the wear of portable headsets, earbuds, cellular hands-free devices, radios, recording devices or other portable listening devices while running, jogging, walking, bicycling, skating, skate boarding, etc. Listening devices may be used on paths and routes where users are protected from nearby motor vehicle traffic or motor vehicle traffic is not allowed.

r. Personal Protective Equipment (PPE) Requirements.

(1) Motorcycles and All-Terrain Vehicles. Military members will properly wear PPE at all times while riding motorcycles or ATVs. Non-military operators will wear PPE while on Navy owned or controlled installations or while conducting assigned duties.

(a) Head Protection. A helmet meeting the requirements of reference (b) will be worn and properly fastened under the chin. Helmets not intended to be used as safety equipment (i.e., novelty) are prohibited.

(b) Eye Protection. Protective eye devices designed for motorcycle operators (impact or shatter resistant safety glasses, goggles, wrap around glasses sealing the eye, or face shield properly attached to the helmet) will be properly worn. A windshield or standard sunglasses or standard eye wear alone are not proper eye protection.

(c) Foot Protection. Sturdy over the ankle footwear that affords protection for the toes, feet, and ankles will be worn.

(d) Protective Clothing. Riders and passengers will wear a long sleeved shirt or jacket, long trousers, and full-fingered gloves or mittens constructed of abrasion resistant materials such as leather, Kevlar®, or CORDURA® Nylon. In addition, the inclusion of impact-absorbing padding and outer garments constructed of brightly colored, fluorescent, or reflective materials are highly recommended. Riders on government-owned motorcycles and ATV will also wear knee and shin guards and padded full-fingered gloves, when applicable.

(e) When riding on Department of Defense (DoD) installations controlled by another service, riders must comply with that service's PPE requirements.

(2) Other Off-Road Vehicles. Military members will follow motorcycle and ATV head and eye protection requirements of this chapter when operating or occupying ROVs or similar ORVs designed for off-highway use without fully enclosed cabins. Non-military operators will follow these requirements while on Navy owned or controlled installations or while conducting assigned duties.

(3) Autocycles.

(a) Military members will follow motorcycle and ATV head and eye protection requirements of this chapter when operating or occupying autocycles without a fully enclosed cabin. Civilian employees will follow these requirements on a Navy owned or controlled installations or while conducting assigned duties.

(b) Operator and passenger use of autocycles will comply with all applicable state, federal, local, and host-nation PPE requirements beyond the requirements of this chapter.

B3605. Training Requirements. Training required in this paragraph will be provided to all military members and DoD civilians who operate a GMV as a part of their official duties. This training will be provided at no cost and no charge in leave to the attendee. This training may be provided to other DoD civilian employees, dependents, and retirees at no cost, on a space available basis.

a. Driver Education.

(1) All military members under the age of 26 must receive 4 hours of traffic safety training within 12 months of entering the Navy. This training will convey to incoming personnel the profound responsibility associated with operation of a PMV, Navy expectations for responsible vehicle operation, and the significant impact PMV fatalities have on naval operational readiness.

(2) Service schools and initial assignment commands for military members will provide the training outlined for all military members who have not previously completed the training within 90 days of arrival. This training will address general traffic safety precautions and local command traffic safety policies as well as any unique traffic safety considerations appropriate for the area. The Navy eLearning "Driving for Life Course" (DFL); any National Safety Council, American Automobile Association (AAA), Smith-System Driver Improvement Institute course; or any locally developed or commercial course of instruction approved by COMNAVSAFECEN may be used to accomplish this training. Formal courses of instruction under 20 weeks in length and Navy "A" schools are exempt from this requirement.

b. Traffic Safety Orientation. Commands will ensure that all newly assigned personnel receive a local area/host-nation traffic safety orientation within 30 days of arrival. This orientation will describe factors that commonly lead to traffic related mishaps including speeding, impaired driving

(alcohol, illegal drugs, medications, sleep deprived), distracted driving, and failure to properly wear seat belts. It will also include information about local driving conditions, hazards, regulation, laws, and the legal consequences and penalties for impaired or distracted driving.

c. Traffic Safety Briefs. Commands will ensure traffic safety briefs are provided to all personnel prior to any holiday, foreign port visits, returning from deployment, seasonal change, or when traffic related mishap warrants additional training. These briefs will reinforce and supplement information provided in the traffic safety orientation. Traffic safety briefs may be informal or formal and accomplished at various opportunities including leave approvals, plan of the day, safety stand-downs, division and department briefs, and supervisory briefs. These briefings should be at the awareness level and should not be expected to create a significant time burden to mission accomplishment. Local installation safety offices, Traffic Safety Coordinators (TSC), and Motorcycle Safety Representatives (MSR) will provide assistance with obtaining applicable traffic safety information and briefing materials.

d. Driver Improvement

(1) All military and DoD civilian personnel who operate a GMV as their primary duty or a collateral duty for more than 8 hours a week will complete COMNAVSAFECEN approved training. Locally developed training may be authorized when approved by COMNAVSAFECEN in advance.

(2) When designating a duty driver, consider driving experience, driving history, and maturity.

(3) Commanding officers may exempt military members assigned to drive less than 8 hours in a duty week from this requirement.

(4) Duty drivers must be properly licensed and briefed on all applicable traffic safety regulations and requirements before the initial duty begins.

(5) Military or civilian personnel convicted of a moving traffic violation or determined to be at fault in a traffic mishap while operating a GMV will complete remedial driving improvement training. Any National Safety Council, American Automobile Association (AAA), Smith-System Driver Improvement Institute course; or any locally developed or commercial course of instruction approved by COMNAVSAFECEN may be used to accomplish this training.

e. Passenger Vans and Bus Operator Training.

(1) Operators of Navy owned, rented, or leased passenger vans with a capacity of 15 or more occupants will be provided training stressing the unique handling characteristics of these vehicles and the training will include hands on familiarization. Operators of Navy owned, rented, or leased passenger vans with a capacity of less than 15 occupants should be provided this training.

Installations may use locally developed training approved by COMNAVSAFECEN to meet this requirement.

(2) Operators of Navy owned, rented, or leased buses will successfully complete a host-nation, state, or local jurisdiction approved bus operator training program or Naval Facilities Engineering Command managed bus operator training.

f. **Motorcycle Operator Training.** These training requirements are mandatory for all military member operators, Navy civilian employees required to operate a motorcycle in the performance of their assigned duties, and operators of any Navy owned, rented, or leased motorcycle. Individuals subject to these training requirements will:

(1) Complete Level I training and obtain a valid motorcycle operator license, endorsement, or permit prior to operating these vehicles on any public and Navy owned or controlled roadway.

(2) Complete Level I training prior to attending any Level II or Level III training course.

(3) The three levels of motorcycle training are:

(a) **Level I (Beginner).** All military motorcycle riders will complete Level I training. Level I courses include: Basic Rider's Course (BRC), any COMNAVSAFECEN approved entry Level I course, or any host-nation or state approved curriculum intended to provide novice riders the skills and knowledge needed to obtain a motorcycle endorsement on their driver's license. Level I motorcycle training will consist of both classroom and range time training on:

1. Motorcycle Controls and Devices
2. Basic Riding, Balance and Maneuvers
3. Street Skill Sets (e.g., intersections, cornering, positioning)
4. Handling Characteristics
5. Navy Compliance and Local Laws
6. Proper Use of Required PPE

(b) **Level II (Intermediate/Sport bike).** All military motorcycle riders will complete Level II training within 60 days to 1 year of Level I training completion. Riders should use their personally owned motorcycle to complete the training, whenever possible. These courses are intended to build upon the skills and knowledge that riders obtained in Level I courses. Curriculum will consist of both classroom and range time to include practice maneuvers at slower speeds before progressing to street or highways speeds, providing instruction in challenging cornering techniques,

advanced braking, and other realistic scenarios. The BRC II, Military Sport bike Rider Course (MSRC), and Advanced Rider Course (ARC) are examples of level II courses approved for riders.

(c) Level III (Advanced/Track Days). These courses are intended to be taken on track days under a controlled environment or off site at professional training sites. Curriculum will improve an experienced Level II riders' skills and knowledge through a combination of drills at track speeds, challenging cornering techniques, and other realistic scenarios.

(d) Refresher Training. All military members who operate motorcycles will complete refresher training at least once every five years. The selected refresher course must meet or exceed the training curriculum of Level II or Level III training. It's strongly recommend that more experienced riders select refresher training suited to their level of skill and motorcycle type.

	LEVEL I TRAINING	LEVEL II TRAINING	REFRESHER TRAINING (LEVEL II/III)
TRAINING PERIODICITY	Before operation on public or Navy owned or controlled roadways	Within 60 days to 1 year of Level I training completion	At least once every 5 years
NOTE: Level 1 training does not need to be completed for riders that already hold a valid State motorcycle license endorsement or an original or certified copy of a completion card or certificate from a MSF, State-approved, or DoD Component-approved motorcycle course.			

(4) Motorcycle Operator Training for Other than Military.

(a) Navy civilian personnel who operate motorcycles in the performance of assigned duties must meet the requirements for Level I, Level II, and refresher training.

(b) All operators of Navy owned, rented, or leased motorcycles must meet the requirement for Level I, Level II, and refresher training.

(c) Civilian operators of personally owned motorcycles, not in the performance of assigned duties, with current state motorcycle operator license, endorsement, or permit are not required to complete training requirements in paragraph (f).

(5) Training for Operators of Three Wheeled Vehicles and Scooters. Operators of motorcycles with attached sidecars; three-wheeled vehicles (e.g., autocycles), scooters, mopeds, and certain other two-wheeled vehicles that may be legally operated without a driver license motorcycle endorsement are not required to complete motorcycle training. All host-nation, state, and local training requirements will be adhered to.

g. ATVs and Similar ORVs.

(1) All military members and Navy civilian personnel who operate government-owned, leased, or rented ATVs and ORVs will successfully complete a Specialty Vehicle Institute of America (SVIA) based course or COMNAVSAFECEN approved equivalent course prior to operating these vehicles. Operators of government-owned, leased, or rented ROVs or UTVs will successfully complete a Recreational Off-Highway Vehicle Association course or COMNAVSAFECEN approved equivalent.

(2) Operators of privately owned ATVs and ORVs on any Navy installation must successfully complete a Specialty Vehicle Institute of America based course or COMNAVSAFECEN approved equivalent. Operators of privately owned ROVs or UTVs on any Navy installation must successfully complete a SVIA Recreational Off-Highway Vehicle Association course or COMNAVSAFEECN approved equivalent. Training provided under the Navy Morale, Welfare, and Recreation Program will be considered approved, where equivalent to SVIA.

(3) Operators on DoD installations controlled by another service must comply with that service's specific PPE requirements.

(4) Operators of privately owned ATVs, ORVs, ROVs, or UTVs outside a DoD installation are highly encouraged to complete a Specialty Vehicle Institute of America based rider course.

(5) Equivalent courses must meet or exceed the curriculum of the Specialty Vehicle Institute of America rider course to receive COMNAVSAFECEN approval. ROVs, UTVs, and similar vehicles meeting the definition of paragraph B3604. h. of this chapter will not be considered ATVs.

(6) All additional or specialized state, federal, local, or host-nation training requirements will be followed.

h. Emergency Vehicles Operator Course (EVOC). All military and Navy civilian personnel prior to operation of any government-owned or leased EV, equipped with either emergency lighting and or sirens, will successfully complete a 40-hour basic EVOC course. All EVOC certification courses will be conducted by a certified EVOC instructor. The three levels of emergency vehicle training are:

(1) EVOC Basic Operator Training. Training prerequisites are as listed:

(a) Have assigned duties that involve EV operation (i.e., police, fire, crash and rescue, ambulance).

(b) Possess a valid driver's license (host-nation or state).

(c) Have at least 2 years of driving experience as a licensed driver.

(2) EVOC Instructor Training. Training prerequisites are as listed:

(a) Have assigned duties that involve EV operation (i.e., police, fire, crash and rescue, ambulance).

(b) Possess both a valid driver's license (host-nation or state) and OF-346 with the proper qualifications and endorsements.

(c) Have successfully completed the Basic Operator Training and have at least 2 years of EV driving experience.

(3) EVOC Recertification Training. Training Requirements are as listed:

(a) Instructors and operators are required to maintain their skills at an acceptable level. All instructors and operators are required to attend refresher, phase, or in-service training every 3 years.

(b) Instructors will attend and successfully complete a 3-day COMNAVSAFECEN-approved instructor recertification program.

(c) Operators must complete 24 hours of EV related training over the course of 3 years (i.e., 8 hours per fiscal year). Training will consist of:

1. Applicable host, state or local laws and regulations.

2. DoD and Navy policies, guidance, or other applicable region and command instructions.

3. Safe vehicle operating practices to include selected driving range exercises.

(4) EVOC Remedial Training.

(a) Any EV operator found at-fault in a motor vehicle mishap will complete remedial training within 30 days of the mishap.

(b) Supervisors may also require remedial training for personnel who demonstrate deficiencies in their driving habits or attitudes.

(5) Additional EVOC Program Guidance. EVOC training meets the driver improvement training required in this chapter. Additional EV instructor, operator, and recertification requirements can be found on the COMNAVSAFECEN Web site.

i. Alternative Course Approval Requests. Commands desiring to use alternative, non-recognized, or previously unapproved training may submit written requests to COMNAVSAFECEN.

B3606. Host Traffic Safety Services. Host traffic safety services will provide these elements, at a minimum:

a. Maintain a traffic safety program that fully complies with this chapter. Commands receiving Base Operating Support (BOS) services will follow host established traffic safety program policies.

b. Ensure installations using ORV, UTVs, and GVOs follow vehicle manufacture guidelines, host-nation or local laws, and host policy on how these vehicles will be operated on the installation, to include who, where, when, and how the vehicles may be operated.

c. Maintain oversight of installation roadways in compliance with reference (a) and the Manual on Uniform Traffic Control Devices (MUTCD) for safe and efficient movement of both vehicle and pedestrian traffic.

d. Provide resources for all traffic safety training required under this chapter to commands under their cognizance (both CONUS and OCONUS). Publish a 90-day schedule of traffic safety course convening dates, and provide the training to Navy installations within 30 days of request.

e. Ensure adequate training ranges are available to meet the training requirements contained in this chapter.

f. Ensure adequate numbers of training motorcycles (500 cubic centimeter (cc) or less) are provided to meet the Level I motorcycle training requirements contained in this chapter.

g. Where applicable maintain an adequate number of train-the-trainer instructors that are qualified to provide recertification training for all traffic safety training programs as required.

B3607. Traffic Safety Councils and Committees. Traffic safety is a mandatory Safety and Occupational Health (SOH) program and will be managed at the installation level by the BOS service provider or host command. Traffic safety may be managed as a standard agenda item in existing installation level SOH required under this manual, or its own separate council. NOTE: Traffic safety inherently encompasses motorcycle safety.

a. Traffic safety councils and committees will meet the requirements of this Manual and as a minimum:

(1) Identify, analyze, and recommend mitigation or abatement of any traffic safety issues that may lead to mishaps or increase their severity.

(2) Compile and maintain a list of traffic safety program deficiencies and associated action items. Track deficiencies and action items on the host command abatement log until abated or mitigated to an acceptable risk level.

(3) Review training needs assessments and provide a Plan of Action and Milestones to alleviate any training deficiencies.

(4) Disseminate traffic safety related guidance, lessons learned, best practices, etc., in order to reduce future traffic mishaps.

(5) Cooperate and coordinate with host-nation, federal, state, and local officials to resolve both on and off base traffic safety problems of mutual concern.

(6) As required by the installation commander, establish traffic accident review boards in accordance with reference (e) in review of traffic related mishaps to determine key causal factors and recommend measures to reduce the risk and/or severity of similar mishaps.

b. The traffic safety council will be chaired by the commanding officer or executive officer of the host command and include representatives from BOS and tenant command safety offices; base traffic engineering; emergency services departments; TSC, and MSR.

c. Motorcycle safety may be separated from the traffic safety council and managed as its own sub-group. If separated, the minutes of motorcycle safety meetings will be formally provided to the traffic safety council for oversight.

B3608. Motorcycle Mentorship Program. All commands with military motorcycle riders will maintain a mentorship program that allows experienced riders to partner with new and less experienced riders. New riders are inherently exposed to a higher risk to mishaps, so mentorship is vital to helping new and less experienced riders bridge the gap from introductory training (i.e. Level I and II courses) to becoming skilled in real world conditions. In lieu of an alternate designation, the MSR will facilitate the command program. While commands have great latitude to develop and maintain a mentorship program that meets and recognizes its needs and limitations, considerations should be reflected in all programs:

a. Programs should focus on pairing more experienced riders with less experienced riders and individual or group riders with similar type of bikes and riding goals.

- b. It is strongly recommend to have an experienced and active rider coordinate the command mentorship program.
- c. Whenever possible, traditional rank/rate structures should be relaxed during mentorship activities.
- d. In lieu of a command program, commands may participate in an installation program or form joint mentorship programs with other commands inside the DoD.
- e. Command programs may allow DoD civilian employee participation.
- f. The Defense Safety Oversight Council (DSOC) Motorcycle Mentorship Modules may be used to develop or enhance the command program. DSOC mentorship guidance is available on the COMNAVSAFECEN Web site.

B3609. Responsibilities

- a. Office of the Chief of Naval Operations, Special Assistant for Safety Matters, (CNO N09F)/Commander, Naval Safety Center (COMNAVSAFECEN) will:
 - (1) Develop and issue policy and guidance for the Navy Traffic Safety Program.
 - (2) Conduct on-site command installation traffic safety program reviews upon request from echelon 2 or 3 commands.
 - (3) Include traffic safety program reviews as part of all safety assessments.
 - (4) Provide program guidance and actively promote traffic safety.
 - (5) Coordinate and evaluate traffic safety programs, policies, and equipment with the DoD, other services, and governmental and non-governmental agencies.
 - (6) Serve as the repository for Navy and Marine Corps reportable motor vehicle mishap reports and provide traffic safety statistics, trend analysis, and recommendations to improve the overall Navy Traffic Safety Program.
 - (7) Develop, produce, and distribute traffic safety awareness products.
 - (8) Provide traffic safety program guidance, oversight, and quality assurance services for all Navy traffic safety training.
 - (9) Provide official validation of courses intended to meet the traffic safety training requirements of this chapter.

(10) Maintain awareness of new and emerging programs and technologies through engagement with industry, academia, and government and non-government agencies by attending national level traffic safety meetings and conferences.

b. Naval Inspector General (NAVINSGEN) will include the Navy Traffic Safety Program in scheduled safety program oversight reviews. Findings and recommendations for improvement will be provided to COMNAVSAFECEN as part of NAVINSGEN annual reports.

c. Commander, Naval Education and Training Command (NETC) will ensure initial traffic safety training for military members under age 26 is completed at all Service schools over 20 weeks in length. Formal courses of instruction under 20 weeks in length and Navy "A" schools are exempt from this requirement.

d. Budget Submitting Offices (BSOs) will ensure their commands and subordinate commands support and assist entities to ensure:

(1) CNIC funding, in part to implement the Navy Traffic Safety Program as a base operating service in order to comply with this chapter.

(2) Commanding Officers are funded to the maximum extent possible to support this program and all elements in accordance with this chapter.

e. Commander, Navy Installations Command (CNIC) will:

(1) Provide and execute traffic safety services for military members and civilian personnel as required by this chapter.

(2) Coordinate, execute, and manage the traffic safety training programs in accordance with this chapter.

(3) Establish policy for BOS traffic safety service implementation throughout the Navy with associated roles and responsibilities as required by this chapter.

(4) Implement and sustain standardized traffic safety training courses and ensure availability of adequate classes for course train-the-trainers and attendees for all Navy commands.

(5) Develop training specific to the local area with known hazards, risks, or resources that can be used by tenants during return to home port programs and safety stand-downs.

(6) Provide a training course enrollment system that allows all commands to effectively schedule individuals for traffic safety training required by this chapter.

(7) Compile an annual traffic safety training needs assessment based on input from installations and supported commanders to determine future training requirements, number, types of courses needed, and issues impeding traffic safety training support.

(8) Direct the establishment of a host provider or installation level traffic safety council to provide oversight at all locations where BOS services are provided.

(9) Ensure the appropriate BOS safety services traffic safety program managers are designated in writing.

(10) Follow all DoD traffic safety program requirements as required by reference (a).

f. Echelon 2 Commands will:

(1) Ensure all subordinate commands fully participate with the CNIC BOS traffic safety program or establish an independent program in accordance with the requirements of this chapter.

(2) Ensure all subordinate commands designate a TSC and MSR, in writing.

(3) Ensure subordinate command compliance with investigation, reporting and recordkeeping requirements for traffic related mishaps as required in accordance with reference (f).

(4) Participate in the CNIC established traffic safety council meetings or establish an independent traffic safety council, where a CNIC led council is not established.

(5) Follow all DoD traffic safety program requirements as required by reference (a).

g. Commanders, Commanding Officers, and Officers-in-Charge, Ashore and Afloat will:

(1) Fully participate with the CNIC BOS traffic safety program or establish an independent program in accordance with the requirements of this chapter.

(2) Participate in the CNIC established traffic safety council meetings or establish an independent traffic safety council, where a CNIC led council is not established.

(3) Designate a TSC and MSR, in writing. The same person may serve in both positions simultaneously.

(4) Complete the annual traffic safety needs assessment when receiving traffic safety related BOS services.

(5) Utilize the current training tracking system to schedule, enroll, and track the training needs of personnel and effectively manage traffic safety training programs.

(6) Ensure traffic related mishaps are reported, investigated, and documented in accordance with reference (f) and corrective actions are implemented to mitigate risk of future mishaps.

(7) Ensure compliance with the training and PPE requirements of this chapter.

(8) Allow individuals to attend safety training required by this chapter during normal working hours and without a charge to their leave.

(9) Follow vehicle manufacture guidelines, and established host-nation, state laws, and local policy on the use of ORVs, ROVs, UTVs, GVOs, and LSVs on the installation to include who, where, when, and how the vehicles may be operated. Operator training and vehicle inspections will be completed as required by this chapter and regional, installation, activity, or local policies.

(10) Ensure TSC and MSR participate in traffic safety councils and committees.

(11) Follow all DoD traffic safety program requirements as required by reference (a).

h. Traffic Safety Coordinators (TSC) will:

(1) As directed by the CO/OIC, establish and maintain the command traffic safety program meeting the requirements of this chapter.

(2) Represent command and communicate traffic related concerns at safety council or committee meetings.

(3) Stay current on traffic safety issues through participation in safety courses, conferences, workshops, seminars, webinars, review of periodicals, or other locally developed methods.

(4) Ensure traffic related mishaps are reported, investigated, and documented in accordance with reference (f) and corrective actions are implemented to mitigate risk of future mishaps.

(5) Ensure all personnel complete all traffic safety training required by this chapter or their command

(6) Ensure training is properly documented in the appropriate electronic training record.

(7) Compile a quarterly traffic safety training status report and provide to the commander, commanding officer. The report will include the list of individuals which have not completed required training or were scheduled but failed to attend training.

i. Motorcycle Safety Representatives (MSR) will:

- (1) As directed by the CO/OIC, establish and maintain the command motorcycle safety program meeting the requirements of this chapter.
 - (2) Represent command and communicate motorcycle related concerns at safety council or committee meetings.
 - (3) Stay current on motorcycle safety issues through participation in motorcycle safety courses, conferences, workshops, seminars, webinars, review of periodicals, or other locally developed methods.
 - (4) Identify military members who operate or plan on operating a motorcycle and maintain a limited amount of current information for military motorcycle riders (whether riding on base or off-base) to include:
 - (a) Name
 - (b) Type of motorcycle operated
 - (c) License information to indicate legal authority to ride (state license or motorcycle endorsement, OF-346, host-nation)
 - (d) Proof of training and completion date (approved course completion card or certificate)
 - (5) Provide assistance for completion of safety training and wear of PPE.
 - (6) Ensure motorcycle related mishaps are reported, investigated, and documented in accordance with reference (f) and corrective actions are implemented to mitigate risk of future mishaps.
 - (7) Ensure training and motorcycle rider information are properly documented in the appropriate electronic tracking system.
 - (8) Compile a quarterly motorcycle safety training status report and provide to the commander, CO, or OIC. The report will include the list of individuals which have not completed required training or were scheduled and failed to attend training.
 - (9) Facilitate the command motorcycle mentorship program, when required.
- j. Supervisors will:
- (1) Incorporate the ORM process into motor vehicle operations.

(2) Ensure compliance with the training and PPE requirements of this chapter.

(3) Ensure traffic related mishaps are reported, investigated, and documented in accordance with reference (f) and corrective actions are implemented to mitigate risk of future mishaps.

(4) Follow all DoD traffic safety program requirements as required by reference (a).

k. Individuals will:

(1) Follow and stay aware of applicable state, federal, local and host-nation traffic safety laws and regulations.

(2) Incorporate the ORM process while operating motor and manual powered vehicles, or as a pedestrian.

(3) Comply with all training and PPE requirements of this chapter.

(4) Report applicable traffic related mishaps to supervisor or chain of command as soon as reasonably possible.

(5) Follow all DoD traffic safety program requirements as required by reference (a).

CHAPTER 37

RECREATION AND OFF-DUTY SAFETY PROGRAM

- Ref:
- (a) SECNAVINST 5100.10K Department of the Navy Safety Program, 12 May 2015
 - (b) OPNAVINST 3500.39D, Operational Risk Management, 29 March 2018
 - (c) CNICINST 1710.3, Operation of Morale, Welfare and Recreation Programs, 14 Jun 2013
 - (d) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, And Record Keeping Manual, 7 Jan 2005

B3701. Discussion. This chapter assigns responsibilities and establishes basic program requirements for the Navy Recreation and Off-Duty Safety Program (RODS). This chapter significantly revises prior policy and incorporates operational risk management principles for integration into command safety management systems required under reference (a).

B3702. Background

a. The Navy is committed to the safety of personnel, their families, and the public. This commitment inherently extends to recreational and off-duty activities, as the loss of personnel to mishaps impacts unit readiness and adversely affects our sailor's families and communities, no matter where or when they occur. Therefore, an effective RODS program is vital to mission accomplishment and must be maintained at all levels of command.

b. RODS has historically been managed separately from other operational safety program elements. This chapter incorporates the adoption of safety management systems (SMS) to align individual safety management functions. Integration of RODS into the SMS framework allows the Navy to systemically extend operational risk management (ORM) and other safety principles to the recreational and off-duty sphere. This will give Navy leaders the necessary management tools to help personnel at all levels assess and manage their recreational and off-duty risk decisions. Successful implementation will help eliminate preventable mishaps across the Navy Enterprise.

B3703. Scope

- a. This chapter applies to:
- (1) All Navy active duty military members, on or off-duty.
 - (2) All Navy reserve personnel on or off-duty while in any type of active duty status.
 - (3) All Navy civilian employees while on-duty or in an official travel status.

(4) All individuals participating in recreational activities on Navy owned or controlled property.

B3704. Core Program Requirements

a. Safety Policy Statement. Command intent regarding RODS will be included in the safety and occupational health (SOH) policy statement required by this manual. Commanders should foster an environment where RODS mishap prevention is instilled down through all level of command.

b. Supplemental SOH policies. SOH policies developed to supplement this chapter will include specific procedures for RODS program management in accordance with the scope of the policy.

c. Risk Management. As required in reference (b), the ORM process will be applied to manage and control risk for RODS at all levels. Potential hazards associated with RODS events and activities will be fully assessed through means of a hazard analysis, in advance. Risk assessment and implementation of controls will be made at the lowest authority level possible. The goal is to ensure all hazards are quickly eliminated or mitigated.

(1) Continual Engagement. Participants in RODS activities will receive continual engagement from the appropriate party. Individual military members require direct communication at the one-on-one level to reinforce the need to incorporate risk management into all of their recreational and off-duty decision making. Group discussions (safety briefs) are acceptable for multiple participants of specific on-duty organizational or general off-duty RODS events and activities. Communications should reinforce risk-based decision making for both individual and group activities.

(2) High Risk Recreational Activities. Military members that participate or desire to participate in high risk recreational activities must receive an initial review of their ability to safely engage in the activity. Examples of high risk recreational activities are provided on the Naval Safety Center website, however commands may define their own list of activities deemed high risk. The review will include an assessment of the participant's knowledge and ability to perform the activity, hazard analysis of the activity, and supervisory or CO/OIC approval. Supervisors will ensure members are identified and complete the assessment in advance of high risk activity participation. The individual assessment is not a briefing, but rather a determination of the member's state of readiness, training, and physical ability to perform the activity. This assessment may be conducted by the command RODS program manager, supervisor, or another command-directed designee. Supervisors will review assessment results with the member and discuss any identified gaps. Commanding officers have the authority to restrict participation in any activity deemed to have excessive risk.

(3) Recreational Operations and Equipment. Equipment and facilities established for morale, welfare, and recreation (MWR) or off duty recreational purposes must meet rigid safety considerations. Introduction of large scale recreational operations or local purchase/installation of

recreational equipment outside of the MWR or base operating support (BOS) service sphere will meet the same safety requirements. Commands desiring to establish their own recreational operation or install RODS equipment will consult with their local MWR staff, BOS service provider, or another qualified safety authority to ensure a thorough risk assessment is completed. At a minimum, the safety considerations listed in manufacturer instructions, pertinent consensus standards, and reference (c) will be maintained for MWR type operations and equipment.

d. Hazard Identification. Hazard identification of RODS related facilities and infrastructure will be accomplished during inspections required under chapter 5 and 12 of this manual. SOH inspections of these areas will focus on identification and control of hazards that may cause injury or illness to on-duty workers, off duty Navy personnel (military and civilian), and patrons of MWR areas.

e. Documentation, Tracking, and Abatement. Inspection findings will be documented and abated as required by chapter 5 and 12 of this manual. Inspectors will document and assign a risk assessment code (RAC) for each RODS related deficiency in the same manner as other SOH hazards. Deficiencies will be documented on OPNAV 5100/12 or equivalent. RODS deficiencies assigned a RAC 1, 2, or 3 not abated or mitigated within 30 days will be documented in the formal hazard abatement plan. Hazardous areas and equipment must be taken out of service or restricted from further use until full abatement is accomplished or effective interim controls are in place that adequately prevent future injury or illness.

f. Mishap Reporting and Investigation. Department of Defense (DoD) mishaps related to RODS will follow the reporting, investigation, and recordkeeping requirements detailed in reference (d).

g. Self-assessment and Management Evaluation. RODS will be included as a standard element under the command annual SOH self-assessment required under this manual. Echelon 2 commands will provide oversight of RODS program effectiveness during review of subordinate command SOH self-assessments and during management evaluations.

h. Required Training. This paragraph details the minimum requirements for all RODS programs. It is not intended to be all inclusive. Additional training requirements may be developed at all levels of command to support regional, installation, activity, or local programs.

(1) Command Indoctrination Training. Commands will ensure that all military members and civilian employees receive training on the requirements of this and other supplemental RODS policies as part of their command indoctrination. Training will include awareness of the RODS program, individual responsibilities, and local hazard awareness training (such as known local hazards, local laws, restricted areas, common geographic high risk recreational activities).

(2) RODS Safety Briefs. RODS safety briefs are required for all military members prior to any holiday, foreign port visits, returning from deployment, seasonal change, or when RODS mishap

experience warrants additional training. RODS briefs may be informal or formal and encompass a variety of training methods including plan of the day, safety stand-downs, division and department briefs, supervisory briefs, mishap testimonials, videos, and guest speakers. These briefings should be at the awareness level and should not be expected to create a significant time burden to mission accomplishment. Local installation RODS program managers will provide assistance with RODS training information and briefing materials.

(3) Specific Participant Training. Individuals desiring to engage in RODS activities with mandatory training will successfully complete it before engaging in the activity. Commands may also require completion of training that would otherwise be optional before allowing participation in high risk recreational activities specific to the geographic location.

(4) MWR Patron Training. MWR authorized patrons will be provided training in safety techniques and procedures associated with the use or receipt of MWR controlled recreational areas or equipment that potentially exposes the user to safety or health hazards. Patrons will be trained by staff qualified to provide instruction on safety measures specific to the equipment or activity. Training qualifications of MWR staff providing instruction to patron will meet the requirements in reference (c). Patrons may be allowed to show proof of safety course completion by recognized and approved organizations to meet MWR patron training requirements.

(5) Group Physical Training/Recreational Events. Participants in command directed recreational events outside of MWR controlled facilities will receive guidance on safety precautions to prevent mishaps in advance of the activity. This guidance may include techniques for pre and post activity exercise, how to properly use required personal protective equipment, etc. Commands may request this guidance from local MWR staff on recreational safety procedures for events outside MWR facilities.

	REQUIRED FOR	PERIODICITY	RESPONSIBILITY TO PROVIDE
COMMAND INDOCTRINATION TRAINING	Military/Civilian	At Indoc/Check-In	Command/BOS RODS PM
SAFETY BRIEFS	Military	Prior to Holiday/Foreign Port Visits/Return from Deployment/Change of Seasons/Lessons Learned After Significant RODS Mishaps	Command RODS PM
SPECIFIC PARTICIPANT	Military-Situational	In advance of subject activity participation	Obtained by

TRAINING			Member
MWR PATRON TRAINING	Patrons at CNIC-Owned MWR Facilities	Situational-Based on Activity and/or Locally Established Policy	CNIC/MWR Staff
GROUP PHYSICAL TRAINING/ RECREATIONAL EVENTS	Military/Civilian in advance of command directed activities	Situational-Based on Activity and/or Locally Established Policy	Command RODS PM

i. Safety Councils and Committees. Safety councils and committees established to meet the requirements of this manual will include RODS as a standard agenda item. It is strongly recommended that RODS is integrated into appropriate existing councils and committees versus creating separate venues solely for RODS. Safety working groups, councils, or committees established for specific concerns are exempted from this requirement.

j. Communication. Supplementary RODS materials will be provided to military members and civilian employees and/or posted liberally to reinforce requirements of this policy, requirements of supplemental polices, common risk management or mishap prevention solutions, or local concerns. These materials may take the form of e-mails, social media messages, articles, pamphlets, signage, or other command approved communication measures. Safety councils and committees that review RODS related issues will ensure any official decisions or findings are communicated to the affected personnel.

B3705. Responsibilities

a. Chief of Naval Operations Special Assistant for Safety Matters (CNO N09F) and Commander, Naval Safety Center (COMNAVSAFECEN) will:

(1) Develop RODS program policies, objectives, and directives and provide management of all aspects of mishap prevention specifically directed by reference (a).

(2) Ensure proper interpretation of RODS program requirements and conduct RODS assessments, staff-assist visits, and site visits for Navy commands and activities as directed or requested.

(3) Provide program guidance, actively promote, and develop RODS awareness and educational programs.

(4) Serve as the repository for all Navy and Marine Corps reportable RODS mishap reports and provide mishap data analyses to Navy and Marine Corps commands and activities in support of their RODS mishap prevention efforts.

b. Command Budget Submitting Offices will: Provide funding and support to assist subordinate commands with implementation of the installation RODS program.

c. Commander, Navy Installations Command (CNIC) will:

(1) Provide resources and guidance to CNIC installations in order to support RODS program compliance in accordance with this chapter.

(2) Ensure installations provide tenants BOS safety services meeting the RODS core program requirements in accordance with this chapter.

(3) Provide adequate RODS related resources and guidance for installation MWR activities in accordance with this chapter and reference (c).

(4) Conduct oversight of RODS program elements.

d. CNIC BOS providers will:

(1) Ensure that a RODS program is established and in compliance with this chapter for all installations and regions.

(2) Designate a BOS RODS Program Manager at lowest applicable level, with the authority and ability to successfully manage the program and coordinate with all tenant commands.

(3) Provide oversight, assessments, and assistance to safety offices and MWR staff to ensure compliance with RODS program.

(4) Ensure RODS mishaps are reported, investigated, and documented in accordance with reference (d) and corrective actions are implemented to mitigate risk of future mishaps.

(5) Ensure installation level local area/host nation hazard briefs are provided to newly assigned and tenant military members and civilian employees within 30 days of assignment or arrival.

(6) Ensure that the RODS program manager or designee attends command safety council or committee meetings and that RODS is maintained as a standard agenda item.

(7) Ensure MWR activities manage internal safety programs in accordance with reference (c) and this chapter.

e. Echelon 2 Commanders will:

(1) Ensure subordinate commands not supported by a BOS service provider are adequately resourced to maintain a RODS program meeting the requirements of this chapter.

(2) Ensure subordinate command compliance with investigation, reporting and recordkeeping requirements for RODS related mishaps in accordance with reference (d).

(3) Provide oversight of lower level command RODS programs through review of SOH annual self-assessments and safety management system management evaluations as required by this manual.

(4) Establish and disseminate command-specific requirements for RODS in concert with other SOH programs.

f. Commanders, Commanding Officers (COs) and Officers in Charge (OICs) (ashore and afloat) will:

(1) Establish and maintain a command RODS program compliant with this chapter for all program requirements where BOS safety services are not available or provided.

(2) Include command intent regarding RODS in the SOH policy statement. Where established, ensure SOH policies developed to supplement this chapter include local RODS requirements.

(3) Appoint a command RODS Program Manager, in writing, with the authority to successfully execute the program.

(4) Ensure annual safety inspections of command owned or controlled MWR recreational areas are conducted by qualified SOH inspectors, BOS service providers, or RODS Program Managers.

(5) Ensure RODS training is provided to command military members and civilian employees as required in this chapter.

(6) Ensure self-assessment of the command RODS program is conducted as a part of the SOH self-assessment at least once annually and complies with requirements of higher level commands and this chapter.

(7) Ensure command RODS Program Managers participate in installation or regional safety councils, safety committees, or promotions.

(8) Ensure RODS mishaps are reported, investigated, and documented in accordance with reference (d) and corrective actions are implemented to mitigate risk of future mishaps.

(9) Provide or arrange for local area/host nation hazard briefs to newly assigned and tenant military members and civilian employees within 30 days of assignment or arrival.

(10) Enforce compliance with appropriate personal protective equipment requirements for all command directed or sponsored RODS events.

(11) Ensure risk management is integrated into all off-duty or community activities.

(12) Ensure purchases or installation of command procured RODS equipment not provided through local MWR office services meets all safety requirements. Local MWR staff may be consulted for guidance.

g. BOS RODS Program Managers will:

(1) Ensure RODS mishaps are reported, investigated, and documented in accordance with reference (d) and corrective actions are implemented to mitigate risk of future mishaps.

(2) Provide continual guidance and direction to command RODS program managers in management of their program. Perform needs assessments, communicate RODS related updates, and/or hold local training/workshops as necessary to support program management.

(3) Prepare installation level local area/host nation hazard briefs for newly assigned and tenant military members and civilian employees.

(4) Consult frequently with installation safety departments and MWR staff on RODS related matters.

(5) Represent installation/command and communicate RODS related concerns at safety council or committee meetings.

h. Command RODS Program Managers will:

(1) As directed by the CO/OIC, establish and maintain the command RODS program meeting the requirements of this chapter.

(2) Obtain guidance and direction from the BOS RODS program manager and supporting safety offices, as needed.

(3) Provide (or arrange for) RODS indoctrination, safety briefs, or group event training required by this chapter to command military members and civilian employees.

(4) Conduct annual safety inspections of command owned or controlled MWR recreational areas.

(5) Maintain record of command military members participating or desiring to participate in high risk recreational activities.

(6) Conduct and/or assist supervisors with RODS high risk recreational activity assessments.

(7) Represent command and communicate RODS related concerns at safety council or committee meetings.

(8) Complete RODS section of annual command SOH program self-assessments, as required by this chapter and higher command policies.

i. Supervisors will:

(1) Require military members and civilian employees to comply with all safety and PPE requirements during all RODS activities.

(2) Ensure military members and civilian employees receive required RODS training.

(3) Incorporate and encourage the application of ORM principles into all RODS programs and activities in accordance with reference (b).

(4) Strongly discourage military members against engaging in high risk recreational activities alone.

(5) Encourage military members and civilian employees to stop and reevaluate risk when RODS activities become unsafe or more hazardous than anticipated.

(6) Review and approve ORM assessments submitted by military members preparing to engage in high risk on and off-duty recreational activities prior to the event.

(7) Ensure RODS mishaps involving subordinates are reported, investigated, and documented as required in accordance with reference (d) and corrective actions are implemented to mitigate risk of future mishaps.

(8) Ensure subordinates understand and meet their responsibilities required by this chapter.

j. Military Members will:

(1) Use ORM principals to make risk-based decisions before and during participation in recreational and off-duty activities.

(2) Hold an adequate level of knowledge and physical ability before participation in any RODS activity.

(3) Wear all required or appropriate personal protective equipment.

(4) Refrain from engaging in high risk recreational activities alone.

(5) Stay aware of the command identified lists of high risk recreational activity and inform the chain of command before activity participation.

(6) Complete a high risk recreational activity assessment with the command program manager or supervisor in advance of high risk recreational activity participation.

(7) Complete any required training, gain certifications, or meet applicable qualifications in advance of participation in any high risk recreational activities and submit documentation to their supervisor and command RODS program coordinator.

(8) Report RODS related mishaps to supervisor or chain of command as soon as reasonably possible.

(9) Report hazards or deficiencies in MWR recreational areas to MWR staff when identified.

(10) Comply with all local, state, national, or host nation laws, regulations and rules when participating in RODS activities.

k. Civilian Employees will:

(1) Use ORM principals to make risk-based decisions before and during participation in recreational activities while on-duty.

(2) Wear all required or appropriate personal protective equipment during participation in recreational activities while on-duty or at MWR controlled recreational areas.

(3) Report on-duty recreational activity related mishaps to supervisor or chain of command as soon as reasonably possible.

(4) Report hazards or deficiencies in MWR recreational areas to MWR staff when identified.

(5) Comply with all local, state, national, or host nation laws, regulations and rules when participating in recreational activities while on-duty.

l. Other individuals will:

(1) Wear all required or appropriate personal protective equipment during participation in recreational activities on Navy owned or controlled property.

(2) Comply with all applicable local, state, national, or host nation laws, regulations and rules when participating in recreational activities on Navy owned or controlled property.

CHAPTER 38
SYSTEM SAFETY

- Ref:
- (a) SECNAVINST 5100.10K Department of the Navy Safety Program, 12 May 2015
 - (b) DoD Military Standard 882E, Department of Standard Practice System Safety, 11 May 2012
 - (c) DoD Instruction 5000.02, Operation of the Adaptive Acquisition Framework, 23 Jan 2020
 - (d) DoD Directive 5000.01, The Defense Acquisition System, 20 November 2007
 - (e) SECNAVINST 5000.2F, Department of the Navy Implementation and Operation of the Defense Acquisition System and the Joint Capabilities Integration and Development System, 9 May 19
 - (f) DOD Directive 4715.1E, Environmental, Safety and Occupational Health, 19 Mar 05
 - (g) OPNAVINST 3500.39D, Operational Risk Management, 29 March 2018
 - (h) Chairman, Joint Chiefs of Staff Instruction (CJCSI) 3170.01H, Joint Capabilities Integration and Development System, 10 January 2012
 - (i) Chairman, Joint Chiefs of Staff Manual (CJCSM) 3150.13C, Joint Capabilities Integration and Development System, 19 Jan 2012
 - (j) OPNAVINST 5450.352A; Subj: Missions Functions and Tasks of The Chief of Naval Operations, 23 Apr 2018
 - (k) The Defense Acquisition Guidebook
 - (l) Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process; Moshe Schwartz, Specialist in Defense Acquisition, May 23, 2014
 - (m) NAVSEAINST 5000.8/ NAVAIRINST 5000.21B MARCORSSYSCOM Order/ SPAWARINST 3058.1 NAVFACINST 5000.15/ 5000.3 Subj: NAVAL SYSCOM RISK MANAGEMENT POLICY, July 2008
 - (n) OPNAVINST 5450.180F, Mission and Functions of the Naval Safety Center, 18 Jan 2019
 - (o) DoD Instruction 6055.01, DoD Safety and Occupational Health Program, 14 Oct 2014
 - (p) DoD Instruction 6055.07, Mishap Notification, Investigation, Reporting, and Record Keeping June 6, 2011
 - (q) OPNAVINST 5102.1D/MCO P5102.1B Navy & Marine Corps Mishap and Safety Investigation, Reporting, And Record Keeping Manual, 7 Jan 2005
 - (r) OPNAVINST 5100.19F, Navy Occupational Safety and Health Program for Forces Afloat, 5 May 2019
 - (s) OPNAVINST 5310.23A, Navy Personnel, Human Systems Integration (NAVPRINT), 17 Oct 2017
 - (t) OPNAVINST 5450.332A Mission, Functions and Tasks of Commander, Operational Test and Evaluation Force, 21 March 2012

- (u) OPNAVINST 8020.14A, Department of the Navy Explosives Safety Management Policy Manual, 15 Aug 2014
- (v) OPNAVINST 5420.70G, Mission, Organization, and Functions of the Board of Inspection and Survey, 17 Jul 2014
- (w) OPNAVINST 9080.4C, Relationship between the Naval Inspector General and the President, Board of Inspection and Survey, 20 March 2012
- (x) OPNAVINST 4730.5R, Trials and Material Inspections (MI) of Ships Conducted by the Board of Inspection and Survey, 27 May 2014
- (y) BUMED Instruction 6270.8C, Occupational Health Hazard Assessments, 31 May 2017
- (z) OPNAVINST 5100.27B/MCO 5104.1, Navy Laser Hazards Control Program, 2 May 08
- (aa) SECNAVINST 5100.14E, Military Exempt Lasers, 15 Mar 19
- (ab) NAVSEAINST 8020.6E, Navy Weapon System Safety Program, 11 Mar 08 (Contact NAVSEA for instruction)
- (ac) NAVSEAINST TM-S9310-AQ-SAF-010 Technical Manual for Batteries, Navy Lithium Safety Programs Responsibilities and Procedures, 19 Aug 04
- (ad) NAVSEAINST 5100.12B System Safety Engineering Policy, 3 Aug 2011(Contact NAVSEA for instruction)
- (ae) OPNAVINST 3120.28D; 04 Jan 2018 Subj: Certification of the Aviation Capability of Ships Operating Aircraft
- (af) NAVAIRINST 13034.1D Flight Clearance Policy for Air Vehicles and Aircraft Systems, 15 Mar 2010
- (ag) DoDI 3222.03; August 25, 2014 SUBJECT: DoD Electromagnetic Environmental Effects (E3) Program
- (ah) NAVFACINST 5100.10J NAVFACENCOM Safety and Health Program, 18 June 2000
- (ai) OPNAVINST 5090.1E, Environmental Readiness Program Manual, 3 Sep 2019
- (aj) CNO Memorandum 5090 Ser N4/8U156042, Environmental Readiness in Systems Acquisition, 29 Jul 2008
- (ak) DoD Instruction 6055.12, Hearing Conservation Program, 14 Aug 2019
- (al) Military Standard 1474 Noise Limits
- (am) ASN (RDA) (VCNO Skinner) Memo of 22 Dec 2011 Subj: Implementation of the Naval Audit Service Hazardous Noise Recommendations
- (an) SECNAVINST 4855.3D Product Data Reporting and Evaluation Program, 27 Jun 2014
- (ao) SECNAV 4140.2 Management of Aviation Critical Safety Items (Joint) 1/25/2006
- (ap) OPNAV 4790.2J The Naval Aviation Maintenance Program (NAMP) 2/1/2005
- (aq) CNO Msg R 251720Z AUG 14 ZYB /N09F/ OPER/U.S. NAVY FLEET SAFETY CAMPAIGN/SGID/ORDER/COMUSFLTFORCOM-COMPACFLT// AMPN/OPORD/IMPLEMENTATION OF A U.S. NAVY FLEET SAFETY MANAGEMENT SYSTEM (SMS)//

B3801. Discussion and Background

a. The Navy is committed to protecting personnel from accidental death, injury, or occupational illness and safeguarding defense systems, infrastructure, and property from accidental destruction, or damage while executing its mission requirements of national defense. Integral to these efforts is the use of a system safety approach to identify hazards and manage the associated risks at the earliest feasible stage of requirements and design, and throughout the product/systems life-cycle.

b. This process has previously been referred to as acquisition safety which is a poor term as it would have system safety as only the responsibility of Secretary of the Navy (SECNAV). Furthermore, past Navy policy reiterated requirements outlined in higher level policy. The intent of this chapter is to provide highlights of Systems Safety and the specific Navy processes, roles, and responsibilities.

B3802. Highlights of System Safety Program

a. DOD and Navy acquisition regulations require application of systems safety process in large-scale acquisition and risk acceptance at the appropriate management level using the process of reference (a), (b), (c), (d) and (e). Reference (d) requires that “Safety must be addressed throughout the acquisition process. Safety considerations include human (includes human/system interfaces), toxic/hazardous materials and substances, production/ manufacturing, testing, facilities, logistical support, weapons, and munitions/explosives. All systems containing energetics will comply with insensitive munitions criteria.”

b. Application of the system safety process is required not only by system safety professionals, but also by other functional areas including acquisition, systems engineering as well as environmental safety and health (ESOH) disciplines such as fire protection engineers, occupational health professionals, and environmental engineers to identify hazards and mitigate risks through the Systems Engineering process throughout systems lifecycle. This chapter provides guidance to support reference (c), (d) and (e) requirements for integration of system safety engineering processes into acquisition programs to ensure hazards are identified, mitigated and controlled early in the program. Safety through design is promoted by the system safety process, as well as safety management systems integral to reference (f) guidance, and best practices such as ANSI Z10 and the National Institute of Occupational Safety and Health’s Prevention Thru Design (PTD) initiative.

(1) Use of the system safety is a required component of the systems engineering process used during (1) the planning and execution for research, development, test and evaluation, (2) acquisition of special equipment or existing equipment undergoing major design changes, (3) the planning and design of facility construction projects and/or major renovation projects, and (4) procurement of pollution prevention equipment or technology.

(2) Design safety will utilize the reference (b) System Safety five step process to ensure that all client safety and health needs are identified, and special controls are understood and designed into each project or technology.

(3) Reference (g) provides a complementary process to integrate risk into operational scenarios. In depth operational risk management (ORM), supports input into design when time permits significant advance planning. Deliberate and time-critical ORM provide a methodology for risk reduction through management processes, where initial systems and equipment design cannot be immediately influenced.

c. Requirements Generation. The evaluation of military capabilities and requirements (needs, capabilities gap and resource requirements) is managed through the Chairman, Joint Chief of Staff in accordance with Joint Capabilities Integration and Development System (JCIDS) using processes described in references (h) and (i). Reference (e) describes integration of capabilities generation/validation and naval acquisition. Reference (j) describes the roles of Chief of Naval Operation (CNO) Codes in capabilities assessment, requirements generation and resources allocation. Navy requirements and resources are managed by CNO N8/N9 with inputs from logistics (N4/N45) and manpower, personnel (N17).

d. Acquisition Process. The Defense Acquisition Guidebook reference (k) and reference (l) provide an overview of the Defense Acquisition Process. The Naval Safety Center Web site provides an overview of safety integration into the acquisition process.

e. The Assistant Secretary of the Navy (Research, Development & Acquisition) (ASN (RD&A)) manages Naval Acquisition process and reports directly to the Secretary of the Navy. Program Executive Offices (PEOs), reporting to ASN RD&A, provide oversight for major classes of defense platforms and capabilities such as expeditionary warfare, tactical vehicles and aircraft carriers. Program managers (PMs) are responsible for a specific acquisition program such as a particular ship or aircraft and report to PEOs. Guidance and support for the acquisition process and specific technology areas is provided through the systems commands (MARCORSYSCOM, NAVAIR, NAVSEA, SPAWAR, NAVFAC, etc.) and their warfare centers.

f. ASN (RDA) is responsible for ensuring DON Science and Technology (S&T) projects and acquisition programs comply with Department of Navy (DON) environmental, safety and occupational health (ESOH) policy and is the focal point for all DON S&T and acquisition ESOH issues in accordance with reference (e). ASN (RD&A) is the mishap risk acceptance authority for "high" risk in accordance with references (b), (c), and (e).

g. The ASN (RD&A) Chief Engineer's Office (CHENG) provides oversight for the integration of ESOH into the system engineering process in accordance with references (a), (e), and (m).

B3803. System Safety Working Groups (SSWG)/ Facility system safety working groups (FSSWG)

a. Program managers (PMs) for acquisition of defense platforms and systems are guided by reference (m) to establish inter-disciplinary working groups to address complex issues such as logistics, human systems integration and system safety. Reference (m) also establishes the requirement for appointment of a life-cycle manager for both new systems and those in sustainment.

b. The Government Lead System Safety Engineer, appointed by the PM, is the primary safety point of contact for all aspects of the system. This position may also be referred to as the Principal for Safety or the Principal for Environmental, Safety and Occupational Health, PESOH. He or she develops a system safety management approach for the acquisition program and documents the approach in the System Safety Management Plan (SSMP). The Lead System Safety Engineer also ensures the contractor has a System Safety Program Plan (SSPP) for development of the system. To successfully carry out the system safety program for a given acquisition program, the Government Lead System Safety Engineer establishes a System Safety Working Group (SSWG) made up of Government and contractor representatives.

c. Safe facilities and systems must be designed to minimize personnel injuries and illnesses and equipment breakdown. System safety engineering will be used during (1) the planning and execution for research, development, test and evaluation, (2) acquisition of special equipment or existing equipment undergoing major design changes, (3) the planning and design of facility construction projects and/or major renovation projects, and (4) procurement of pollution prevention equipment or technology.

B3804. System Safety Advisory Board (SSAB). The SSAB will be chartered under auspices of the Safety Quality Council and leverage existing groups under the System Engineering Stakeholder group to develop, champion and promote use of common system safety policies, procedures, tools, and matrices. Concurrent benefits include reduced lifecycle cost and reduced Safety and Occupational Health (SOH) risk over the system's lifecycle.

B3805. Responsibilities

a. In accordance with references (b), (e), and (j), the CNO:

(1) Plans and programs support for the POM/PR including supervision and control of requirements/capabilities allocation and integration of navy resources (CNO N8/N9).

(2) Develops and maintains system safety policy to fulfill Secretary of the Navy (SECNAV) policy and requirements.

(3) Recommends system safety policy to the SECNAV.

(4) Establishes a System Safety Advisory Board (SSAB).

(5) Establishes and supports a process for operational commands to identify safety deficiencies to the program executive offices for action.

b. CNO (N8) and related program sponsors, consistent with reference (e), (h), (i) and (j) will ensure SOH considerations are addressed as part of the JCIDS and consult with appropriate experts to support this objective.

c. The Special Assistant for Safety Matters (CNO N09F), in accordance with references (j) and (n) will:

(1) Advise and assist the CNO in reviewing Navy system safety program policies, objectives, requirements and effectiveness consistent with references (a), (e), and (j).

(2) Ensure acquisition managers comply with the requirements of reference (a), (b), (d), (e), (f), and other applicable Federal agency safety and health standards or criteria in the procurement of military systems, subsystems, equipment, and related facilities.

(3) Establish and maintain a data repository and center of expertise for mishap and hazard information, capable of communicating safety hazards to relevant Navy System Commands (SYSCOM), Program Executive Offices (PEOs), Program Managers, acquisition activities commands, or other appropriate technical authority, and provide identification of safety issues and hazards consistent with references (n), (o), (p), (q) and (r).

(4) Provide system leads to participate in System Safety Working Groups (SSWGs).

d. CNO N1 provides guidance for development of requirements for human systems integration within the JCIDS system, in accordance with references (e), (j) and (s).

e. Commander, Operational Test and Evaluation Force (COMOPTEVFOR), consistent with references (e) and (t), will provide an independent evaluation that the material solution provides an acceptable level of safety for the user in the operational environment.

(1) Provide an evaluation of safety and health for those involved in testing, as well as, the user community.

(2) Issue a Safety Release with SOH risk to personnel, equipment and the environment for the test event accepted at the proper authority level.

f. The President, Board of Inspection and Survey (PRESINSURV) consistent with references (j), (e), (v), (w) and (x) inspects newly constructed naval vessels and provides

evaluation of contract compliance and performance oversight for the ships prior to government acceptance.

g. Chief, Bureau of Medicine and Surgery (BUMED):

(1) Support the ASN (RD&A), CNO N09F, SYSCOMs and PEOs/PMs in integrating occupational health considerations into science and technology (S&T) projects and the systems engineering process for acquisition programs in accordance with references (e) and (y).

(2) Provide health hazard assessments and programmatic environmental safety and health evaluations (PESHE) reviews when requested by PEOs, PMs or Program offices in accordance with references (e) and (y).

h. SYSCOMs will:

(1) Be responsible for the technical aspects of system safety, consistent with references (e) and (m). Ensure adequate consideration of safety features in the design, purchase, or procurement of items over which the command exercises acquisition authority in accordance with Chapter 2 of this Manual and reference (m).

(2) Support and participate on Mishap Investigation Boards with trained personnel in accordance with reference (q).

(3) Establish and maintain the capability to conduct system safety assessments in accordance with references (a), (b), (c), (d), (e), (f) and (q),

(4) Support, monitor and conduct safety evaluations/approvals for high risk/regulated systems to include, but not limited to:

(a) Lasers (references (z) and (aa)).

(b) Weapons (ordnance/explosives) (reference (ab))

(c) Lithium batteries (reference (ac)).

(d) Ship systems and interfaces (reference (ad) and (ae)).

(e) Airworthiness for aircraft systems (reference (ae) and (af))

(f) Radiofrequency radiation (reference (ag)).

(g) Safety of facilities supporting acquisition systems and equipment (references (e), (ah) and Chapter 2 of this Manual).

(h) Ensure environmental compliance and use of least hazardous products and process consistent with operational requirements and economy (including life-cycle cost management) consistent with references (a), (b), (c), (d), (e), (f), (ai) and (aj). This include Environmental Planning Under the National Environmental Policy Act (NEPA) and Executive Order 12114 (reference (al), chapter 10) and Environmental Readiness in the Acquisition Process (reference (al), Chapter 11).

(i) Control of noise hazards to personnel consistent with DOD policy reference (ak), Military Standard 1474 design criteria, and reference (al) with risk acceptance at the appropriate management level, in accordance with references (a), (b), (c), (d), (e), (f), and VCNO Policy Memorandum, reference (am).

(5) Ensure the requirements in the Safety Release (SR) are followed and system safety requirements are addressed when performing testing.

(6) Evaluate the impact on safety when reviewing engineering changes, alterations, deviations, waivers, and modification proposals.

(7) Apply system safety process and evaluation to support facility safety in design in accordance with references (a), (ai) and (f).

(8) Develop, maintain and implement policy for system safety, SOH risk management, safety releases and SOH integration into Systems Engineering (SE).

(9) Designate in writing a system safety lead for each program and/or fielded system, including minimum qualifications for personnel to be designated as a system safety lead and communicate this POC to the operational forces. This lead is called the Principal for Safety (PFS) in NAVFAC and NAVSEA and the Safety Class Desk in NAVAIR.

(10) Ensure all identified ESOH risk is mitigated or accepted prior to exposing personnel, equipment or the environment in accordance with reference (m).

(11) Establish a means to identify and manage hazards that are discovered post-fielding, including application of references (an), (ao), (ap) and (aq) processes.

(12) Provide Safety Releases for all developmental and operational test events involving civilian, government or military personnel.

(13) Establish a means to review engineering changes, alterations, deviations, waivers, and modification proposals for their impact on safety.

(14) Establish a means to maintain a permanent record of identified risk acceptance.

(15) Promote and monitor system safety assessments related to the acquisition of systems, sub-systems, materials, equipment, and software under their purview during R&D, new construction, modernization, repair, and overhaul.

(16) Ensure all technical authorities include system safety methodology and SOH risk management consistent with references (b), (d) and (m).

(17) Provide trained personnel to Mishap Investigation Boards of Class A and B mishaps involving systems over which SYSCOMS has cognizance.

(18) Issue Safety of Use Messages (SOUM) to operations commands concerning systems and provide SOUM to NAVSAFECEN.

(19) Establish Facility System Safety Working Groups (FSSWG) (or similar group) to review facility designs for new military construction projects to ensure hazards are identified and controlled. Acquisition activities must ensure end user safety and health controls are identified, evaluated and communicated to the users.

i. Operational Commands/Type Commands, will:

(1) Consider issues that may affect safety when identifying capabilities gaps to Requirements Officers.

(2) Support the system safety process by participating in SSWG, as appropriate.

(3) Include operational expert representation from areas of safety concern on all Operational Advisory Groups (OAGs).

(4) Report hazards identified during operation and maintenance of ships, aircraft or systems to technical authorities, SYSCOM, PEO, PM or the appropriate acquisition activity for hazard analyses and mitigation.

(5) Establish a process to involve the user in SOH risk identification and a means for formal user concurrence of identified serious and high risks consistent with references (b) and (c) and provide the process to the program offices for SOH risk management.

(6) Identify and report material deficiencies and hazards with ships, aircraft and systems to the appropriate Program Executive Offices and Program Management Offices via Hazardous Material Reports.

(7) Identify to appropriate engineering authorities and Technical Warrant Holders (TWH) via engineering investigations, technical publication deficiency report (TPDR) and Technical Manual Deficiency report (TMDR).

(8) Share hazardous material reports (HMRs), TPDRs, Engineering Investigation (EI's), and non-official concerns with the NAVSAFECEN Lessons Learned office and SYSCOM Safety Offices consistent with reference (p) and (an).

(9) Request information from PESHE and Hazard Tracking System as well as various Hazard Analysis as required by reference (b) from Program Management Offices and provide feedback and process improvement mandated by the Fleet/Naval Safety Center Safety Campaign and implementation of a safety management system, reference (aq).

GLOSSARY

Abate - To eliminate or reduce permanently an unsafe or unhealthful working condition by coming into compliance with the applicable OSH standard.

Accident - Any unplanned or unexpected event causing material loss or damage or causing personnel injury or death.

Accident Investigation - The investigation of the facts surrounding the causes of an accident.

Accident Report – See Mishap.

ACGIH® – The American Conference of Governmental Industrial Hygienists, (ACGIH®) is a member-based organization and community of professionals that advances worker health and safety through education and the development and dissemination of scientific and technical knowledge. Examples of this include annual editions of the *TLVs® and BEIs®* and work practice guides.

Acquisition - The acquiring by contract with Navy funds of supplies or services (including construction) by and for the use of the Federal government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated. Acquisition begins at the point when agency needs are established and includes the description of requirements to satisfy agency needs, solicitation and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract.

Acquisition Program - A directed, funded effort that provides a new, improved, or continuing materiel, weapon, or information system or service capability in response to an approved need. Acquisition programs are divided into categories that are established to facilitate decentralized decision-making, execution, and compliance with statutory requirements.

Action Level - Unless otherwise specified in a OSH standard, one-half the relevant PEL, TLV®, etc.

Activity - A physical location ashore, under a single higher authority command, where business is conducted or where services or operations are performed.

Acute - Momentary, usually severe or crucial often dangerous in which rapid changes are occurring. An acute exposure runs a comparatively short course (24 hours or less).

Administrative Contracting Office (ACO) - A designated contracting officer performing administrative functions under ASPR 1-406 (NOTAL).

Administrative Control - Procedures and practices that limit exposure to harmful physical or chemical agents by control or manipulation of work schedule or the manner in which work is performed. Administrative controls reduce the exposure to stressors and thus reduce the cumulative dose to any one worker. If unable to alter the job or workplace to reduce the stressors, administrative controls should be used. Administrative controls are most effective when used in combination with engineering controls. For example, limiting work in heat stress to one hour daily.

Agency - An Executive Department, as defined in 5 U.S.C. 101, or any employing unit or authority of the government of the United States not within an Executive Department to which the provisions of Executive Order 12196 are applicable.

All Terrain Vehicle (ATV) - Any self-propelled vehicle with three or four wheels designed for off-highway use with low-pressure tires, a wheelbase of 50 inches or less, and overall steering and a seat designed to be straddled.

Ambient - Of the surrounding or encircling area. Normal ambient pressure or atmosphere refers to the normal conditions for a particular location outside a confined or enclosed space.

ANSI - American National Standards Institute, a national consensus standard-developing organization.

Anchorage (fall arrest tie-off point) – A secured structure that can safely withstand forces exerted by fall arrest and rescue equipment. The structure can be in the form of a beam, girder, column, or floor. Anchorage is either engineered or improvised.

Anthropometrics - The ergonomic term anthropometry comes from the Greek anthropos (man) and metrein (to measure). Anthropometry deals with the measurement of the dimensions and certain other physical characteristics of the body such as volumes, centers of gravity, inertial properties, and masses of body

Asbestos-Containing Material (ACM) - Any material containing more than one percent asbestos as defined in 29 CFR parts 1910.1001, 1926.1101, and 1915.1001. ACM can be divided into three major categories:

a. Thermal System Insulation (TSI) - ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat energy transfers or water condensation.

b. Surfacing - ACM that is sprayed on, troweled on or otherwise applied to surfaces such as acoustical plaster on ceilings and fireproofing materials on structural members or other materials on surfaces for fireproofing, acoustical, or other purposes.

c. Miscellaneous - ACM not included in the definition for TSI or surfacing.

Asbestosis - A chronic, usually progressive lung disease associated with exposure to asbestos fibers. It is generally characterized by long latency (years or decades), and characteristic changes in chest x-ray, pulmonary function, and lung parenchyma (tissue).

ASSP - American Society of Safety Professionals, a national consensus standard-developing organization.

Atmosphere Immediately Dangerous to Life or Health (IDLH) - Any atmosphere (generally due to a concentration of any toxic, corrosive or asphyxiate substance) that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

Attendant - An individual stationed on the outside of a confined space for the purpose of monitoring the activities of those inside and requesting assistance in the event of an emergency.

Audiogram - A graph or table showing hearing threshold levels as a function of frequency.

Audiometer - Instrument used to measure hearing sensitivity using pure tones.

Audit - The process of determining programmatic compliance with applicable safety and health standards and associated work processes. Audit generally includes systemic, mishap investigation, inspection as part of needs assessment, or other inspection conducted.

A-Weighted Sound Level - The sound pressure level that has been filtered or weighted to quantitatively reduce the effect of low frequency noise. A-weighted sound pressure is designed to approximate the response of the human ear to sound.

Biological Agent (CBRNE Term) - Any micro-organism, virus, or infectious substance, capable of causing death, disease, or other biological malfunction in a human, an animal, a plant, or another living organism; deterioration of food, water, equipment, supplies, or material or any kind; or deleterious alteration of the environment.

Blanking or Blinding - The absolute closure of a pipe, line, or duct by fastening across its bore a solid plate or cap which completely covers the bore; which extends at least to the outer edge of the flange at which it is attached; and which is capable of withstanding the maximum upstream pressure.

Bloodborne Pathogens - Pathogenic microorganisms transmissible by exposure to blood, including Hepatitis B Virus (HBV) and Human Immune Deficiency Virus (HIV), as well as syphilis, malaria, and others.

Body Harness – (See Harness)

BOS RODS Program Manager - Position designated by CNIC with responsibility for implementing RODS program elements in the BOS service arena

Capture Velocity - That velocity at a distance from a hood, necessary to overcome dispersive forces and capture the contaminant.

Ceiling Value - The concentration that should not be exceeded during any part of the working exposure.

Chemical Agent (CBRNE Term) - In CBRNE context, a chemical agent is a substance intended to kill, seriously injure or incapacitate through its toxicological effects. There are two main CBRNE classes of chemical agents. Military agents consist of nerve agents, blister/vesicant agents, lung-damaging, and blood agents. Another class of possible substances that could be used in a terrorist event is toxic industrial materials (TIMs).

Chronic - Persistent, prolonged, repeated.

Class I Asbestos Work - Activities involving the removal of thermal system insulation or surfacing ACM/PACM.

Class II Asbestos Work - Activities involving the removal of ACM, which is neither TSI, or surfacing ACM. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III Asbestos Work - Repair and maintenance operations, where ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed (see definition of disturbance).

Class IV Asbestos Work - Maintenance and custodial activities during which employees contact but do not disturb ACM and PACM and activities to clean up dust, waste and debris from Class I, II, and III activities.

Claustrophobia - An abnormal fear of being in a confined or enclosed space.

Cognizant Security Office - The Defense Contract Administrative Services Regional Office of Defense Logistics Agency having contract administrative service authority over the geographical area in which the contractor workplace is located.

Cold Work - Work that does not involve potential ignition sources. See Hot Work.

Collateral Duty - A task or tasks carried out by an employee that lie outside of that employee's main role.

Combatant Commander (CBRNE Term) – A commander of one of the unified or specified combatant commands established by the President. (DoD Dictionary of Defense and Associated Terms- Joint Publication JP 1-02).

Command - The headquarters and all subordinate commands, activities/installations, units, forces and employees.

Command RODS Program Manager - Position appointed by commanders, commanding officers, and officers in charge having the responsibility for implementing RODS program requirements at the command.

Commander - The Navy official in charge of a naval shore command, activity or installation office or unit. Unless specified to the contrary, the term is synonymous with commander, commanding officer (CO), Officer in charge (OIC), director, or other title for the head of the organization.

Concentration - The quantity of a substance per unit volume (in appropriate units). The listed examples of concentration units:
mg/m³ milligrams per cubic meter: for vapors, gases, fumes, or dusts Ppm parts per million: for vapors or gases Fibers/cc fibers per cubic centimeter: for asbestos

Confined Spaces (See Permit Required Confined Space).

Confined Space Entry Permit - A special written permit/form issued by the CSPM, or a qualified person under the direction of the CSPM, which authorizes entry into certain confined spaces under a given set of conditions and safety precautions.

Confined Space Program Manager (CSPM) - An individual who has successfully completed course number A-493-0030, Confined Space Safety, conducted by the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) or equivalent training approved by the Echelon Two occupational safety and health manager, and has been appointed, in writing, by the commanding officer to implement a comprehensive confined space entry program (Non-Maritime).

Consensus Standard - A standard developed through the cooperation of all parties who have an interest in participating in the development and/or use of the standard. Consensus requires that all views and objections be considered, and that an effort be made toward their resolution. Consensus implies more than the concept of a simple majority but not necessarily unanimity.

Contaminant - A material or agent not normally present in the atmosphere, e.g., dust, fume, gas, mist or vapor, which can be harmful, irritating, or a nuisance.

Contamination (CBRNE Term) – (1) The deposit and/or absorption of radioactive material or biological or chemical agents on and by structures, areas, personnel, or objects. (2) Food and/or water made unfit for consumption by humans or animals because of the presence of environmental chemicals, radioactive elements, bacteria, or organisms. (3) The by-product of the growth of bacteria or organisms in decomposing material (including food substances) or waste in food or water. (DoD Dictionary of Defense and Associated Terms- Joint Publication JP 1-02).

Contractor Employee - An employee of a contractor performing work at a contractor workplace under a Navy contract.

Contractor Workplace - Any place on a Navy installation, located within the United States, its territories, or possessions, where work currently is being, recently has been, or is scheduled to be performed by contractor employees under a Navy contract, including a reasonable access route to and from the workplace. The term contractor workplace does not include any area structure, machine, apparatus, device, equipment, or material therein, with which a contractor employee is not required or reasonably expected to have contact nor does it include any working condition for which OSHA jurisdiction has been preempted under section 4(b)(1) of the OSH Act.

Controls - Actions taken or measures put in place to eliminate a hazard or reduce the associated identified risk. Some types of controls include engineering controls, administrative controls, and physical controls. Also called mitigations.

Conviction - An official determination or finding as authorized by applicable host-nation, federal, state, city, county, laws or regulations; including a final conviction by a court or court-martial (whether based on a plea of guilty or a finding of guilty and regardless of whether the penalty is deferred, suspended, or probated).

Course of Action (COA) - A possible plan that is open to a person that would accomplish, or is related to the accomplishment of the mission.

Culture Workshop - An open-forum discussion process, facilitated by experienced senior command-level officers who focus on operational excellence by gauging trust, integrity, and effective communication, both up and down the chain of command within the unit. Facilitators lead and focus the discussion on these three key areas, but may discuss any issue unit members feel is an impediment to operational excellence within their command. The culture workshop process is specifically designed to help the commander, commanding officer, master, or officer in charge to look introspectively at the organization and determine whether their perception of the command, unit, or activity's culture and climate is accurate. More importantly, the culture workshop allows the command, unit, or activity to identify issues that presently cause concern or generate hazards, as well as those that pose a risk to future sustained operational excellence or may cause a mishap or other hazard to a command, unit, or activity.

Cumulative Trauma Disorders (CTDs) - Health disorders arising from repeated biomechanical stress. Other terms that have been used for such disorders include “work-related musculoskeletal disorders,” "repetitive motion injury," "occupational overuse syndrome," and "repetitive strain injury." spine (neck and back), and lower extremities. Examples of disorders in this class include carpal tunnel syndrome, tennis elbow, tendinitis, tenosynovitis, DeQuervain's Disease, and low back strain.

Decibel-dB - A unit used to express sound pressure levels; specifically, 20 times the logarithm of the ratio of the measured sound pressure to a reference quantity, 20 micro-pascals (0.0002 microbars)

Decibels, A-Weighted (dBA) – A sound level reading in decibels as measured on the A-weighted network of a sound level meter. On this scale, the sound pressure level has been filtered or weighted to reduce the effect of low frequency noise. A –weighted sound pressure is designated to approximate the response of the human ear to sound

Decontamination (CBRNE Term) – The process of making any person, object, or area safe by absorbing, destroying, neutralizing, making harmless, or removing chemical or biological agents, or by removing radioactive material clinging to or around it.

Designated Agency Occupational Safety and Health Official (DASHO) - The individual at each Federal Agency who is responsible for the administration of the occupational safety and health program. According to 29 CFR 1960.6, this individual should be of the rank of Assistant Secretary or equivalent and must have sufficient headquarters staff with the necessary training and experience. In addition, the headquarters staff should report directly to, or have access to the DASHO.

Detector Tube - A glass tube that utilizes a sensitive chemical (in a suspension of silica gel) which produces color change whenever contaminated air is pulled through the tube.

Disability - The incapacity, because of injury or illness in employment, to meet his or her obligations or needs or to pursue an occupation, or to earn the wage which the employee was receiving at the time of the injury or illness.

Disabling Work/Duty Injury - Any impairment resulting from an occupational injury which prevents a military person from performing his/her regularly established duty or work for a period of 24 hours or more, subsequent to 2400 on the day of injury or onset of illness; or restricts the ability of a civilian employee of the Navy to function at normal or expected levels of mental or physical activity.

Disturbance (Asbestos) - means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount, which can be

contained in one standard sized glove bag or waste bag, in order to access a building or vessel component. In no event will the amount of which can be contained in one glove bag or waste bag, which will not exceed 60 inches in length and width.

DoD Personnel:

a. DoD and Navy Civilian Personnel - DoD civil service employees (including reserve component military and reserve technicians, unless in a military duty status); non-appropriated fund employees (excluding part-time military); Corps of Engineers Civil Works employees; Youth or Student Assistance Program employees; foreign nationals employed by the DoD Components; Army-Air Force Exchange Service employees and Navy Exchange Service Command employees.

b. Military Personnel - All U.S. military personnel on active duty; Reserve or National Guard personnel on active duty or performing inactive duty training; Service Academy midshipmen and cadets; officer candidates in officer candidate school and Reserve Officer Training Corps midshipmen, cadets, and officer candidates when engaged in directed training activities; and foreign national military personnel assigned to the DoD Components.

Dosimeter - A device for measuring cumulatively the exposure of an individual over a period of time.

Driving Privileges - The authority granted by a host-nation, state, or commander to a person that allows that person to operate a motor vehicle on an installation or area under the authorizing official's supervision and control.

Dust - Small solid particles created by the breaking up of larger particles by processes such as crushing, grinding, or explosion. Examples of processes that generate dust: Use of machine shop tools, paint chipping, sanding, woodworking, and abrasive blasting.

Echelon - A subdivision of a military or naval force numbered from highest to lowest in ascending numerical order (e.g., echelon 1 is higher than echelon 2).

Effectiveness of Corrective Action - The degree to which the proposed hazard abatement system can be expected to reduce the cited hazard. For health hazards, this would typically be expressed as the intensity of the hazardous chemical or physical agent remaining, in appropriate units, after the proposed abatement measure is operational. For safety hazards, effectiveness is expressed as "in full compliance" or "not in full compliance" with the applicable standard, if any.

Electric Field - A fundamental component of electromagnetic waves, which exists when a voltage potential difference exists between two points in space. (See Field Strength.)

Emergency Operations Center (EOC) (CBRNE Term) – The physical location at which the coordination of information and resources to support domestic incident management activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps a higher level of organization within a jurisdiction. EOCs may be organized by major functional discipline (e.g., fire, law enforcement, and medical services), by jurisdiction (e.g., Federal, State, regional, county, city, tribal), or some combination thereof.

Emergency Responder (CBRNE Term) – Military, Federal, State, Local, and Private emergency management and operations personnel, disaster preparedness officers, medical treatment providers at medical treatment facilities and clinics, preventive medicine, public health, industrial hygiene, safety, environmental, legal, public works, public affairs/information, mortuary affairs, and/or other designated personnel that actively support emergency operations either at or off the actual incident site.

Emergency Response Management (CBRNE Term) - The process of preparing for mitigating, responding and recovering from an unplanned event that can cause death or significant injuries or that could disrupt operations, or cause physical or environmental damage. Components are planning, training, testing equipment and coordinating activities.

Emergency Vehicle (EV) - Any vehicle designated, equipped, and authorized to respond to an emergency. These include police, ambulance, fire, crash and rescue, explosive ordnance disposal, and hazardous material response vehicles.

Employee - Any person employed or otherwise offered, permitted, or required to work by a Navy command including both civilian and military personnel.

Employee/Personnel (Asbestos) Exposure - An exposure (to asbestos) that would occur if respiratory protective equipment were not used.

Employment Accident - An accident occurring as a result of work performance or exposure to the work environment.

Engulf - To surround and capture an individual by a liquid or finely divided solid substance.

Engineering Control - Engineering controls are physical changes to work stations, equipment, materials, processes, production facilities or any other relevant aspect of the work environment that reduces or prevents exposure to workplace risk factors. The use of PPE is not considered an engineering control.

Enterprise - As used in this instruction, represents all Navy operating forces and shore activities under the supervision of the Chief of Naval Operations.

Entry - The act by which a person intentionally passes through an opening into a permit-required confined space and includes ensuing activities. The entrant is considered to have entered if any part of the entrant's face breaks the plane of an opening into the space.

Entry Supervisor - The supervisor of the employees authorized entry into a confined space.

Ergonomics - Ergonomics is the field of study that involves the application of knowledge about physiological, psychological and biomechanical capacities and limitations of the human body. This knowledge is applied in the planning, design, and evaluation of work environments, jobs, tools and equipment to enhance worker performance, safety and health and reducing the potential for fatigue, error, or unsafe acts. Ergonomics is essentially fitting the workplace to the worker. The application of knowledge about physiological, psychological and biomechanical capacities and limitations of the human body to work environments, jobs, tools and equipment to enhance worker performance, safety and health and to reduce the potential for fatigue, error, or unsafe acts.

Ergonomic Risk Factors - Workplace conditions that pose a biomechanical, physiological or psychological stress to a worker. Examples of workplace risk factors include force, repetition, awkward or static posture, vibration, and compression. When present for sufficient duration, frequency, magnitude, or in combination, these risk factors may cause Work-related Musculoskeletal Disorders. Additionally, environmental conditions such as working in temperature extremes may contribute to the development of WMSDs.

Ergonomist - An expert or specialist in the field of ergonomics. A “certified” ergonomist is a Certified Professional Ergonomist as determined by the Board of Certification in Professional Ergonomics.

Excess Hazardous Material (EHM) - Ready-for-issue hazardous material classified as excess and no longer needed by the generating activity.

Excursion Limit - A limitation on short-term exposures that are called for by industrial hygiene considerations, generally 3 times the TLV-TWA for no more than a total of 30 minutes during a workday, and never exceeding 5 times the TLV-TWA.

Explosion Proof - An apparatus, device, or piece of equipment that is tested and approved for use in flammable or explosive atmospheres as defined in the National Electrical Code (NEC).

Explosive or Flammable Limits - The range of concentration of a material, expressed in percent in air, that will burn or explode if ignited. The lower explosive limit is the minimum percent by volume of a gas or vapor that, when mixed with air at normal temperature and pressure, will form a flammable mixture.

Exposure Incident (Bloodborne Pathogens) - means a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

Facility - A separate, individual building, structure, or other form of real property, including land, which is subject to separate reporting under the Department of Defense real property inventory. (NOTE: This definition differs from that used elsewhere because it includes "land.")

Facility Requirements - The facilities required by an activity to perform its mission, tasks, and functions and to support assigned forces. Facility requirements are expressed normally as quantities of land, waterfront space, easements, types of buildings and structures, capacity of utilities, etc., in terms of units of measure. A facility requirement is an abstract specification and is not identifiable with a particular building or structure.

Falls from heights (or elevations) – Falls of 4 feet or more to a lower level from a surface.

Falls on same level (slips, trips & falls) – A sudden, unplanned change in position in which a person comes to rest unintentionally on the floor, ground, or on an object under or next to them.

Fall Prevention – The elimination and minimization of potential fall hazards, lessening the chance of Navy civilians or military personnel exposure to falls from any height (e.g. sand and salt on icy same level surfaces, tape or protective flat molding over cords crossing pathways, guard rails or walls on walkways or platforms at heights, floors covering openings, area isolation).

Fall Protection – Action and procedures to effectively protect Navy civilians and military personnel from falling from any elevated surface; or from falling from any height onto dangerous equipment, into a hazardous environment, or onto an impalement hazard.

Fall Restraint System – A system consisting of equipment and components connected together designed to restrain a person from reaching an exposed fall hazard.

Fall Suspension Rescue Plan - A written plan to ensure prompt rescue of an employee in the event of a fall from a height where the employee is left suspended in a body harness.

Far Field (Fraunhofer region, plane wave region) - The region far from an antenna, compared to the size of the antenna and the wavelength of the radiation, where the power decreases with the square of the distance from the source. In this region the radiation has the properties of a plane wave. (See Plane Wave.)

Federal OSHA Official - Investigator or compliance officer employed by, assigned to, or under contract to OSHA.

Field Strength - The magnitude of the electronic field (in volts/meter) of magnetic field (in amps/meter).

First Aid Case – A first aid case is a specific type of no lost time case, applicable to civilian employees only. It is a non-fatal traumatic injury or occupational illness or disease, and is not recordable if it involves only:

- (1) Using non-prescription medications at non-prescription strength;
- (2) Administering tetanus immunizations;
- (3) Cleaning, flushing, or soaking wounds on the skin surface;
- (4) Using wound coverings, such as bandages, Band-Aids™, gauze pads, etc., or using SteriStrips™ or butterfly bandages.
- (5) Using hot or cold therapy;
- (6) Using any totally non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc.;
- (7) Using temporary immobilization devices while transporting an accident victim (splints, slings, neck collars, or back boards).
- (8) Drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters;
- (9) Using eye patches;
- (10) Using simple irrigation or a cotton swab to remove foreign bodies not embedded in or adhered to the eye;
- (11) Using irrigation, tweezers, cotton swab or other simple means to remove splinters or foreign material from areas other than the eye;
- (12) Using finger guards;
- (13) Using massages;
- (14) Drinking fluids to relieve heat stress.

First Responder (CBRNE Term) – Military, Federal, State, Local, or Private law enforcement, fire, rescue, emergency medical, EOD, public works, or Hazardous Materials (HAZMAT) response personnel who arrive on the scene of an incident and take action to save lives, protect property, and meet basic human needs.

Forces Afloat - U.S. Navy surface ships and submarines including embarked troops, staffs, detachments, and aircraft squadrons.

Frequency - The rate at which a sound source vibrates or makes the air vibrate. The unit of time is usually 1 second and the term Hertz (Hz) is used to designate the number of cycles per second. Frequency is related to the subjective sensation of pitch. High frequency sounds (2000, 3000 and 4000 Hz) are high pitched.

Fumes - Material from a volatilized solid that has condensed in cool air. The solid particles thus formed are usually less than 1.0 micrometer in diameter.

Gas - Diffuse, formless fluid normally in a gaseous state.

Government Motor Vehicle (GMV) - A motor vehicle that is owned, leased (includes General Services Administration vehicle under the control of a Navy activity), or rented by the government (includes a vehicle rented by government personnel when authorized on their official travel orders) primarily designed for over-the-road operations; and whose general purpose is the transportation of cargo or personnel. Examples of GMVs are: passenger cars, station wagons, vans, ambulances, buses, motorcycles, trucks, and tractor-trailers. A trailer being towed by a GMV is considered part of the vehicle. Included in this definition are government-owned wheeled tactical and combat vehicles. Vehicles on receipt to, and operated by, non-DoD persons or agencies and activities such as the U.S. Postal Service or the American Red Cross are not GMVs.

Government Vehicle Other (GVO) - Vehicles designed primarily for off-the-highway operation such as construction-tracked vehicles, forklifts, road graders, agricultural-type wheeled tractors, and aircraft tugs. Includes military combat and tactical vehicles (e.g., tanks, self-propelled weapons, armored personnel carriers, amphibious vehicles ashore, and high-mobility multipurpose wheeled vehicles).

Harness (Full Body) - Means of configuration of connected straps secured about the employee in a manner that will distribute the fall arresting forces over at least the upper thighs, waist, shoulders, chest and pelvis, with means for attaching a lanyard to other components of the personnel fall arrest system. Full-body harness is the only body support device allowed by OSHA when a free fall distance exceeds two feet.

Hazard - Any real or potential condition that can cause injury, illness, or death to personnel; damage to or loss of equipment or property; degradation of mission capability or impact to mission accomplishment; or damage to the environment (synonymous with the term threat).

Hazard Category - A workplace condition as defined:

- a. Category I - Catastrophic: The hazard may cause death or loss of a facility.
- b. Category II - Critical: May cause severe injury, severe occupational illness, or major property damage.
- c. Category III - Marginal: May cause minor injury, minor occupational illness, or minor property damage.
- d. Category IV - Negligible: Probably would not affect personnel safety or health, but is nevertheless in violation of specific criteria.

Hazard Control Assessment - An objective overall assessment for measuring the relative priority of hazard abatement projects in terms of a 3-digit dimensionless number. This assessment will be used to prioritize centrally funded projects.

Hazard Control Hierarchy - Effective design or redesign of a task or workstation is the preferred method of preventing and controlling harmful stresses. The methods of intervention (in order of priority) to be used are: process elimination, engineering controls, substitution, work practices and administrative controls; e.g. adjust work-rest cycles, slowing work pace, task rotation.

Hazardous Chemical - Any chemical that is a physical hazard or a health hazard in accordance with 29 CFR Section 1910.1200 (c), and with some exceptions as specified in the Community Right to Know Law of 1986 (Superfund Amendments and Reauthorization Act (SARA), Title III). See "Hazardous Material."

Hazardous Material (HM) - For the purpose of preparing the Safety Data Sheet, a hazardous material is defined as a material having one or more of the listed characteristics: (a) has a flashpoint below 200oF (93.3oC) closed cup, or is subject to spontaneous heating or is subject to polymerization with release of large amounts of energy when handled, stored, and shipped without adequate control; (b) has a threshold limit value below 1000 ppm for gases and vapors, below 500 mg/m³ for fumes, and below 30 mppcf for dusts; (c) a single oral dose which will cause 50 percent fatalities to test animals when administered in doses of less than 500 mg per kilogram of test animal weight; (d) is a strong oxidizing or reducing agent; (e) causes first degree burns to skin in short time exposure or is systematically toxic by skin contact; (f) in the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes with one or more of the above characteristics; (g) produces sensitizing or irritating effects; (h) is radioactive; or (i) the item has special characteristics which in the opinion of the manufacturer could cause harm to personnel if used or stored improperly.

Hazardous Material Information System (HMIRS) - A computer-based information system developed to accumulate, maintain, and disseminate important characteristics of hazardous materials, which exist throughout DoD.

Hazardous Substance (HS) - Any substance that, because of its quantity, concentration, or hazardous properties, may pose a substantial hazard to human health or the environment when purposely released or accidentally spilled.

Hazardous Waste (HW) - any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR part 262.

Hazardous Waste Minimization (HAZMIN) - Consists of three parts:

a. Avoiding HW generation by minimizing and controlling HM acquisition and use, and by applying best management, engineering, and equipment to Navy processes and procedures.

- b. Recycling HW to reduce it to a ready-for-use state.
- c. Treating HW to reduce the volume or to reduce it to a non-hazardous state.

Headquarters Command – Any organization that has been assigned primary support responsibility for subordinate activities or commands. Primary support responsibility is the provision of resources (funds, manpower, facilities, and material) for shore activities to enable them to carry out their mission. Primary support includes administrative, personnel, and material support and guidance in such matters as internal organization, process, procedures, budgeting, staffing, and facilities. Support includes the responsibility to assist in evaluating the operational effectiveness of shore activities and responding to other requests for technical assistance. All Echelon 2 commands are considered headquarters commands along with many echelon 3 commands. Examples of headquarters commands are the systems commands headquarters, Fleet Commanders, Numbered Fleet Commanders, Type Commanders, and the Field Support Activity for CNO-assigned activities.

Hearing Level - Amounts in decibels by which the threshold of audition for an ear differs from zero decibels (dB) for each frequency -- a standard audiometric threshold derived from normal-hearing young adults.

Hertz (HZ) - Unit of frequency (of change in state or cycle in a sound wave, alternating current, or other cyclical waveform) of one cycle per second.

High-Efficiency Particulate Air (HEPA) Filter - Filter capable of retaining particles of 0.03 to 0.5 micron size with an efficiency of 99.996 percent, used to extract hazardous particles and droplets from ventilation airflow.

Host Installation Command - A naval activity providing facilities, common support functions and services and administrative base support functions, etc. These functions are usually provided at no cost to Navy appropriated fund tenants.

Hot Work - Hot work includes all flame heating, welding, torch cutting, brazing, carbon arc gouging or any work which produces heat, by any means 400oF or more; or, in the presence of flammables or flammable atmospheres, use of ignition sources such as spark or arc producing tools or equipment; static discharges, friction, impact, open flames or embers; and non-explosion-proof lights, fixtures, motors, or equipment. See Cold Work.

Human Factors - The application of behavioral principles to the development of technological systems to make such systems work more efficiently and productively and to make it easier for people to operate and maintain these systems.

Human Factors Engineering - Includes applying fundamental principles and theoretical concepts from psychology disciplines to human and organizational performance, decision making, training, engineering, and human/system integration. It develops processes to provide predictive standards of performance, collect objective measures of human and unit performance, conduct assessments, and monitor predictive and leading trends.

Human Systems Integration - Includes the integrated and comprehensive analysis, design, assessment of requirements, concepts and resources for system manpower, personnel, training, safety and occupational health, habitability, personnel survivability, and human factors engineering.

Humanitarian Respirator Use - Provision of a respirator in the absence of any regulatory requirement. (See Voluntary Respirator Use)

IDLH – Immediately Dangerous to Life or Health. An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Illness (Occupational) - Any abnormal condition or disorder, other than an injury, caused by exposure to conditions associated with the occupational environment.

Imminent Danger - A condition that immediately threatens to cause the loss of life or serious injury or illness of an employee.

Impulse or Impact Noise - Sound of short duration, usually less than 1 second, with an abrupt onset and rapid decay. Also, those variations in noise levels that involve maxima at intervals greater than 500 milliseconds. Where the intervals are less than 500 milliseconds, the noise is considered continuous.

Incident (Confined Space) - A mishap resulting in death, injury, property damage and/or situations involving unauthorized (inadvertent or willful) entry into a PRCS, disregard of permit requirements, improper testing, or issuance of a permit without evaluation of space conditions.

Industrial Hygiene - The science that deals with the recognition, evaluation, and control of potential health hazards in the work environment.

Inerting - A process in which an inert or nonflammable gas is introduced into an atmosphere to such a degree that the oxygen/flammable vapor content of the atmosphere will not burn or explode.

Injury - Traumatic bodily harm, such as a cut, fracture, burn, or poisoning, caused by a single or 1-day exposure to an external force, toxic substance, or physical agent.

Inspection - A comprehensive survey of all or part of a workplace in order to detect safety and health hazards as distinguished from routine, day-to-day evaluation and monitoring by local OSH personnel.

Installation - A facility or group of facilities located in the same vicinity, which support particular Navy functions. Installations may include locations such as stations, air stations, shipyards, etc., or may be vessels.

Intrinsically Safe Equipment - Equipment, which, by design, does not have or is not capable of producing sufficient levels of energy to cause ignition.

Joint Service Lightweight Integrated Suit Technology (JLIST) (CBRNE Term) – A chemical protective ensemble of over-pants and bib-type pants that are designed to provide skin protection for military personnel against chemical warfare gases and vapors.

Joint Service Mask Leakage Tester (JSMLT) (CBRNE Term) – The JSMLT, also known as the TDA-99M, is a respirator leakage testing apparatus used to test military mask serviceability and to perform quantitative fit testing.

Laboratory - A term referring to research laboratories and chemical analytical laboratories that are managed and staffed by academically trained and -qualified professionals and chemists. This term, as used in this Manual, does not include entire installations having "laboratory" in their organization name, or material laboratories that mainly characterize the physical properties of materials. The term is intended to describe functional room(s) or area(s) where specific analytical and research tasks are performed by highly trained professionals under the supervision of highly trained and qualified, professional chemists.

Lanyard (for fall arrest/restraint) – A flexible line of rope, wire rope, or strap that generally has a connector at each end for connecting the body harness to a deceleration device, lifeline or anchorage. Sometimes has a separately attached deceleration device (shock absorber) or a built-in deceleration method.

Lost Time Case - A nonfatal traumatic injury that causes any loss of time from work beyond the day or shift it occurred; or a nonfatal illness/disease that causes disability at any time.

Lost Workday Case – Any impairment resulting from an accident or occupational disease which prevents a military person from performing his/her regularly established duty or work for a period of 24 hours or more, subsequent to 2400 on the day of injury or onset of illness; or prevents a civilian employee of the Navy from performing work for a full shift on any day subsequent to the day of injury or onset of illness.

Low Speed Vehicles (LSVs) - A four-wheeled vehicle with an attainable speed of more than 20 miles per hour and not more than 25 miles per hour on a paved level surface with a gross vehicle weight rating of less than 3,000 pounds.

Magnetic Field - A fundamental component of electromagnetic waves produced by a moving electrical charge. (See Field Strength.)

Maritime Operations - Operations on ships at sea or the listed shore activities.

- a. Construction of ships, including the installation of machinery and equipment
- b. Repair of ships, including alterations, conversions, installations, cleaning, painting, and other maintenance
- c. Breaking down of a ship's structure for the purpose of scrapping
- d. Loading, unloading, moving, or handling cargo into, in, on, or out of ships.

Material (Property) Damage - Mishap-related damage of facilities, equipment, or material (property) that a dollar expenditure would accrue to repair or replace.

Material Safety Data Sheet (MSDS) – See Safety Data Sheet.

Medical Documentation - A written statement from a licensed physician or other appropriate credentialed practitioner.

Medical Treatment - Treatment administered by a physician or health care provider under the standing orders of a physician. Medical treatment does not include first aid treatment even though provided by a physician or health care provider.

Mesothelioma - A rare neoplasm arising from the cells that line the pleura (chest cavity and lungs) and peritoneum. It is usually associated with asbestos exposure, and may have a latent period as long as 30 to 40 years.

Military Personnel - All Navy military personnel on active duty (USN/USNR); Naval Reserve personnel (USNR-R) on active duty or in a drill status; Naval Academy midshipmen; Reserve Officer Training Corps (ROTC) midshipmen when engaged in directed training activities; and other DoD and Foreign National military personnel assigned to the Navy or embarked in Navy or Military Sealift Command vessels.

Military-Unique Equipment, Systems, Operations, or Workplaces

- a. Equipment and systems that are unique to the national defense mission, including the operation, testing, and maintenance procedures dictated by the design and configuration.

Examples are: military weapons, aircraft, ships, submarines, missiles and missile sites, early warning systems and sites, military space systems, ordnance, tanks, and tactical vehicles.

b. Operations or workplaces that are uniquely military, such as field maneuvers; combat training; naval operations; military flight and missile operations; associated research, test, and development activities; and actions required under emergency conditions.

Mishap - Any unplanned or unexpected event, or series of events, causing death, injury, occupational illness; damage, including days away from work, job transfer or restriction; or unexpected event, or series of events, causing materiel or assets to be lost or damaged, where if some or all causal factors that might have been corrected were corrected, the event or series of events would have been unlikely to occur.

Mishap Severity Classification – DoD mishaps are classified according to the severity of resulting injury, occupational illness or property damage. Refer to reference (m) for classification and OPNAV reporting requirements. For additional reporting purposes, refer to paragraph B1408a.

Mission-Oriented Protective Posture (MOPP) (CBRNE Term) – A flexible system for establishing readiness levels through the use of various elements of collective and individual protection consistent with the threat, work rates imposed by the mission, and environmental conditions. This posture permits maximum protection from exposure without unacceptable reduction in efficiency. (FM 101-5-1/MCRP 5-2A) (FM 3-3/FMFM 11-17)

Mist – Finely divided liquid droplets suspended in air and generated by condensation or by atomization.

Monitoring Industrial Hygiene - Measurement of the amount of contaminant or physical stress reaching the worker in the environment.

Monitoring (Medical Surveillance) - The pre-placement and periodic evaluation of the health status of workers exposed to toxic substances or physical agents in the workplace - measures the effects of contaminant on a worker's body functions and tissues, e.g., decreased lung function, dermatitis, abnormal blood count.

Monitoring Hearing Tests - Periodic hearing tests, obtained subsequent to the reference hearing test, which are used to detect shifts in the individual's threshold of hearing.

Motorcycles - A two- or three-wheeled motor vehicle with a seat or saddle that can exceed 30 miles per hour on a level surface or has an engine larger than 49 cubic centimeters.

Motor Vehicle - Any transportation device with a motor powered by fossil fuels, electricity or other external sources or energy; except devices moved by human power or used exclusively on stationary

rails or tracks. For the purpose of this chapter, LSVs, neighborhood electric vehicles (NEVs), mopeds, and scooters are considered motor vehicles when operated on the highways.

MSHA - Mine Safety and Health Administration

NAVSOH - Navy Safety and Occupational Health

Navy Civilian Personnel

a. **Navy Federal Civilian Personnel.** All career, career-conditional and temporary (whether full-time or part-time or intermittent) Department of the Navy (DON) civilian employees who are subject to Civil Service regulations who are paid from appropriated Federal funds and are covered by the Federal Employees' Compensation Act. The Navy excludes civilians paid by appropriated funds on a contract or fee basis.

b. **Navy Non-Appropriated Fund (NAF) Civilian Personnel.** All civilian personnel the Navy employs to serve Navy activities that are paid from non-appropriated funds and are covered by the Longshoreman and Harbor Workers' Compensation Act. These employees typically work in special services, recreation and athletic programs, hobby shops, open messes, and Navy Exchanges. The Navy excludes civilians paid by non-appropriated funds on a contract or fee basis.

c. **Navy Foreign National Civilian Personnel.** Foreign nationals the Navy employs in direct (appropriated or non-appropriated funds) or indirect-hire (contract or fee basis) status when the Navy has supervisory control. The Navy excludes those paid on a contract or fee basis when the host government has supervisory control. Activities will review and determine if the host nation injury and illness reporting and compensation systems supersede DoD requirements in accordance with the status of forces agreements.

Naval Stations -This applies to naval bases, activities, stations, facilities, installations, housing areas and all other property under the jurisdiction of the U.S. Navy.

Navy Contractor - A non-Federal employer engaged in performance of a Navy contract, whether as prime contractor or subcontractor.

Navy Employees - For purpose of this Manual, Navy employees include all military and civilian personnel (except contractors) paid from Navy appropriated and non-appropriated funds.

Navy Military Personnel - For purposes of this instruction includes all U.S. Navy personnel on active duty; U.S. military reserve or National Guard personnel on active duty or in drill status; service academy midshipmen/cadets; Reserve Officer Training Corps cadets when engaged in directed training activities; foreign national military personnel assigned to Navy commands,

units, or activities; and personnel of other branches of the Military Services (including the U.S. Coast Guard) serving with the Navy.

Navy Non-Operational Mishap - Mishaps that are not Navy operational mishaps. These consist of cases in which Navy military personnel or any military personnel assigned to the Navy are injured while using facilities the Navy owns and maintains that are service-related facilities, such as pools, athletic fields, retail stores, clubs, child care centers, and housing. This category also includes cases in which any person (military, Federal civilian, non-DoD) is injured due to negligence in the maintenance of service-related facilities the Navy owns and maintains and also includes cases in which off-duty Navy military personnel or military personnel assigned to the Navy are injured in any other capacity not previously mentioned and not considered as operational.

Navy Operational Mishap - Any mishap involving DoD or non-DoD property damage or personal injury as a direct result of the execution of specific Navy operations.

Navy Operations - Official, authorized activities or facilities that the Navy conducts, provides, owns and maintains. Facilities include aircraft, surface ships, submarines, government motor vehicles, and shore establishments, including service-related facilities.

Navy Safety and Occupational Health (SOH) Standards - Occupational safety and health standards published by the Navy which include, are in addition to, or are alternatives for the OSHA standards which prescribe conditions and methods necessary to provide a safe and healthful working environment.

Navy Personnel - For purposes of this Manual include the listed categories.

a. Civilian - General Schedule and Wage Grade employees; Youth/Student Assistance Program employees; Foreign Nationals directly employed by Navy commands; and non-appropriated fund employees.

b. Military - All U.S. Navy personnel on active duty; U.S. Military Reserve or National Guard personnel on active duty or in drill status; Service Academy midshipmen/cadets; Reserve Officer Training Corps cadets when engaged in directed training activities; Foreign National military personnel assigned to Navy commands; and personnel of other branches of the Armed Forces serving with the Navy.

NBC (CBRNE Term) – an acronym for nuclear, chemical and biological. Term is used in reference to military respirator cartridges.

Near Field - The electromagnetic field, which exists relatively near the radiation source. In this area, the electric and magnetic fields do not exhibit a plane wave relationship, and power does not decrease with the square of the distance from the source. The near field region is further

subdivided into the reactive near field region, which is closest to the antenna and contains most or nearly all of the stored energy associated with the field of the antenna, and the radiating near field region, where the radiation field predominates over the reactive field but lacks substantial plane wave character and is complicated in structure.

Near Miss - An act or event that may have resulted in a mishap where the death, injury, illness, or loss of asset was avoided merely by chance, the actions of a single person, a small measure of distance, or a few moments in time.

Needless Systems - means a device that does not use needles for: (1) The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established; (2) The administration of medication or fluids; or (3) Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

Negative Exposure Assessment (Asbestos) - For any one specific asbestos job performed by employees who have been trained in compliance with 29 CFR 1910.1001, 1915.1001 and 1926.1101, the employer may demonstrate that employee exposures will be below the PELs.

Neighborhood Electric Vehicle (NEV) - NEV is a type of LSV. "NEV" has become the term used by industry and fleets to refer to a passenger vehicle subject to FMVSS 500. A vehicle manufactured or sold as an NEV will have a label stating that the vehicle complies with FMVSS 500 and will have a 17-digit vehicle identification number.

NFPA 1981 Requirements – "Meeting NFPA 1981 requirements calls for SCBA to be approved by NIOSH under Subparts H through L of 42 CFR 84 and meet all firefighter testing requirements of NFPA 1981. NFPA 1981 requires testing SCBA at 100 lpm, in contrast to the 40 lpm NIOSH testing required under Subpart H of 42 CFR 84. Under higher exertion levels, SCBA meeting the higher airflow requirements will provide a higher level of protection than SCBA approved only under Subpart H of 42 CFR 84."

NIOSH - National Institute for Occupational Safety and Health.

NIOSH Approved Respirators - Respirators that have been certified by NIOSH or NIOSH/MSHA.

No Lost Time Case - A non-fatal traumatic injury or occupational illness or disease that does not meet the definition of a Lost Time Case. This definition includes, but is not limited to, each case where medical expense is incurred but no lost time from work is incurred as represented by a charge to leave or COP.

Noise Exposure - Personal interaction to a combination of sound level and its duration.

Non-DoD Personnel - Off-duty DoD civilian personnel, persons other Federal Agencies employ and other civilians and foreign nationals that DoD does not employ.

Normal Working Population Exposed to Hazard - The number of people whose authorized activities on Navy property cause them to be exposed to the specified hazardous condition on a significant number of occasions during a work year; no one should be included in this estimate who is exposed to the cited hazard so infrequently or at such low exposure concentrations that it can be considered insignificant. For example, do not count as exposed those persons who only occasionally pass by the door of a room where a hazard is present. For specific chemical or physical agents, the population exposed is dependent on the numbers of personnel involved in the specific activity, the effectiveness of confinement or containment systems, and the process steps involved. For agents requiring extensive processing, potential exposure may be plant-wide, but will vary in intensity. If isolation is practiced, the exposed population may be only one worker per shift. If collection systems are not used to confine potential emissions, personnel not actively engaged in the operation may also be exposed to hazardous substances. Populations exposed to a specific safety hazard will vary with the type of hazard and its locations. If the safety hazard is associated with a specific piece of equipment, only the operator may be exposed. For a grinder, the population exposed could differ according to the safety features of the equipment. If the grinder has a guard, only the operator might be injured through contact with the grinding wheel; on the other hand, if a grinder is without an adequate guard, shattering of the grinding wheel could injure other personnel in the immediate vicinity.

Nuclear Agent (CBRNE Term) - A material related to the nuclear cycle of mining and processing uranium or plutonium used at nuclear power plants associated with nuclear energy and materials that emit particle and electromagnetic radiological processes.

Occupation Exposure Limit (OEL) – The exposure limit used by a health professional to help determine a workers’ or populations’ health risk from exposure to a hazard. “OEL” is a generic term used to apply to all exposure limits, to include: DoD standards from DoDI 6055.1, Occupational Safety and Health Administration (OSHA), Permissible Exposure Limits (PELs), DoD Component standards, military deployment environmental health limits, American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs), National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs), and other exposure limits reviewed for potential use.

Occupational Health - That multidisciplinary field of preventive medicine that is concerned with the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations, and the prevention and/or treatment of illness or injury induced by factors in the workplace. The major disciplines involved are: occupational medicine, occupational health nursing, epidemiology, toxicology, audiology, industrial hygiene, ergonomics, and health physics. Activities include the design, implementation and evaluation of comprehensive health and safety programs that promote employee health and safety in the workplace.

Occupational Health Care Provider - Occupational medicine physicians, occupational health physician assistants, occupational health nurses, occupational health nurse practitioners, occupational audiologists, and independent duty corpsmen trained to provide occupational health services.

Occupational Illness - A physiological harm or loss of capacity caused by systemic infection; continued or repeated stress or strain; exposure to toxins, poisons, fumes, etc.; or other continued and repeated exposures to conditions of the work environment over a long period of time. For practical purposes, an occupational illness or disease is any condition not meeting the definition of occupational injury.

Occupational Injury Any injury, such as a cut, fracture, sprain, amputation, that results from a work accident or from an exposure involving a single incident in the work environment. - All injuries occurring aboard Navy service craft and small boats are occupational injuries.

Occupational Medicine Services - Medical examinations and tests related to medical surveillance, pre-employment, pre-placement, periodic, and pre-termination; tests required for protecting the health and safety of naval personnel; job-related immunizations and chemoprophylaxis; education and training related to occupational health; diagnosis and treatment (including referral to other medical and surgical specialties) of injuries and illnesses resulting from employment, and other medical services provided to avoid lost time or to improve employee effectiveness.

Occupational Safety and Health - The program and practices for protecting individuals from harm and loss of resources caused by hazards in the workplace or errors as described in the OSH Act.

Occupational Safety and Health Professional – See Safety and Occupational Health Professional.

Off-Duty Personnel - (See OPNAVINST 5102.1D) Applicable to DoD personnel. Such personnel are off-duty when they are not on-duty as defined below.

On-Duty Personnel - (See OPNAVINST 5102.1D) DoD personnel are on-duty when:

a. Physically present at any location (area under the control of a DoD component) where they are to perform their officially assigned work. (This includes those activities incident to normal work activities that occur on DoD installations, such as lunch, coffee, or rest breaks, and all activities aboard vessels.)

- b. Being transported by DoD or commercial conveyance for the purpose of performing officially assigned work. (This includes travel in private motor vehicles for performing official duty, but not routine travel to and from work).
- c. Participating in compulsory physical training activities (including compulsory sports and command-sponsored activities during work hours).
- d. Ready Reservists performing inactive duty training (drill) and are between departure and return home without diversion.
- e. On temporary duty or temporary additional duty (TDY/TAD). Personnel on assignment away from the regular place of employment are covered 24 hours a day with respect to any injury that results from activities essential or incidental to the temporary assignment. However, when personnel deviate from the normal incidents of the trip and engage in activities, personal or otherwise, which are not reasonably incidental to the duties of the temporary assignment contemplated by the employer, the person ceases to be considered on-duty for reporting purposes of occupational injuries or illnesses.

Off-Road Vehicle (ORV) - A vehicle designed specifically for off-road use. ORVs generally fall into one of two categories:

1. Off-Highway Vehicles - Off-highway vehicles are motor vehicles designed primarily for off-highway operation such as tracked or half-tracked vehicles, forklifts, road graders, agricultural vehicles, and self-propelled aircraft ground support equipment.
2. Motorcycle (Off-Highway) - A motorcycle designed for off-highway use that cannot be licensed for highway use due to design or lack of required equipment such as, marking and turn signals, brake lights, etc.

Open Container - Any bottle, can, or other receptacle containing any alcoholic beverage that has been opened or had its seal broken.

Operational Risk Management (ORM) - A method for identifying hazards, assessing risks, and implementing controls to reduce the risks associated with any activity or operation. ORM is the Navy's primary process to assess the potential for mission failure, inadequate force protection, and practices of personal risk. The process is principles-based vice compliance-based. It is designed to enable good risk decision making even when the rules may be unclear or risk tolerance is very high. It may be applied across the spectrum of operations and tasks, both on- and off-duty. ORM is a decision-making tool used by all personnel to increase effectiveness by identifying hazards and reducing the risk associated with each hazard, which in turn greatly increases the probability of mission success. ORM is exceptionally suitable for reducing the inherent risk in high-risk training. There are three ORM levels used throughout training development to mission execution: in-depth, deliberate, and time-critical.

OSHA - Occupational Safety and Health Administration, Secretary of the Navy (SECNAV).

OSHAct - The Williams-Steiger Occupational Safety and Health Act of 1970 (Stat. 1590 et seq., 29 U.S.C. 651 et seq).

OSHA Standards - OSHA standards are those standards issued by the DOL's Occupational Safety and Health Administration under Section 6 of the OSH Act. OPNAVINST 5100.23G 30 Dec 05 G-20

Oxygen-Deficient Atmosphere - An atmosphere that contains an oxygen partial pressure of less than 148 millimeters of mercury (19.5 percent by volume at sea level).

Oxygen-Enriched Atmosphere - An atmosphere containing more than 22 percent oxygen by volume.

Particulate Matter - A suspension of fine solid or liquid particles in air, such as: dust, fog, fume, mist, smoke, or spray. Particulate matter suspended in air is commonly known as an aerosol.

Pedal-Driven - A device propelled solely by human power, using pedals (e.g., unicycle, bicycle, tricycle etc.).

Pedestrian - A person traveling on foot, whether walking, jogging, or running.

PEL - Permissible Exposure Limit. The maximum permissible concentration of a toxic chemical or exposure level of a harmful physical agent (normally averaged over an 8-hour period) that an employee may be exposed.

Permit Required Confined Space (PRCS) - A confined space that, has any one or more of the listed characteristics: 1) Contains or has the potential to contain a hazardous atmosphere; 2) Contains a material that has the potential for engulfing the entrant; 3) Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section; and/or, 4) Contains any other recognized serious safety or health hazards.

Personnel -

a. **Military Members** - All active duty military members or reservist while in an active duty status.

b. **DoD or Navy Civilian Personnel** - All DoD or Navy civilian workforce personnel to include non-appropriated funds employees and master labor contract employees who are on duty.

c. **Civilian** - All other persons not described above to include retired members of DoD, dependents, contractors and sub-contractors, etc.

Plan of Action and Milestones (POAM) - Document that identifies tasks needing to be accomplished. It details resources required to accomplish the elements of the plan, any milestones in meeting the tasks, and scheduled completion dates for the milestones.

Plane Wave - An electromagnetic wave characterized by mutually orthogonal electric and magnetic fields, which are related by the impedance of free space (377 ohms).

Potentially Hazardous Noise - Exposure to greater than 84 dB(A) sound level or 140 dB peak sound pressure level for impact or impulse noise. The safe exposure time (T) for periods of less than 16 hours in any 24-hour period may be determined using the equation:

$$T = 16/2^{[(L-80)/4]}$$

where T = Time in hours and L = Effective sound level in dB.

Potentially Hazardous Noise Area –

a. Any work area where the A-weighted sound level (continuous or intermittent) is greater than 84 dB.

b. Any work area where the peak sound pressure level (impulse or impact noise) exceeds 140 dB.

Power Density - The amount of power per unit area in an electromagnetic field, usually expressed in milliwatts per square centimeter or watts per square meter.

Pre-incident Plan - A written plan prepared by a public, or Government emergency response agency, containing general and detailed information for determining their response to anticipated emergency incidents at a specific facility.

Pressing Up - The process of filling a space with a liquid to exclude flammable vapor/air mixtures from the space.

Presumed Asbestos Containing Material (PACM) - Thermal system insulation and surfacing material found in buildings constructed no later than 1980.

Primary Duty - Principal, main, major, or most important duty that the employee performs.

Private Motor Vehicle (PMV) - A vehicle owned, leased, rented, or controlled by an individual in a personal capacity. A trailer being towed by a PMV is considered part of the vehicle.

Proactively - By taking action to control a situation rather than just responding to it after it has happened.

Probability - A measure of the likelihood that given exposure to a hazard, a potential consequence mishap will occur.

Procurement - The process of obtaining material via the supply system directly from the private sector in such a manner that the local activity is actually involved in the "purchasing" via contract, blanket purchase agreement, petty cash, or other means. See "Acquisition."

Protective Clothing - An article of clothing furnished to an employee at government expense and worn for personal safety and protection in the performance of work assignments in potentially hazardous areas or hazardous conditions.

Protective Equipment - A device or item to be worn, used, or put in place for the safety or protection of an individual or the public at large, when performing work assignments in or entering hazardous areas or under hazardous conditions. Equipment includes hearing protection, respirators, electrical matting, barricades, traffic cones, lights, safety lines, life jackets, etc.

Pure-Tone Audiogram - A set of measures that compares the hearing sensitivity of an individual in detecting faint pure tones in a quiet test room, to the corresponding ability in a normal-hearing young adult population. Usually shown as a graph or table depicting hearing thresholds in decibels at the frequencies of 500, 1,000, 2,000, 3,000, 4,000 and 6,000 Hz.

Radio frequency Radiation (RFR) - Electromagnetic radiation at frequencies between 10 kHz and 300 GHz.

Radiological Agent (CBRNE Term) - Elements that have an unstable number of neutrons in the nucleus, and that emit ionizing radiation called alpha or beta particles that may be accompanied with gamma or x-rays.

Rate of Exposure - The number of hours per year it is estimated that an average member of the exposed population is exposed to the cited hazardous condition. This figure should be an estimate by someone familiar with the work situation, based on the best available existing information (such as time cards). Special studies to obtain these data are not required.

The estimate should be based on net working days per year (i.e., total working days per year minus vacations and holidays, but not sick leave). Usually, net working days is 40 hours per week and 50 weeks per year, i.e., 2,000 hours per year.

For an exposure to a health hazard, the rate of exposure may be easily calculated if the individual works only at the operation in question. However, an employee will generally work in an area of potential exposure for a period of time and move to another location. If the transiency follows a predictable routine, the rate of exposure can be assessed by determining the degree of hazard at all work locations and eliminating those where the potential hazard is minimal.

The rate of exposure to safety risks may also vary. As an example, in general traffic areas, the lack of a guard rail on platforms or hand rails on stair steps may create brief repetitive exposures to several people, including operators, inspectors, and occasional casual personnel. In such cases, calculate average use of the steps or the platforms to determine the rate of exposure.

Recognized Potential Hazard - A health hazard with an employee exposure (without regard to personal protective equipment) greater than the action level (as an 8-hour time-weighted average), short-term exposure limit, ceiling limit, or peak limit.

Recordable Mishap - (From 29CFR1904.7(a)):

An injury or illness that results in any of the listed: death, days away from work, restricted work or transfer to another job, medical treatment (beyond first aid of civilians), or loss of consciousness, or that involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment (beyond first aid of civilians), or loss of consciousness. The Navy requires activities to enter these cases on the appropriate occupational injury and illness log. (The “first aid” designation only applies to civilian personnel.)

Recordable Occupational Injuries or Illnesses – (See “Recordable Mishap.”)

Recovery - The principle by which removal from noise allows the inner ear hair cells to regain their pre-noise exposed condition.

Recreational Facility (On Base) - A site, location, or building on an installation or base where patrons may come to participate in recreational endeavors (e.g., pool, gym, track, skateboard park, hobby shop, etc.).

Recreational and Off-Duty Safety - A multidisciplinary field that maintains the highest degree of personnel readiness and physical well-being of military personnel, civilian employees, and their families, as described in chapter 37, while engaged in non-command directed motor vehicle operations, individual and team sports, and leisure activities. Activities include facility and equipment design, training, performance, compliance and oversight of comprehensive recreational and off-duty safety programs that promote health and safety of personnel when in an off-duty status, whether on or off Department of Defense installations.

Recreational Off-Highway Vehicle (ROV) - Vehicles designed for off-highway use that are generally steered like a car and provide some level of occupant protection. These vehicles generally have a steering wheel, foot pedals for acceleration & breaking, seats, side retention features, and rollover protection. They may or may not have doors, windshields or windows. ROVs are not considered ATVs.

Recurrence - A situation in which an injured employee, after returning to work, is again disabled and stops work as a result of the original injury. (Recurrent injuries or illnesses do not require new entries on the Log of Occupational Injuries or Illnesses; however, adjustments may be required to reflect changes in the extent or outcome of the case).

Recycled Material - Recycled material is material that can be utilized in place of a raw or virgin material in manufacturing a product. See 40 CFR 261.

Reference Hearing Test - A hearing test performed when an individual is not experiencing a temporary threshold shift in hearing or other transient otologic pathology. The resulting audiogram will be used as a reference in computing any possible future threshold shift. Normally, this reference audiogram will be first performed for hearing conversation purposes.

Region Command - This applies to a specific region under CNIC.

Regulated Area (Asbestos) - An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

Reportable Mishap - Any mishap as defined in paragraph B1408 of this Manual. Activities should not consider the criteria all-inclusive; if there is a "lesson to be learned," whether or not it meets the criteria, then activities should submit a report.

Reportable Occupational Injuries and Illnesses –

- a. All fatalities resulting from occupational injuries or illnesses, regardless of the time between the injury and death, or the length of the illness
- b. All lost workday cases involving the loss of 120 hours or more for military and 5 days or more for civilians
- c. Electric shock - Any case ashore resulting from equipment design deficiency d. Chemical or toxic exposure or oxygen deficiency - All cases requiring medical examination or attention. (Excluded are cases in which medical attention was solely due to medical surveillance requirements.)
- e. Any student mishap at a training command that results in termination of training.

Reproductive Hazard - Any occupational stressor (biohazard, chemical, or physical) that has the potential to adversely affect the human reproductive and/or developmental process.

Respiratory Protection Program Manager RPPM - An individual who meets the requirements of the Office of Personnel Management for safety and health personnel as defined under “Safety and Health Professional,” has successfully completed the training requirements of chapter 15, and is designated as the RPPM in writing by the commanding officer.

Restricted Area - Any area where access is controlled for the purpose of excluding entry of persons of less than 140 centimeters (55 inches) in stature.

Requirement - A condition or capability that must be met or possessed by a solution or solution component to satisfy a contract, standard, specification, or other formally imposed documents.

RFR Permissible Exposure Limit (PEL) - The maximum level expressed in specific absorption rate (SAR) or derived equivalent power density, electric field strength, or magnetic field strength to which an individual may be exposed which, under the conditions of exposure, will not cause detectable bodily injury according to present medical knowledge.

Risk - Chance of adverse outcome or bad consequence, such as failed or degraded mission, injury, illness, or loss. Risk level is expressed in terms of hazard probability and severity.

Risk Assessment Code (RAC) - A simple expression of risk that combines the elements of hazard severity and mishap probability. This assessment will be used to help prioritize abatement projects.

Risk Assessment - A structured process to identify and assess hazards. An expression of potential harm, described in terms of severity, accident or mishap probability, and exposure to hazard.

Risk Management - A formal system of hazard identification, risk assessment, risk acceptance, control implementation, and risk monitoring to control risk to acceptable levels.

Risk Terms -

- a. High Risk - An elevated probability of loss or increased injury severity.
- b. High Risk - Recreational Activities. This identifies those non-mission related activities that may present an elevated risk of serious injury or death to the participant. Examples of recreational activities that may be considered high risk, but are not limited to: skydiving; rock and mountain climbing; cliff diving; self-contained underwater breathing apparatus (scuba) diving; spearfishing, target, skeet, and trap shooting; hunting; bull riding; racing motorized vehicles; boating; boxing; mixed martial arts; bungee jumping; air ballooning; motorcycle riding; and parasailing.

Roadway - That portion of a highway, including shoulders, intended for vehicular use.

Root Cause - Any basic underlying cause that was not in turn a result of more important underlying causes. Describes the depth in the causal chain where an intervention could reasonably be implemented to change performance and prevent an undesirable outcome.

Safety - Protection in depth from those conditions that can cause death, injury, occupational illness, or damage to or loss of equipment or property.

Safety Data File - The computer file, developed as part of the HMIS, used to store the hazardous material characteristics relevant to their safe handling, use, and disposal.

Safety Data Sheet (SDS) –Form containing the identical data elements, must be used by manufacturers of chemical products to communicate to users the chemical, physical, and hazardous properties of their product to comply with the OSHA Hazard Communication Standard, 29 CFR 1910.1200. The completed form identifies key information on the product: name, address, and emergency contact for the manufacturer; the identity of hazardous ingredients; physical/chemical characteristics; fire and explosion hazard data; reactivity data; health hazard data; precautions for safe handling and use; and control measures. See chapter 7.

Safety and Occupational Health (SOH). The program and practices for protecting individuals from harm and loss of resources due to hazards or errors in all DoD operations, and for military personnel at all times. SOH includes occupational (i.e., workplace) safety and health, acquisition system safety and health, aviation safety, operational safety, off-duty recreational safety, radiation safety, and traffic safety.

Safety and Occupational Health Professional - Full Time SOH Professional includes any civilian working or supervising personnel in the 0018 or 0019 job series, any military personnel assigned to a billet where safety is their primary duty, and any personnel who performs the functions of inspecting, evaluating, analyzing, mishap prevention oversight and/or advising command leadership of the SOH programs contained within this manual. Personnel afloat refer to OPNAVINST 5100.19F and aviation refer to OPNAVINST 3750.6S for SOH guidance.

SOH Professional “Qualified” - Civilian personnel who meet Office of Personnel Management (OPM) Standards for SOH Manager/Specialist General Schedule (GS)-018, Safety Engineering Technician GS-802, Safety Engineer GS-803, Safety Technician GS-019, Aviation Safety Officer GS-1825, Air Safety Investigating Officer GS-1815, Fire Protection Engineer GS-804, Fire Protection Specialist/Marshall GS-081, Medical Officer GS-602, Health Physicist GS-1306, Industrial Hygienist GS-690, Occupational Health Nurse GS-610, Environmental Health Technician GS-699, and military personnel equally qualified when compared to the OPM standards.

For DoD civilian SOH personnel OPM standards, specified in 29 CFR 1960.56 Qualifications for military and DoD civilian occupational health professionals are also described in DoD Instruction 6055.05, “Occupational and Environmental Health (OEH),” November 11, 2008.

Collateral duty military and civilian SOH personnel are those with technical knowledge needed to anticipate, recognize, and evaluate hazardous conditions and recommend corrective action.

Scalable - Able to be changed in size or scale.

Serious Physical Harm - Impairment of the body in which part of the body is made functionally useless or is substantially reduced in efficiency on or off the job. Such impairment may be permanent or temporary, chronic or acute. Injuries involving such impairment would usually require treatment by a medical doctor. Illnesses involving such impairment could shorten life or significantly reduce physical or mental efficiency by inhibiting the normal function of a part of the body.

Service Craft - Self-propelled and non-self-propelled small vessels and craft designed to operate in coastal and protected waters and provide general support to combatant forces and shore establishments (examples are tugs, barges, floating cranes, yardcraft).

Severity - This is an assessment of the potential consequence that can or could occur as a result of a hazard and is defined by the degree of injury, illness, property or environmental damage, loss of asset (e.g., time, money, personnel), or effect on the mission or task. When analyzing risk, it is based on the worst credible outcome.

Sharps With Engineered Sharps Injury Protections- Means a nonneedle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.

Significant Threshold Shift - A change in hearing threshold of an average of 10 dB or more at 2,000, 3,000, and 4,000 Hz in either ear will be considered a significant threshold shift. A change of hearing threshold level of 15 dB or greater, in either ear, at any frequency (1,000 to 4,000 Hz) between the reference audiogram will be consider an Early Warning shift, requiring counseling and refitting or hearing protection, but no additional hearing tests.

Small Boat - Self-propelled, water-borne small craft capable of limited independent operation in protected waters (examples are launches, Boston whalers).

Smoke - Carbon or soot particles less than 0.1 micrometer in size resulting from the incomplete combustion of carbonaceous materials such as coal or oil.

Solvent - A substance, most commonly water, but often an organic compound that is used to dissolve another substance.

Specific Absorption Rate (SAR) - The time rate at which RFR energy is imparted to an element of biological body mass. It is usually measured in W/kg or normalized to incident power density in W/kg/mW/cm².

Specific Hazard (Safety or Health) - A word or words constituting the distinctive designation of the cited hazard; for example, the name of the safety hazard might be "unguarded flywheel" or "lack of fire exit"; the name of the health hazard might be "asbestos fibers in the air," "mercury," or "noise." General terms are not acceptable health hazards.

For chemical hazards, the specific name of the dangerous chemical is required. As an example, if a solvent is being used, its chemical name, e.g., "trichloroethylene," must be given; the word "solvent" is not adequate. If more than one chemical is involved in the work operation, or a chemical mixture is being used, give the chemical name of the single most hazardous chemical involved. If the specific hazard is a chemical by-product or by-product mixture resulting from the work operation, give the chemical name of the single most hazardous by-product.

For noise hazards, specify whether they are steady-state or impulse. When the cited health standard is one that details ventilation requirements for a particular type of operation, such as spray painting or arc-welding, the specific hazard name should be "insufficient ventilation to control _____." Terms such as spray paint, welding fumes, etc., are adequate only in cases relating to ventilation standards.

Standard - A rule, established by competent authority, which designates safe and healthful conditions or practices under which work must be performed to prevent injury, occupational illness, or property damage.

a. **Criteria** - Those parts of a standard that establish a measurable quality, e.g., specifications, inspection intervals, etc.

b. **Equivalent Criteria** - The measurement of equivalency will be a judgment based on the preponderance of information available. Generally, they must provide protection at least as effective as the criteria they replace.

State OSHA Official - Investigator or compliance officer employed by a state that has an OSHA-approved occupational safety and health plan.

Supervisor - (Military or civilian), one who immediately directs the job efforts of a working group.

Supplying Activity - A naval activity providing safety services to other commands within a specific region.

Systems Acquisition - The process by which weapon systems, weapons platforms, and related equipment are conceived, designed, obtained, and introduced into operational use.

System Safety - The application of engineering and management principles, criteria, and techniques to achieve acceptable mishap risk within the constraints of operational effectiveness, time, human capabilities, and cost throughout all phases of the system life cycle.

Tactical Vehicle - A motor vehicle owned by the United States DoD and or U.S. Military services and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations.

TDA-99M (CBRNE Term) - A portable instrument used to test for respirator serviceability by determining microphone assembly, lens, facepiece, drinking tube, exhalation and inhalation valve leakage. This device, also known as the Joint Service Mask Leakage Tester (JSMLT) is used to perform quantitative fit testing.

Tenant - This applies to ships, submarines, squadrons, and commands receiving services supplied by the host installation command, naval station or supplying activity within a specific region.

Transportation Data File - The computer file, developed as part of the HMIS, used to store the hazardous material characteristics relevant to their safe transportation and handling.

The Joint Commission - An independent, not-for-profit organization, The Joint Commission accredits and certifies nearly 21,000 health care organizations and programs in the United States. Joint Commission accreditation and certification is recognized nationwide as a symbol of quality that reflects an organization's commitment to meeting certain performance standards.

Threat Assessment (CBRNE Term) - A formal description and evaluation of risks to an information system.

TLV® - Threshold Limit Value. Threshold limit values are established by the American Conference of Governmental Industrial Hygienists® (ACGIH). TLVs refer to airborne concentrations of a substance and represent conditions under which it is believed that nearly all workers may be exposed day after day without adverse effect.

Top Management - Person or group of people who direct and control the operation of a command, unit, or activity. In Navy commands, units, and activities, this will typically be either a commander, commanding officer, master (i.e., Military Sealift Command vessels), or officer in charge; either a deputy commander, executive officer, or executive director; a board of directors; and the senior-most enlisted member.

Toxic Industrial Chemical (TIC) (CBRNE Term) - A chemical produced in quantities of greater than 30 tons in a single facility and has a median lethal concentration toxicity (LCt 50 inhalation) of less than 100,000 mg per min/m³ and an appreciable (undefined) vapor pressure at

20C. Primarily an inhalation hazard but troops can receive a dosage through ingestion or absorption of the skin.

Toxic Industrial Material (TIM) (CBRNE Term) - Chemical substances other than chemical warfare agents used in general industry in such quantities that a release or unplanned event of these materials could cause significant human injury, illness or death. These materials are used in a variety of settings including manufacturing facilities, maintenance areas and general storage areas.

Toxic Substance or Harmful Physical Agent - any chemical substance, biological agent (bacteria, virus, fungus, etc.), or physical stress, noise, heat, cold, vibration, repetitive motion, ionizing and non-ionizing radiation, hypo-hyperbaric pressure, etc., which:

- a. Is regulated by any NAVSOH standard or Federal law or rule due to a hazard to health.
- b. Is listed in the latest printed edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemicals.

Transportation Data File – The computer file, developed as part of the HMIS, used to store the hazardous material characteristics relevant to their safe transportation and handling.

Threat Assessment (CBRNE Term) – A continual process of compiling and examining all available information concerning potential terrorist activities by terrorist groups that could target a facility.

TWA - Time-Weighted Average. An average value weighted in terms of the actual time that it exists during a given time interval.

Utility Vehicle - A vehicle that is motorized or designed to carry out a specific task with four-wheel drive and generally used for agricultural purposes, maintenance, hunting, or recreation.

Vapor - Gaseous form of substances that are normally in the solid or liquid state.

Voluntary Respirator Use – is when an employee chooses to wear a respirator, even though the use of a respirator is not required by the activity or by any OSHA standard. (This glossary term was modeled from language in the OSHA small Entity Compliance Guide). When there is no risk of personal overexposure and only filtering facepiece respirators are issued for voluntary use, activities are not required to have a complete program. However, they must ensure that the facepieces are not dirty or contaminated, that their use does not interfere with the employee's ability to work safely, and the respirator approval label are provided to employees. If respirators are required to be worn in the workplace to protect the health of the employee, or where an activity requires an employee to wear a respirator, i.e., in a situation where reference

15-3 does not otherwise require such use, or when respirators other than filtering facepieces are worn by voluntary users, then a complete written respiratory protection program must be established and implemented.

Vulnerability (CBRNE Term) - (1) The susceptibility of a nation or military force to any action by any means through which its war potential or combat effectiveness may be reduced or its will to fight diminished; (2) The characteristics of a system that cause it to suffer a definite degradation (incapability to perform the designated mission) as a result of having been subjected to a certain level of effects in an unnatural (manmade) hostile environment.

Vulnerability Assessment (CBRNE Term) - The systematic examination of a system to identify those critical infrastructures or related components that may be at risk from an attack and the determination of appropriate procedures that can be implemented to reduce that risk. The systematic examination of security measures to identify security deficiencies, provide data from which to predict the effectiveness of proposed security measures, and confirm the adequacy of such measures after implementation.

WESS (Web Enabled Safety System) - the reporting system for all civilian and military occupational illnesses and injuries.

Working Days - Monday through Friday (excluding Federal holidays), or other appropriate authorized days of agency operation.

Workplaces

a. Applicable Workplaces and Operations - Navy workplaces and operations generally comparable to those of business and industry in the private sector. Examples include facilities involved and work performed in: the repair and overhaul of vessels, aircraft, or vehicles, except for equipment trials; construction; supply services; civil engineer or public works; medical services; and office work. Accordingly, Navy workplaces and operations such as those involved with shipyards, air rework facilities, public work centers, and like operations are included in this definition.

b. Uniquely Military Equipment, Systems and Operations - Navy equipment and systems that are unique to the national defense mission. Examples include: military aircraft, ships, submarines, missiles and missile sites, early warning sites, military space systems, artillery, tanks, and tactical maneuvers, naval operations, military flight operations, associated research test and development activities, and actions required under emergency conditions.

Workplace Inspection - Comprehensive survey conducted by a qualified safety and health inspector in order to detect safety and health hazards. Inspections are normally performed during the regular work hours of the agency, except as special circumstances may require. Workplace inspections will be tracked by building or asset management identifier and may be broken down

further by shop number, code, or other approved nomenclature to denote a particular command or occupant. Workplace inspections do not include routine, day-to-day visits by qualified occupational safety and health inspectors or personnel (e.g., fire prevention, facilities management specialists, or environmental), or routine workplace surveillance of occupational health conditions.

WMSD – Musculoskeletal Disorders (MSDs) are injuries and illnesses that affect muscles, nerves, tendons, ligaments, joints, spinal discs, skin, subcutaneous tissues, blood vessels, and bones. Work-related Musculoskeletal Disorders (WMSDs) are: Musculoskeletal disorders to which the work environment and the performance of work contribute significantly, or Musculoskeletal disorders that are aggravated or prolonged by work conditions.

APPENDIX C

WEB SITES

Air Force Safety Center	https://www.safety.af.mil/
American Board of Industrial Hygiene	http://www.abih.org/
American Society of Safety Professionals (ASSP)	https://www.assp.org/
Board of Certified Safety Professional	https://www.bccsp.org/
BUMED Manuals	https://www.med.navy.mil/directives/Pages/BUMEDInstructions.aspx
Bureau of Labor Statistics	https://www.bls.gov/
CMC SD	https://www.safety.marines.mil/
DOD Environmental, Safety and Occupational Health Network and Information Exchange	https://www.denix.osd.mil/
DOD Issuances	https://www.esd.whs.mil/Directives/issuances/dodi/
DOD Safety Management Center of Excellence (SMCX)	https://www.smscx.org/
Enterprise Safety Application Management System	https://esams.cnmc.navy.mil/ESAMS_GEN_2/Login
Google	http://Google.com
INSURV	https://usff.navy.deps.mil/sites/insurv/Inspections/Pages/Governing-Instructions.aspx
Motorcycle Safety Foundation	https://www.msf-usa.org/
National Institute Occupational Safety and Health (NIOSH)	https://www.cdc.gov/niosh/index.htm
National Safety Council	https://www.nsc.org/
National Transportation Safety Board	https://www.nts.gov/
Naval Ordnance Safety and Security Activity	https://nossa.dc3n.navy.mil/nrws3/Tools/Library.aspx
Naval Safety & Environmental Training Center	https://www.public.navy.mil/NAVSAFECEN/navsafenvtracen/Pages/index.aspx
Naval Safety Center (CAC)	https://intelshare.intelink.gov/sites/navsafe
Naval Safety Center (Public)	https://www.public.navy.mil/NAVSAFECEN/Pages/index.aspx
Navy and Marine Corps Public Health Center	https://www.med.navy.mil/sites/nmcphc/Pages/Home.aspx

Navy Forms	https://forms.documentservices.dla.mil/order/
NFPA	https://codesonline.nfpa.org/code/
Occupational Safety and Health Administration (OHSA)	https://www.osha.gov/
OSHA Training Institute	https://www.osha.gov/dte/oti/
Safety Officer Toolbox	https://intelshare.intelink.gov/sites/navsafe/Pages/sotoolbox.aspx
Secretary of the Navy	https://www.secnav.navy.mil/doni/allinstructions.aspx
US Army Combat Readiness Center (USACRC)	https://safety.army.mil/
US Chemical Safety and Hazard Investigation Board	https://www.csb.gov/
Voluntary Protection Programs Participants Association. (VPPPA)	https://www.vpppa.org/
Web-Enabled Safety System (WESS)	https://www.public.navy.mil/navsafecen/Pages/wess/WESS.aspx
Whole Building Design Guide (WBDG)	https://www.wbdg.org/

APPENDIX D

FORMS AND INFORMATION MANAGEMENT CONTROL PART 1. FORMS

1. The following forms are available from Navy Forms OnLine:
 - OPNAV Form 5100/9 Medical Referral Form
 - OPNAV Form 5100/11 Unsafe / Unhealthy Workplace
 - OPNAV Form 5100/12 Safety and Occupational Health Deficiency Notice
 - OPNAV Form 5100/20 Physical Risk Factor Ergonomic Checklist
 - OPNAV Form 5100/21 Computer Workstation Checklist
 - OPNAV Form 5100/14 Exposure Monitoring Plan
 - OPNAV Form 5100/35 Respirator Use Questionnaire
 - OPNAV Form 5100/39T Electrical Mishap Investigation
 - SECNAV Form 5100/1 Supervisors Medical Surveillance and Certification Exam Referral

2. The following forms are available on the DoD forms website
<https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd2522.pdf>:
 - DD 2521 DOD Hazardous Chemical Warning Label (8.5x11)
 - DD 2522 DOD Hazardous Chemical Warning Label (4x6)

3. The following forms are available from the Navy and Marine Corps Public Health Center
<http://www.nmcphc.med.navy.mil/>:
 - NMCPHC 5100/13 Industrial Hygiene Air Sampling Survey

PART 2. REPORT CONTROL SYMBOLS

1. The following reports are required in this instruction and are approved per SECNAV Manual 5214.1 of December 2005.
 - a. OPNAV 5100-25 Exposure Monitoring Plan, Chapter 8, (Occupational Health), subparagraph B0802.g of this manual.

 - b. OPNAV 5100-26 OSH Deficiency Notice, Chapter 9,(Safety Assurance), subparagraphs B0904.i, B0904.l and Chapter 12, (Mishap Prevention, Hazard Control and Hazardous Abatement Program), subparagraphs B1203.b, B1204, and Chapter 37, (Recreational and Off-Duty Safety Program), subparagraph B3704.e of this manual.

 - c. OPNAV 5100-27 Navy Employee Report of Unsafe or Unhealthful Working Condition, Chapter 10, (Employee reports of Unsafe and Unhealthful Working Conditions), subparagraph B1003.b of this manual.

 - d. OPNAV 5100-28 Medical Referral Form, Chapter 14, (Mishap Review and Analysis), subparagraphs B1404.a and B1407.b of this manual.