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

IN REPLY REFER TO

OPNAVINST 5100.23G
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30 Dec 05

OPNAV INSTRUCTION 5100.23G

From: Chief of Naval Operations

Subj: NAVY SAFETY AND OCCUPATIONAL HEALTH (SOH) PROGRAM MANUAL

Ref: (a) SECNAVINST 5100.10H
(b) OPNAVINST 5100.8G
(c) OPNAVINST 5100.19D
(d) SECNAVINST 5212.5D

Encl: (1) Navy Safety and Occupational Health Program Manual

1. Purpose. To affirm the Navy Safety and Occupational Health (SOH) Program for all Navy personnel and implement the following Department of Defense (DOD) instructions:

a. DODI 6055.1 of 19 August 1998, Department of Defense Safety and Occupational Health (SOH) Program.

b. DODI 6055.5 of 10 January 1989, Industrial Hygiene and Occupational Health.

c. DODI 6055.7 of 3 October 2000, Accident Investigation, Reporting, and Record Keeping.

d. DODI 6055.11 of 21 February 1995, Protection of DOD Personnel from Exposure to Radio frequency Radiation and Military Exempt Lasers (NOTAL).

2. Cancellations. OPNAVINST 5100.23F; OPNAV 5100/9 (Rev. OCT 1992), Dispensary Permit, S/N 0107-LF-127-3500; OPNAV 5100/12 (9-92), NAVOSH Deficiency Notice, S/N 0107-LF-126-8700; OPNAV 5100/13 (9-92), Navy Occupational Safety and Health (NAVOSH) Program Costs, S/N 0107-LF-983-7200; OPNAV 5100/14 (OCT 1991), Exposure Monitoring Plan, S/N 0107-LF-983-8400; OPNAV 5100-26, NAVOSH Deficiency Notice; OPNAV 5100-21, Navy Occupational Safety and Health (NAVOSH) Program Costs.

3. Discussion. References (a) and (b) provide policy and outline responsibilities for the implementation of the total Navy Safety and Occupational Health Program. The Navy program encompasses all safety disciplines such as aviation safety, weapons/explosives safety, off-duty safety, traffic safety, and occupational safety and health. This instruction covers the implementation of the SOH Program. Forms in Chapters 8, 9, 12, and 13 have been revised, renamed and/or renumbered. Two new ergonomic forms have been added to Chapter 23. Injury and illness investigation, reporting and recordkeeping requirements have been removed from Chapter 14 and now reside in OPNAV 5102.1D/MCO P5102.1B. Chapter 13, Navy Occupational Safety and Health Cost Data and Chapter 26, Man-Made Vitreous Fibers, were eliminated and replaced by two new chapters; Chapter 13, Fall Protection Program and Chapter 26, Chemical-Biological-Radiological-Nuclear-Explosive (CBRNE) Events. References were updated with web links.

4. Action. All levels of command shall implement and manage the SOH Program in compliance with the policies, procedures, actions, and guidance set forth by this instruction. Reference (c) is the implementing document for forces afloat. Reference (d) provides guidance on records disposition and shall be followed by shore and afloat commands. The policies, procedures, and actions prescribed here are published without the necessity for implementing instructions from the Echelon 2 commands, bureaus, and offices, except where specifically directed. However, commands having significant SOH responsibilities should provide appropriate supplemental guidance.

5. Reports and Forms

a. The following reports are required in this instruction and are approved in accordance with SECNAVINST 5214.2B.

(1) OPNAV 5100-25, Exposure Monitoring Plan, Chapter 8, page 8-5, paragraph 0802(f)3 (see appendix 8-A)

(2)OPNAV 5100-26, OSH Deficiency Notice, Chapter 9, page 9-2, paragraph 0903h (see appendix 9-A)

(3) OPNAV 5100-27, Navy Employee Report of Unsafe or Unhealthful Working Condition, Chapter 10, page 10-1, paragraph 1002b (see appendix 10-A)

(4) OPNAV 5100-28, Medical Referral Form, Chapter 14, page 14-4, paragraph 1410a (see appendix 14-A)

b. The following forms are available at Navy Forms On-line, http://forms.daps.dla.mil. Local reproduction is authorized.

(1) OPNAV 5100/19 (Rev. AUG 2000), Hazard Abatement Project Request Form, S/N 0107-LF-983-9600

(2) OPNAV 5100/20 (Rev. FEB 2005), Physical Risk Factor Ergonomic Checklist, S/N 0105-LF-132-4900

(3) OPNAV 5100/21 (Rev. FEB 2005), Computer Workstation Checklist, 0105-LF-132-6100

c. The following forms are available at the Department of Defense Forms Program, http://www.dtic.mil/whs/directives/infomgt/forms/formsprogram.htm

(1) DD 2215, JAN 2000, Reference Audiogram

(2) DD 2216, JAN 2000, Hearing Conservation Data

(3) DD 2272, NOV 2000, Department of Defense Safety and Occupational Health Protection Program

(4) DD 2521, OCT 2000, Hazardous Chemical Warning Label (8-1/2” x 11”)

(5) DD 2522, OCT 2000, Hazardous Chemical Warning Label (4” x 6”)

d. The following forms are available from the Navy Environmental Health Center (NEHC), http://www-nehc.med.navy.mil/ih/ihfom.htm:

(1) NEHC 5100/13,APR 2003, Industrial Hygiene Air Sample Survey Form.

(2) NEHC 5100/17, APR 2003, Industrial Hygiene Noise Survey Form.

e. The laser and radio frequency radiation (RFR) exposure reporting requirements are exempted from report control by SECNAVINST 5214.2B.

f. OSHA Form 174, Material Safety Data Sheet, is available from the Occupational Safety and Health Administration at: http://www.osha.gov/dsg/hazcom/msds-osha174/msdsform.html.

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Navy Safety and Occupational Health Program Manual

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CHAPTER 1

INTRODUCTION

0101. References

Throughout the manual, references applicable to each chapter appear at the end of the chapter.

0102. Definition of Terms

See the Glossary at the end of the manual for the definition of special terms used throughout the manual.

This manual uses the words "shall," "will," "must," "should," "may," and "can" throughout. Shall, will, and must are directive in nature and require mandatory compliance. Should is a strong recommendation, but compliance is not required. May or can, when used, are optional in nature, and compliance is not required.

0103. Background

a. The Navy has historically maintained safety and health programs to protect its personnel and property. Occupational safety has long been an element of the overall Navy safety program that also includes explosive safety, nuclear safety, aviation safety, traffic safety and off-duty safety. The Chief of Naval Operations (N09F) has traditionally managed the overall safety and health program.

b. The Safety and Occupational Health Program gained special prominence after passage of the Occupational Safety and Health 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.

c. 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 Federal 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 Occupational Safety and Health program in compliance with Section 19 of the OSH Act. Over the next three years, many Federal agencies made only moderate progress. Consequently, Congress received considerable criticism for a perceived double standard in Occupational Safety and Health 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 Title 29, Code of Federal Regulations, Part 1960 *Safety and Health Provisions for Federal Employees*.

d. The actions described above still did not satisfy some critics since several Federal agencies questioned the regulatory authority of the Department of Labor (DOL) 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*.

e. The Department of Defense (DOD) has issued many directives and instructions to implement the Federal guidance outlined above. Reference 1-1 provides specific guidance for implementation of the basic program elements specified in 29 CFR 1960.

f. Following the provisions of reference 1-1, the Assistant Secretary of the Navy (Installations and Environment) (ASN (I&E)) was appointed as the Designated Safety and Occupational Health Official for the Department of the Navy (DON), with responsibilities outlined in reference 1-2. Reference 1-2 contains policy statements and outlines responsibilities for the implementation of the total safety and occupational health program for the Navy. Reference 1-2 delegate's responsibility for managing the program to the Chief of Naval Operations (CNO) (N09F) who is specifically responsible for the issuance of appropriate implementing directives.

g. This manual implements references 1-1 and 1-2 and provides policy, procedures, and guidance for the SOH program.

0104. Navy Policy

Navy policy is to provide a safe and healthful workplace for all personnel. The Navy achieves these conditions through an aggressive and comprehensive program fully endorsed by the Secretary of the Navy (SECNAV) and implemented through the appropriate chain of command. The program includes the following features:

a. Compliance with applicable standards.

b. Inspection of all workplaces by qualified inspectors at least annually.

c. Prompt abatement of identified hazards, including elimination or minimization of all hazards through engineering or administrative controls. Where engineering or administrative controls are not feasible, regions and activities shall provide appropriate personal protective equipment (PPE) at government expense. Where hazard abatement resources are limited, regions and activities shall eliminate the most serious problems first. Where unabated serious hazards have not been eliminated, regions and activities shall post appropriate notices to warn employees and define interim protective measures.

d. Procedures for all personnel to report suspected hazards to their supervisors and/or safety and health officials without fear of reprisal.

e. Appropriate training for all safety and health officials, supervisory and management personnel, and employees. Activities shall integrate applicable requirements into training programs and technical and tactical publications.

f. Procedures to review, in advance of construction or procurement, the design of facilities, systems, and subsystems to ensure that hazards are eliminated or controlled throughout the life cycle.

g. Thorough mishap investigations and a comprehensive management information system provide all data required by higher authority.

h. Comprehensive occupational health surveillance programs, both medical and industrial hygiene, implemented by qualified personnel.

i. Procedures consistent with Office of Personnel Management (OPM) and Navy Personnel Command (COMNAVPERSCOM) directives to measure employee performance in meeting requirements/objectives.

0105. Applicability

a. The provisions of this manual apply to all Navy civilian and military personnel and operations worldwide except where responsibility rests with the Commandant of the Marine Corps (CMC), and for those afloat personnel falling under the requirements of reference 1-3. Exceptions also include military-unique equipment, systems and operations; conditions governed by other statutory authorities or interservice support agreements; and conditions governed by international agreements overseas.

b. The provisions of this manual do not apply to Navy contractors, except for the following:

(1) Situations in which the United States, by admiralty law or other law, is responsible for contractor employee injury compensation (e.g., for employees working under the Commander, Military Sealift Command (COMSC), (reference 1-3)).

(2) Situations where the Navy exercises statutory authority for safety and health and, as a result, the OSH Act does not directly apply.

c. Where the safety and health of the contractor's employees are affected, the contractor is responsible directly to the DOL's Occupational Safety and Health Administration (OSHA) or appropriate state office where OSHA has approved a state plan.

d. Regional Commanders/Commanding Officers shall apply this manual consistently with the provisions of reference 1-4, other provisions of law providing for collective bargaining agreements and procedures, and any agreements entered into under such provisions. They shall determine matters of official leave for employee representatives involved in activities under this manual by the procedures of reference 1-4 or applicable collective bargaining agreements.

e. Under the statutory authority of the Atomic Energy Act of 1954, Section 309(a) of the Department of Energy Organization Act, and E.O. 12344 of 1 February 1982, (statutorily prescribed by Public Laws 98-525 and 106-65), the Director of Naval Nuclear Propulsion Program (CNO (N00N)) is responsible for the safety of reactors and associated naval nuclear propulsion plants, and the control of radiation and radioactivity associated with naval nuclear propulsion plant activities, including prescribing and enforcing standards and regulations for these areas as they affect the environment and the safety and health of workers, operations and the general public. Accordingly, for the above areas, the Naval Nuclear Propulsion Program is exempt from the requirements of this manual. However, for areas other than those described above, such as asbestos controls, machine guarding, etc., the requirements of this manual apply to Naval Nuclear Propulsion Program activities.

f. By the authority of 10 U.S.C. Section 172, explosive safety is exempt from the requirements of this manual. However, this manual does apply to SOH issues in explosives and ordnance areas, such as the evaluation of exposure to hazardous materials, noise, machine guarding, etc.

g. While the general concepts and provisions of this manual apply to forces afloat, exceptions must be made for military-unique equipment, systems, and operations. Because of differences in organization and operating environment among surface ships, submarines and shore regions and activities (such areas as chain of command relationships, required councils or committees, training and hazard abatement procedures), forces afloat require specifically tailored procedures. Reference 1-3 contains these provisions.

Chapter 1

References

1-1. DOD Instruction 6055.1, of 19 Aug 98, DOD Safety and Occupational Health Program. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf.

1-2. SECNAVINST 5100.10J, of 26 Oct 05, Department of the Navy Policy for Safety, Mishap Prevention, Occupational Health and Fire Prevention Programs. http://www.nosc.mil/usn/nepmu5/assets/images/secnav5100_10j.pdf.

1-3. OPNAVINST 5100.19D CH-1, of 30 Aug 01, Navy Occupational Safety and Health (OSH) Program Manual for Forces Afloat. http://www.safetycenter.navy.mil/instructions/afloat/510019D.htm.

1-4. P.L. 95-454, Title VII, Civil Service Reform Act, 5 U.S.C. Sections 7101-7135 (1978 Supp.), 13 October 78. http://www.dol.gov/esa/regs/compliance/olms/complcsra.htm.

CHAPTER 2

RESPONSIBILITIES

0201. Discussion

a. The maintenance of a safe and healthful workplace is a responsibility of commands throughout the Navy. 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 Safety and Occupational Health Program and implements the Program through the chain of command. Line management is responsible for the maintenance of safe and healthful working conditions.

b. This chapter describes the responsibilities at each command level for implementing the program.

0202. Assistant Secretary of the Navy (Installations and Environment (ASN (I&E))

ASN (I&E) is the Designated Agency Occupational Safety and Health Official (DASHO) for the Department of the Navy (DON), which includes the Navy and Marine Corps (see reference 2-1).

0203. Chief of Naval Operations (CNO)

Under reference 2-1, the CNO, in coordination with the Commandant of the Marine Corps (CMC) (concerning safety and occupational health matters of mutual interest), shall:

a. Issue appropriate directives and policies for the program per references 2-1 through 2-3. Special Assistant for Safety Matters (N09F) is responsible for developing program policy and guidance and issuing standards under references 2-1 through 2-4. Note: CNO (N09F) has additional duty assignment as Commander, Naval Safety Center.

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

c. Issue criteria for records maintenance and provide to the Secretary of the Navy (SECNAV) all reports required by references 2-3 through 2-8.

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

e. Ensure acquisition managers comply with the requirements of reference 2-9 and other applicable Federal agency safety and health standards or criteria in the procurement of military systems, subsystems, equipment, and related facilities.

f. Provide CNO (N09F) as co-chair of the Navy and Marine Corps Safety Council.

g. Adopt, develop, and issue, as necessary, standards (see chapter 16 on Standards).

Coordinate Navy review and input for new and revised safety and occupational health regulations and national consensus standards.

h. Ensure commands comply with applicable Navy regulations and Federal statutes governing the control of classified and sensitive unclassified information. (Refer to chapter 11, section 1106).

0204. Headquarters Commands

Headquarters commands are responsible for establishing a comprehensive safety and health program. Chapter 3, section 0302 delineates these duties and responsibilities.

0205. Policy Formulation and Implementation

The administration and management of the program is assigned in reference 2-10. Major responsibilities and technical support areas are summarized below.

a. Policy Formulation. The program includes a number of important elements. Responsibilities for policy formulation, program development and direction in each of these are as follows:

(1) Program. The program addresses the maintenance of safe and healthful conditions in the workplace or the occupational environment. It applies to all Navy civilian and military personnel and to operations ashore and afloat. The Special Assistant for Safety Matters (N09F) is responsible for developing program policy and guidance to comply with references 2-2 through 2-4. Additionally, CNO (N09F) is responsible for program sponsorship of occupational health Navy-wide

(2) Operational Unit Safety

(a) The Director, Expeditionary Warfare Division (CNO (N75)) is responsible for parachute, diving and air drop safety and safety of assigned ships and small craft.

(b) The Director, Surface Warfare Division (CNO (N76)) is responsible for the safety of assigned surface ships.

(c) The Director, Submarine Warfare Division (CNO (N77)) is responsible for the safety of submarines, assigned surface ships, deep submergence systems, and diving.

(d) The Director, Air Warfare Division (CNO (N78)) is responsible for naval aviation safety and the safety of assigned surface ships.

(3) Nuclear Propulsion Program Safety. The Director of Naval Nuclear Propulsion Program (CNO (N00N)) is responsible for the safety of reactors and associated naval nuclear propulsion plants and the control of radiation and radioactivity associated with naval nuclear propulsion plant activities per reference 2-11.

(4) Shore Safety. CNO (N09F) is responsible for those functional areas of the shore safety program assigned in reference 2-10.

(5) Explosives Safety. CNO (N41) is responsible for the Navy Explosives Safety Program including nuclear and conventional weapons.

b. Implementation. Safety is an inherent responsibility of command. Regions and activities shall implement all aspects of the Navy Safety and Occupational Health (SOH) program and the Operational Risk Management program (referenced in 2-12) through the chain of command. Echelon 2 commanders are responsible for ensuring that the commanders, commanding officers, directors, officers in charge and supervisors within their regions or at their activities:

(1) Conduct an aggressive mishap prevention program.

(2) Assign safety and health responsibilities to qualified personnel.

0206. Specified Support Areas

Reference 2-10 describes the Navy Safety and Occupational Health (SOH) Programs. The commanders of the Systems Commands (SYSCOMS), the Chief, Bureau of Medicine and Surgery (BUMED), the Commander, Naval Safety Center (COMNAVSAFECEN) and the Commander, Naval Education and Training Command (NETC) and Naval Personnel Development Command (NPDC), in coordination with, or at the direction of the respective Office of the Chief of Naval Operations (OPNAV) major program sponsor, shall develop specific procedures and provide instructions for the specified support areas assigned to them in reference 2-10.

a. Commanders of Headquarters Systems Commands (SYSCOM). Reference 2-9 directs the SYSCOM Commanders to provide support consistent with required military capabilities and to ensure that safety and occupational health aspects are considered, designed and engineered into all ships and aircraft, weapons or weapon systems, equipment, materials, supplies and facilities which are acquired, constructed or provided through the SYSCOMs. In so doing, SYSCOM commands shall ensure they apply and comply with system safety engineering and management principles and the provisions in reference 2-9. They shall 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.

b. BUMED shall:

(1) Provide support to CNO and CMC in all aspects of occupational health, which include occupational medicine (medical treatment and surveillance), 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 in the areas set forth in enclosure (1) of reference 2-10.

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

(5) Maintain a register of personnel occupationally exposed 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 for such groups as the American National Standards Institute (ANSI) and the American Conference of Governmental Industrial Hygienists (ACGIH).

(7) Process personnel medical records upon termination of employment, per references 2-5 and 2-6.

(8) Develop a program providing for the periodic occupational health surveillance of both personnel and their working environments, as required by reference 2-4.

(9) Provide for job-related medical support, such as immunizations and emergency medical treatment, per reference 2-4 guidance.

c. COMNAVSAFECEN is responsible for those functional areas of the safety and occupational health program listed in enclosure (1) to reference 2-10 and shall:

(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 accidents, 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 provides results to cognizant commands.

(4) Conduct surveys and investigations as requested.

(5) Promote the safety program.

(6) Maintain and make available a repository of mishap, injury, illness and mishap 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 (Navy JAG) in all matters pertaining to the privileged status of mishap reports.

(10) Act as a clearinghouse for reviewing and disseminating safety and occupational health information and technical guidance from such groups as ANSI and the National Fire Protection Association (NFPA).

d. NAVOSHENVTRACEN through COMNAVSAFECEN shall:

(1) Serve as the central source for delivery and dissemination of information on safety and occupational health training courses.

(2) Provide specialized safety and occupational health training and education to military and civilian personnel as required to support the overall program per references 2-10 and 2-13.

e. NETC and/or NPDC. Training and education are an inherent element in each primary and specified program element area. NETC and/or NPDC, in coordination with COMNAVSAFENCEN and BUMED shall:

(1) Incorporate safety and occupational health educational materials including applicable provisions of this manual into the curricula of all appropriate training courses.

(2) Provide specialized safety and occupational health training and education to military and civilian personnel as required to support the overall program per references 2-10 and 2-13.

(3) Prepare and distribute audiovisual aids and other training materials for use in local command safety and occupational training programs.

(4) Serve as the central source for delivery and dissemination of information on safety and occupational health training.

f. Naval Inspector General (NAVINSGEN). NAVINSGEN coordinates the inspection program aspects of the safety and occupational health program for Navy shore activities. NAVINSGEN shall apprise higher authorities of program effectiveness as determined by the oversight program. NAVINSGEN shall also maintain close liaison with the President, Board of Inspection and Survey (PRESINSURV) and with cognizant OPNAV sponsors (N09F, N4, N46, N75, N76, N77 and N78).

g. President, Board of Inspection and Survey (PRESINSURV). PRESINSURV is responsible for oversight inspections for forces afloat. The effectiveness of the afloat safety and occupational health program shall be assessed, as well as the status of corrective actions recommended in prior safety and occupational related surveys and/or reports. PRESINSURV

will maintain close liaison with NAVINSGEN for matters of common interest and with the cognizant OPNAV sponsors (N09F, N4, N46, N75, N76, N77, and N78).

0207. Regional and Activity Programs

General. An SOH program is an inherent responsibility of command and therefore, implementation, direction and control of the program shall be through the chain of command with line managers and supervisors being primarily responsible for ensuring safe and healthful operations and working conditions. For additional guidance, see paragraph 0207.d regarding responsibilities, paragraph 0303.a on organization, and paragraph 1202 on process-related and facility related hazards.

Shore regions, activities and commands, commanders, commanding officers, directors and officers in charge shall implement the items below:

a. Implement PR&MS contained in appendix 2-B or an equivalent management system (e.g. OSHA Voluntary Protection Program (VPP)). Conduct an aggressive, continuing program that is integrated throughout the regions and activities and post and disseminate program information to all personnel. Additional guidance on PR&MS is available at: http://safetycenter.navy.mil/. Guidance on OSHA VPP is available at: http://www.osha.gov/dcsp/vpp/index.html

b. Issue a policy statement adopting and enhancing/expanding the policy established in Section 0104. Issue a new policy statement within three months after assumption of command, disseminated to all personnel. Regions and activities shall 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 videotapes, etc. The policy statement shall reflect the commander's commitment to safety and to programs that prevent or minimize occupational mishaps.

c. Organize, staff, and maintain a safety function or safety office as required by chapter 3. Regional safety offices shall be established in accordance with paragraph 0304.

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

e. Establish safety councils and committees at appropriate command levels per chapter 4 of this manual. Chair the council, or ensure it is chaired by the executive officer or equivalent, and ensure minutes are issued and maintained.

f. Establish and maintain liaison between the local safety office and other DOD regions or activities for coordination of specialty functions such as medical, fire, security, etc.

g. Ensure compliance with the mishap investigation reporting procedures reference 2-14. Review lost time mishaps or ensure they are reviewed as stated in section 1406. Fully investigate all mishaps and take appropriate corrective action. Provide timely reports of findings and actions to NAVSAFECEN.

h. Ensure that all workplaces are inspected at least annually or more frequently based on the level of risk (see chapter 9).

i. Establish a hazard abatement program as required by chapter 12.

j. 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.

k. Provide employees and their representatives with access to exposure and medical records per chapter 8.

l. Develop procedures consistent with Office of Personnel Management (OPM), Naval Personnel Command, and PR&MS guidance to measure and recognize superior and deficient safety performance. Performance evaluations shall 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.

m. Establish education and training programs per chapter 6.

n. Coordinate occupational health and industrial hygiene field support with the cognizant medical command per chapter 8.

o. Ensure compliance with applicable Navy regulations and Federal statutes governing the control of classified and sensitive unclassified information (refer to section 1106).

p. Establish a comprehensive self-assessment program for the command per chapter 5 and appendix 2-B.

q. Ensure that senior management, middle management and first line supervision support the safety program to the extent of their authority and responsibility by:

(1) Setting the example for subordinates.

(2) Promptly correcting recognized hazards.

(3) Clearly defining and assigning individual safety responsibilities to subordinates.

(4) Documenting safety performance in evaluation of subordinates.

(5) Ensuring employees receive appropriate training, participating in committees or meetings, and conducting stand up safety meetings where required.

(6) Conducting or participating in worksite inspections, including those made by

region or activity safety personnel.

(7) Encouraging safety awareness through incentives and awards programs.

(8) Receiving training appropriate to their level of responsibility and authority, per chapter 6. Orientation training does not need to be repeated with subsequent assignments to other levels of management unless significant safety-related changes have occurred.

(9) Acquiring, maintaining, requiring and enforcing the use of approved personal protective equipment, approved safety equipment, and other devices necessary to protect employees.

(10) Encouraging a free flow of information and ideas from employees on methods of improving the safety of their workplaces, work practices, and work processes. Developing a reward process for outstanding safety contributions.

r. Review all safety citations and findings from external authorities (i.e., Occupational Safety and Health Administration (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.

s. Develop and implement cross-reference linkage among employment records, medical records and industrial hygiene surveillance data.

t. Ensure that personnel are aware of the formal procedure for processing written reports of unsafe or unhealthy working conditions per chapter 10. Commands shall 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.

u. 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 per applicable laws and regulations.

v. Designate appropriate officials to consult with representatives of labor organizations recognized under reference 2-15 with respect to the safety program.

w. 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 region or activity hazard communication plan, and documentation on the region/command/activity/unit safety program (shore only).

x. Make available a copy of the region or activity's annual summary report of occupational injuries and illnesses for the preceding year, signed by the CDR, CO, or OIC. Post this summary no later than 45 days after close of the calendar year, for at least 3 months. In addition to posting, region or activities may publish it in appropriate written media, such as the region or activity’s newspaper.

y. Post form DD 2272, Department of Defense Occupational Safety and Health Protection Program (appendix 2-A) in prominent locations such as all official bulletin boards (shore only).

z. Establish local agreements to clearly define the respective roles and responsibilities of the BUMED/non-BUMED industrial hygienists, when, where appropriate, due to the nature and complexity of local operations, non-medical regions or activities have established industrial hygiene staffs to assist in implementation of the region or activity's safety program.

0208. Individual Civilian and Military Personnel

Commands can only achieve safe and healthful workplaces through the full participation and cooperation of all employees. Accordingly, each employee shall:

a. Comply with standards and all applicable rules, regulations, and orders issued under this manual. Violators of safety regulations or instructions are subject to disciplinary action prescribed in reference 2-15 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 shall also consider such actions in personnel performance evaluations (refer to section 0207.l).

b. Report observed workplace hazards following procedures outlined in chapter 10.

c. Immediately report to his/her supervisor injuries or occupational illnesses or property damage resulting from mishaps or any near-mishaps.

Chapter 2

References

2-1. SECNAVINST 5100.10J, of 26 Oct 05, Department of the Navy Policy for Safety, Mishap Prevention, and Occupational Health and Fire Protection Programs, http://neds.daps.dla.mil/Directives/5100_10j.pdf.

2-2. DOD Instruction 6055.1, of 19 Aug 98, DOD Safety and Occupational Health (SOH) Program, http://www.dtic.mil/whs/directives/corres/html/60551.htm.

2-3. DOD Directive 1000.3, of 29 Mar 79, Safety and Occupational Health Policy for the Department of Defense, http://www.dtic.mil/whs/directives/corres/archives/d10003wch1_032979/d10003p.pdf.

2-4. DOD Instruction 6055.5, of 10 Jan 89, Industrial Hygiene and Occupational Health, http://www.dtic.mil/whs/directives/corres/html/60555.htm.

2-5. SECNAV Manual M- 5210.1, Department of the Navy Records Management Manual.

2-6. DOD Instruction 6055.7, of 3 Oct 00, Accident Investigation, Reporting and Record Keeping, http://www.dtic.mil/whs/directives/corres/html/60557.htm.

2-7. SECNAVINST 5211.5D, of 17 Jul 92, Department of the Navy Privacy Act (PA) Program, http://neds.daps.dla.mil/Directives/5211_5d.pdf.

2-8. SECNAVINST 5720.42F, of 6 Jan 99, Department of the Navy Freedom of Information Act (FOIA) Program, http://neds.daps.dla.mil/5720.htm.

2-9. DOD Military Standard 882D, of 10 Feb 00, Standard Practice for System Safety, www.safetycenter.navy.mil/instructions/osh/milstd882d.pdf.

2-10. OPNAVINST 5100.8G, of 2 July 86, Navy Safety and Occupational Safety and Health Program http://neds.daps.dla.mil/Directives/5100_8g.pdf.

2-11. Executive Order 12344, of 1 Feb 82, Naval Nuclear Propulsion Program, http://www.archives.gov/federal_register/codification/executive_order/12344.html.

2-12. OPNAVINST 3500.39B, of 30 July 04, Operational Risk Management (ORM), http://neds.daps.dla.mil/Directives/3500_39b.pdf.

2-13. Title 5, United States Code, Chapter 71 (Supp.11 1979), http://www.access.gpo.gov/uscode/title5/partiii_subpartf_chapter71_.html.

2-14. OPNAVINST 5102.1D/MCO P5102.1B, of 10 December 04, Mishap Investigation, Reporting and Record Keeping,

2-15. DON Civilian Human Resources Manual Subchapter 752, of 6 January 04, Disciplinary Actions, http://www.hq.navy.mil/shhro/Subchapt.pdf.

Appendix 2-A
DOD Occupational Safety and Health Program

Federal Forms are available at the following site: http://www.usa-federal-forms.com/fbf-by-form/36.html.

DEPARTMENT OF DEFENSE
SAFETY AND OCCUPATIONAL HEALTH PROTECTION PROGRAM

The Occupational Safety and Health Act of 1970, Executive Order 12196 and 29 CFR 1960 require the heads of Federal agencies to establish programs to protect their personnel from job safety and occupational health hazards.

1. The Department of Defense (DOD) designated agency safety and occupational health official is the Assistant Secretary of Defense (Force Management and Personnel).
2. The _____designated safety and occupational health official is:
(DOD Component)
_____,
_____.
(Title) (Address)
3. The _____ safety and occupational health designee is:
(Name of Installation/Facility)
_____,
_____.
(Name) (Title)
4. The _____ safety point of contact is:
(Name of Installation/Facility)
_____,
_____
(Name) Telephone Number)
5. The _____ occupational health point of contact is:
(Name of Installation/Facility)
_____,
_____

(Name) Telephone Number)

_____**HAS THE RESPONSIBILITY TO:**
(Name of Installation/Facility)

1. COMPLY with the applicable Occupational Safety and Health Administration (OSHA)/DOD/DOD Component safety and occupational health standards.
2. SET UP PROCEDURES for submitting and responding to employee reports of unsafe and unhealthful working conditions. 3. ACQUIRE, MAINTAIN, AND REQUIRE the use of

6. POST NOTICES of unsafe or unhealthful working conditions found during inspections.
7. ASSURE PROMPT ABATEMENT of hazardous conditions. Workers exposed to the conditions shall be informed of the abatement plan. Imminent danger corrections must be made immediately.
8. SET UP A MANAGEMENT INFORMATION

approved personal protective equipment and safety equipment. 4. INSPECT ALL WORKPLACES with participation by civilian employee representatives to identify potential hazards. 5. ESTABLISH PROCEDURES to assure that no worker is subject to restraint, interference, coercion, discrimination, or reprisal for exercising his/her rights under the DOD safety and occupational health program.	SYSTEM to keep records of occupational accidents, injuries, illnesses and their causes; and to post annual summaries of injuries and illnesses for a minimum of 30 days at each installation/facility. 9. CONDUCT SAFETY AND OCCUPATIONAL HEALTH TRAINING for management, supervisors, workers and worker representatives.
DOD PERSONNEL HAVE THE RESPONSIBILITY TO:	
1. COMPLY with all applicable OSHA/DOD/DOD Component safety and occupational health standards 2. COMPLY with _____ ___ (Name of Installation/Facility) policies and directives relative to the safety and occupational health program.	3. USE personal protective equipment and safety equipment provided by your installation/facility. 4. REPORT hazardous conditions, injuries, illnesses, or other mishaps promptly to your supervisor or to the safety or occupational health point of contact for your installation/facility.
DOD PERSONNEL AND CIVILIAN EMPLOYEE REPRESENTATIVES HAVE THE RIGHT TO:	
1. HAVE ACCESS to applicable OSHA/DOD/DOD Component standards, installation/facility injury and illness statistics, and safety and occupational health program procedures. 2. COMMENT on alternate standards proposed by DOD/DOD Component. 3. REPORT AND REQUEST INSPECTIONS OF UNSAFE AND UNHEALTHFUL WORKING CONDITIONS to appropriate officials who include, in order of preference, the immediate supervisor, the safety or occupational health point of contact, the safety and occupational designee for your installation/facility, the installation/ facility commander, the safety and occupational health designee	3. (Continued) for your DOD component, the safety and occupational designee for DOD, and the Secretary of Labor. However, the Secretary of Labor encourages personnel to use DOD procedures for reporting hazardous conditions as the most expeditious means to achieve abatement. The hazard report form provided by your installation/facility should be used for this purpose. Anonymity, when requested, is assured. 4. PARTICIPATE in the installation/facility safety and occupational health program. Civilian workers shall be authorized official time to participate in the activities provided by the DOD safety and occupational health program.
OTHER INFORMATION:	
1. When the safety or occupational health point of contact for your installation/facility is notified by a worker of a hazardous worksite condition, he/she will ensure an inspection of the worksite and he/she will report the results of the inspection in writing to the worker	2. (Continued) in accordance with applicable appeal procedures, or administrative or negotiated grievance procedures. 3. For further information about the installation/facility safety and occupational health program, procedures, standards, committees,

making the report. 2. Inspector General channels may be used to investigate complaints from either DOD civilian or military personnel concerning alleged acts of discrimination or reprisal due to participation in safety and occupational health activities. For DOD civilian personnel, allegations of reprisal may also be initiated by them	Federal laws, or other related matters, contact the safety or occupational health point of contact for your installation/facility as noted on this poster. 4. How well you carry out your safety and occupational health responsibilities will be an important factor in the success of the program.

DD FORM 2272, NOV 2000 PREVIOUS EDITION MAY BE USED.

Appendix 2-B

NAVY PROCESS REVIEW AND MEASUREMENT SYSTEM

#1 THE MISHAP PREVENTION PROCESS MODEL
(30% OF OVERALL RATING)

Mishap Prevention - actions taken to identify and control unacceptable risks.

1. Compile/Report Mishap and Hazard Data
   - Mishap reports
   - FECA data
   - Exposure assessments
   - Medical surveillance
   - Reported hazards
     - Workers
     - Management
     - Staff
     - External agents
     - Literature

2. Analyze Mishap/Hazard Data
   - Frequency
   - Severity (human costs, dollar costs, mission impact)
   - Exposure potential
   - Location
   - Responsibility
   - Type
   - Trends
   - Patterns
   - Any anomaly

3. Analyze Significant Processes/Areas (Various approaches may be employed - Preliminary Hazard Analysis, Systems Safety Review, Job Safety Analysis, Process Safety Analysis, less formal approaches, etc., as appropriate for processes analyzed)
   - Hazards
   - Causes
   - Responsibilities
   - Control alternatives

4. Report Key Data/Analysis to Process Owner

5. Process Owners Review Reports

6. Identify/Consider Potential Controls
   - Administrative/Programmatic
   - Engineering
   - Process
   - Training
   - PPE
   - Procedural
   - Product substitution

7. Conduct Relative Value Assessment
   - Loss potential
   - Cost
   - Expected benefit
   - Morale implications
   - Feasibility
   - Customer acceptance
   - Public image
   - Labor/management implications

8. Select Alternative(s)
   - Select control(s)
   - Do nothing
   - Prioritize implementing actions

9. Implement Control (s)
   - Issue policy
   - Issue procedures
   - Install barriers
   - Modify facilities/equipment
   - Modify procedures
   - Conduct training
   - Utilize new product

10. Assess Impact of Controls
    - Review data
    - Inspect process/worksite
    - Solicit customer feedback
    - Compare results to expected benefits

11. Modify Control(s) As Needed
    - Select alternative control(s)
    - Modify existing control(s)
    - Eliminate control(s)

Performance Measures for the Mishap Prevention Process

1. Mishap Rates and Measures of Performance - The mishap rate currently used to measure mishap prevention performance in the Process Review and Measurement System (PR&MS) is the Injury/Illness Incidence Rate (IIR). However, with increasing requirements to evaluate performance according to various administration goals, other measurements are needed. The Navy is phasing out the singular use of the IIR, and including other comprehensive statistical measures of performance. One of the objectives of the safety performance evaluation is to align the mishap rates collected from Navy regions and installations with the goals of the 2003 Presidential Safety, Health and Return to Employment (SHARE) Initiative, and future safety related cost reduction goals.

The OSHA final recordkeeping rule made the Federal sector's recordkeeping and reporting requirements essentially identical to the private sector by adopting applicable provisions from 29 CFR Part 1904 as Federal agency requirements under 29 CFR Part 1960. OSHA amended the basic program elements at 29 CFR 1960, Subpart I, to make pertinent private sector recordkeeping and reporting requirements under Part 1904 applicable to the Federal sector. Under Part 1904, recordable work-related injuries and illnesses are those that result in one or more of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or diagnosis of a significant injury or illness.

The Naval Safety Center has implemented a web-enable Safety System (WESS) to enhance operations and to improve the safety information obtained for decisions. Embedded in WESS, JReport provides Naval professionals with information to assist in the identification of relationships between mishaps and their root causes. This type of information is used to educate appropriate audiences for equipment design, training, and operational maintenance processes in order to reduce mishap occurrence.

The IIR includes all mishaps causing personal injury, fatalities and first-aid. Since historically a location's safety performance audit score is partially based on the IIR, the use of the IIR is being kept until the other safety performance measures are integrated into the audit.

The Injury/illness Incidence Rate (IIR) is defined as follows:

$$IIR = \frac{A \times 200{,}000}{M + C}$$

- A = total injuries/occupational illnesses including fatalities, lost/no-lost time cases, first aid cases reported on Form OPNAV 5102/7 (Log of Navy Injuries and Occupational Illnesses), or equivalent form.

- M = the command's military personnel and strength for the reporting period multiplied by 2,000 (Note: 2,000 is the appropriate multiplier only when an annual IIR is being calculated. This multiplier should be adjusted up or down in proportion to the time period in question for any IIR calculations for time periods other than annual. For

example, use 1,000 for a 6-month IIR, use 10,000 for a 5-year IIR) Note: Under 29 CFR 1904, first aid injuries are exempt from recordkeeping.

– C= civilian staffing multiplied by 2000 or the total man hours worked by civilian employees of the command during the reporting period, as provided by the Comptroller

- The IIR score is derived as follows:
  0.3(100-IIR)= IIR Score

Note 1: The IIR is a tool designed for individual activities to use as one standardized trailing indicator of possible safety concerns so that the Echelon 2, Inspector General (IG) or anyone else conducting an assessment can identify mishap trends and audit performance with the use of a numeric score that uses the IIR.

Note 2: The safety and occupational health Bureau of Labor Statistics' (BLS) incident rates are not equivalent to the IIR.

Note 3: Additional Navy and Marine Corps Safety Council metrics to define specific administration goals are maintained by the Navy Safety Center.

On May 19, 2003, the Secretary of Defense sent a memorandum challenging the DOD to reduce the number of mishaps by 50% in the next two years. The Navy is "phasing in" the consistent use of other metrics that are used to evaluate safety performance with respect to achieving these goals and objectives.

Performance measures include, but are not limited to:

Class A Operational Ashore Mishap Rate.
http://www.safetycenter.navy.mil/execsummary/default.htm

Class A operational mishaps are incidents (cases) that cause $1,000,000 or more in property damage; or, that cause a fatality or a permanent total disability. Class A Mishap Rate is defined as the number of cases per 100,000 personnel per year, and includes military and federal civilian ashore personnel.

$$\text{Class A Operational Ashore Mishap Rate} = \frac{\text{\# cases}}{\text{\# affected persons/100,000}}$$

Affected personnel, is the number of military personnel plus the number of civilian personnel for the reporting period.

Activities have access to data to produce activities' specific trends from the WESS JReport module.

PMV Fatality Rate.
http://www.safetycenter.navy.mil/execsummary/default.htm

Private motor vehicle (PMV) includes 2- or 4-wheeled vehicles and includes military on- or off-duty, and civilian on-duty use of motor vehicles. Private Motor Vehicle (PMV) fatality is a motor vehicle death, regardless of the identity of the operator that does not involve a government motor vehicle.

PMV fatality rates are deaths caused by motor vehicle per 100,000 persons per year.

$$\text{PMV Fatality Rate} = \frac{\text{\# Fatalities}}{(\text{\# affected personnel}/100{,}000)}$$

Affected personnel = the command's military personnel; plus the civilian staffing, as provided by the Comptroller.

Activities have access to data to produce activities' specific trends from WESS JReport module.

Federal Civilian Lost Time Case Rate (LTCR).
http://www.safetycenter.navy.mil/execsummary/default.htm

A "lost time case" is a non-fatal traumatic injury that causes any loss of time from work beyond the day or shift it occurred; or a non-fatal, non-traumatic illness or disease that causes disability at any time.

$$\text{Civilian Lost Time Case Rate} = \frac{\text{\# of on-duty lost time cases X 200,000}}{\text{Number of civilian hours worked}}$$

The number of civilian hours worked is the total man-hours worked by civilian employees of the command during the reporting period, as provided by the Comptroller. (Hours can be estimated by the civilian staffing multiplied by 2,000 but actual civilian hours should be used.)

The number of lost time/death mishaps is recorded on the Log of Navy Injuries and Illnesses. 2,000 hrs equal 1 person-year (50 wks/year X 40 hrs/wk). Note that 2,000 is used for the entire year.

Activities have access to data to produce activities' specific trends from the WESS Jreport module. This metric corresponds to the SHARE goal to lower lost time injury rates by three percent per year.

Federal Civilian Lost Day Rate
https://www.dmdc.osd.mil/ltwi/owa/cop

And, "top 40" list is at https://www.dmdc.osd.mil/ltwi/owa/charts.top40_display?rptnum=1

Federal Civilian Lost Day Rate is the number of lost workdays per 100 civilian workers per year. The source is the Defense Manpower Data Center (DMDC).

$$\text{Lost day rate} = \frac{(\text{\# COP days} + \text{\# LWOP days}) \times 200{,}000}{\text{Number of civilian hours worked}}$$

COP is continuation of pay.
LWOP is leave without pay.

Civilian hours worked are the actual number of hours. The number of civilian hours worked is the total hours worked by civilian employees of the command during the reporting period, as provided by the Comptroller. (The number of civilian hours can be estimated by the civilian staffing multiplied by 2,000, but actual civilian hours should be used.)

Activities have access to data from the WESS Jreport module to produce activities' specific trends for logged injuries and illnesses, although this data may differ from DMDC figures, which are based on pay records. Drill-down compatibility is available on the DMDC site.

Military Lost Day Rate
http://amsa.army.mil/AMSA/amsa_home.htm

The military lost day rate is the number of lost production days (medical cases, quarters and limited duty) per 100 military personnel per year. Source is the Army website which is incompatible with the Navy Marine Corps Intranet.

$$\text{Military lost day rate} = \frac{\text{\# lost production days} \times 200{,}000}{\text{Personnel hours}}$$

Personnel hours are the command's military personnel for the reporting period multiplied by 2,000 (Note: 2,000 is the appropriate multiplier only when an annual rate is being calculated. This multiplier should be adjusted up or down in proportion to the time period in question for any lost day rate calculations for time periods other than annual. For example, use 1,000 for a 6-month lost day rate, use 10,000 for a 5-year lost day rate.

Activities have access to data to produce activities' specific trends from the WESS Jreport module.

Navy Injury and Illness Incident Rate (NIIR)
http://www.safetycenter.navy.mil/execsummary/default.htm

The Navy lost workday case rate is the total number of OSHA recordable cases that includes military and civilian medical cases, restricted work activity cases, fatalities and lost time cases

$$\text{NIIR} = \frac{A \times 200{,}000}{M+C}$$

A = total injuries/occupational illnesses including fatalities, lost time cases, medical cases, and restricted work activities' cases (from the Log of Navy Injuries and Occupational Illnesses).

– M = the command's military personnel and strength for the reporting period multiplied by 2,000 (Note: 2,000 is the appropriate multiplier only when an annual rate is being calculated. This multiplier should be adjusted up or down in proportion to the time period in question for any NIIR calculations for time periods other than annual. For example, use 1,000 for a 6-month IIR, use 10,000 for a 5-year NIIR.

– C = the total man-hours worked by civilian employees of the command during the reporting period, as provided by the Comptroller. (The number of civilian hours can be estimated by the civilian staffing multiplied by 2,000 but actual civilian hours should be used.)

Note: The NIIR correlates with the metric for the SHARE three percent per year reduction in total case rates. The activity NIIR will be significantly lower than the IIR due to recording rule requirements of 29 CFR 1904.

For Ashore statistics, go to http://www.safetycenter.navy.mil/statistics/ashore/default.htm.

Mishap Classification below is taken per DODI 6055.7, 3 Oct. 2000 available at: http://www.dtic.mil/whs/directives/corres/pdf/i60557_100300/i60557p.pdf and in OPNAVINST 5102.1D/MCO P5102.1B, paragraph 2002.

- Class A Mishap
  - Property damage of $1M or more.
  - A fatality or permanent total disability.

- Class B Mishap
  - Property damage of $200K or more but less than $1M.
  - A permanent partial disability.
  - In-patient hospitalization of 3 or more personnel.

- Class C Mishap
  - Property damage between $20K and $200K.
  - A non-fatal injury resulting in any loss of time from work beyond the day or shift on which it occurred; or a non-fatal occupational illness or disability that causes loss of time from work or disability at any time.

2. Quality Assessment of Command Mishap Prevention Program

Evaluate the command's Mishap Prevention performance by assessing its implementation of specific elements of the Mishap Prevention process model. The process model elements recommended for evaluation, and proposed evaluation methods, are provided below:

- Compile/Report Mishap and Hazard Data -

  Is appropriate mishap and hazard data compiled?
  -Injuries/illnesses
  -Property damage cases

-Stressor exposure
-Safety hazards
-Near misses

- A list of possible sources from which the evaluator may gather actual mishap and hazard data for comparison purposes includes:

1. Clinic logs
1. Material property damage reports (Safety Office)
2. FECA tables
3. JAG reports
4. NAVFAC property loss reports
5. Property accountability reports (Controller)
6. Crane accident reports
7. Ships' CAS reports
8. Inspection Reports
9. Employee Hazard Reports (EHR)
10. Abatement logs
11. Industrial hygiene reports

(Evaluate by taking a sample of mishaps/hazards from the above data sources and then confirming the consideration of those mishaps/hazards in the mishap prevention process. Numerical values should then be assigned to this element, based on the number of sample mishap and hazard items actually included in command mishap prevention analysis databases.)

- Analyze Mishap/Hazard Data and Significant Process Areas

Do the analyses:

- Occur at an appropriate frequency?
- Provide data at appropriate levels of management responsibility?
- Identify the most frequent and/or severe risks?
- Provide a valid comparison of current performance versus expected/historical performance?
- Provide useful recommendations for performance improvement?
- Provide other useful analysis not listed above?

- Process Owner Response to Analyses

Characterize process owner response to reports of mishap analyses as one of the following:

- Unsatisfactory awareness of/response to analyses reports
- Satisfactory awareness of/response to analyses reports
- Takes additional internal analysis/action beyond that suggested by analyses reports

(Evaluate by personal interview with selected process owners, review of process owner documentation, and field confirmation of actions claimed (where appropriate).

#2 THE REGULATORY COMPLIANCE PROCESS MODEL
(20% OF OVERALL RATING)

Regulatory Compliance - conformance to requirements

1. Determine Regulatory Requirement
   - Review regulations
   - DOD/Navy directives
   - Military exclusions
   - Review, determine if changes needed
   - Legal considerations
   - Regulatory interface
   - Community relations

2. Develop Compliance Strategies
   - Training requirements
   - Feasibility
   - Medical impact
   - Prioritization
   - Time frame for implementation
   - Consequences on non-compliance
   - Difference between new and current requirements
   - System safety review

3. Identify and Provide Resources
   - Organizational structure
   - Cost determination
   - Budgeting
     - Internal
     - Customer cost
   - Facility requirements

4. Execute Compliance Strategy
   - Communicate requirements
     - Training

5. Monitoring
   - Documentation
   - Data analysis
   - Report compliance status
   - Feedback
   - Initiate improvement efforts
   - Confirmation of corrective action

Performance Measures for the Regulatory Compliance Process

- Echelon 2 inspection/assistance results

#3 THE SUPERVISION PROCESS MODEL
(20% OF OVERALL RATING)

Supervision - Those actions taken to plan, organize, direct, oversee and evaluate the region or activities of subordinates and Command personnel to safely accomplish work.

The Supervision Process Model incorporates three different but complementary/interrelated components.

Component #1 - Sequential actions/steps associated with the accomplishment of specific jobs/tasks by subordinates.

1. Analyze Tasks
   - Identify hazards
     - Physical (mechanical, heat, vibration, noise, location, radiation, etc.)
     - Chemical (hazardous materials)
     - Biological (disease)
   - Evaluate hazards
     - Identify personnel at risk
     - Consult involved employees
     - Consult peers/managers
     - Review technical documentation
     - Consult professional staff
     - Draw upon personal knowledge/experience
   - Identify measures needed to control/eliminate hazards
     - Engineering
     - Administrative
     - PPE
   - Identify compliance requirements
     - Navy
     - Occupational Safety and Health Administration
     - Local documents
     - Other
   - Determine required personal qualifications
     - Training
     - Physical/medical
     - Experience

2. Organize to Safely Accomplish Tasks
   - Select qualified personnel
   - Determine work sequence
   - Coordinate with support organizations

3. Direct the Accomplishment of Tasks
   - Communicate objectives to assigned personnel
     - Schedule

- Interface with other operations
- Location
- Problem reporting

- Assign jobs within the task
- Provide job training
  - Verbal
  - Written
  - Discuss potential hazards
  - Discuss compliance

4. Evaluate Task Performance
   - Observe workers
   - Identify process variance
   - Enforce proper implementation of controls
   - Receive feedback
     - From employees
     - From related organizations
     - From customers (internal/external)
   - Assess efficiency of controls

5. Adjust Process As Required

Component #2 - Continuing actions to evaluate the overall performance of personnel over time.

1. Determine General Expectations for Work Unit
   - Injury/illness prevention
   - Process improvement
   - Cost avoidance initiatives
   - Workers Compensation (e.g., Light Duty Work, Lost Time)

2. Set Performance Standards Both Verbally and in Writing
   - Objective/quantifiable
   - Measure behavior, not results, at lower levels in the organization
   - Use subordinates' performance as factor for supervisors
   - Measure positives as well as negatives

3. Acquire Information Needed to Assess Performance
   - Inspections
     - Supervisor
     - Safety staff
     - IH surveys
   - Process reviews
   - Mishap data/information
   - Employee self-assessment
   - Workers compensation

4. Assess Performance Against Standards

5. Discuss with Employee
   - Strengths
   - Weaknesses
   - Improvement strategy

6. Document Final Assessment

7. Initiative Reward/Remedial Actions as Appropriate

Component #3 - Integration of safety throughout the command. Assess how proactively command HQ, command, upper management, supervisors and employees integrate and involve safety and occupational health into core business processes.

1. Review requirements

2. Scope of involvement
   - Meetings/councils/training/strategic planning

3. Level of interface CO has with
   - Upper management, middle management, workforce and unions
   - Assess if Command has an informal CO/upper management walk-through of workspaces

4. Command awareness of compensation costs, property damage assessments, mishap rate reductions, etc.

5. Assess upper echelon strengths, and support/guidance

6. Determine command climate and philosophy related to safety

7. Evaluate customer/command feedback systems

8. Reduction in accidents due to awareness or improved procedures

9. Determine ownership of processes

Performance Measures for The Supervision Process

1. Presence of safety elements in performance standards (% coverage and quality of standards) - the following should be used to evaluate the presence of safety elements in performance standards.

- Is safety addressed?
- Do the standards address communication of safety information and expectations to members of the work unit?
- Is performance monitored to determine if safety requirements and expectations are met?
- Do the standards address actions to be taken to improve the safety performance of the work unit?
- Do the standards require the establishment of safety standards for all members of the work unit?

(Where commands utilize self-directed work teams in lieu of traditional supervisors, performance standards adopted by self-directed work teams will be evaluated)

2. Assessment of Employee Understanding of Safety Expectations

- Is employee properly using appropriate PPE for the work?
- Can the employee demonstrate an awareness of hazards in the work area, and hazard control measures?
- Is the employee using safety resources available to report/address hazards (e.g. supervisor, safety staff, safety committee, EHR, etc.)?

(Evaluate by field observation and interviews of randomly selected employees who perform work operations which expose them to significant potential hazards.)

3. Assessment of Safety Integration Initiatives or Improved Outcome Measures:

- Is higher echelon providing guidance?
- Has the region or activity asked the next echelon for guidance (on PR&MS)?
- Is there active interchange of information within the chain (both above and below)?
- Does CO's immediate staff show knowledge of safety and occupational health issues?
- Does CO review safety-related reports (i.e., program costs, incident rates, compensation costs)?
- Has command suite attended safety training with subordinates or peers?
- Has command and upper management shown buy-in and open support of the safety program?

#4 THE TRAINING PROCESS MODEL
(15% OF OVERALL RATING)

Training - conveyance of information to enable personnel to carry out their personal responsibilities safely and in compliance with applicable regulations.

1. Identify Requirements and Needs
   - Explicit
     - Required by regulations
     - Required by directives
     - Individual development plan
   - Implicit
     - Lessons learned
     - Process improvements
     - Process changes
     - Needed to execute work
     - Labor/management/customer relations
   - Type
     - Initial
     - Refresher
     - Job qualification
     - Awareness
   - Timing/frequency
     - Before assignment
     - Annual
     - Monthly
     - Other
   - Recordkeeping

2. Identify Audience
   - Upper-level management
   - Mid-level management
   - Supervisor
   - Worker
     - New
     - Journeyman
     - New assignment
   - Customer
     - Tenants
     - Contractors
     - Visitors
   - Labor organizations

3. Develop Specific Information to be Delivered
   - Relate to each target audience
   - Limit to applicable requirements for each target audience

4. Identify Media
   - Lesson plans
   - Classroom
   - On-the-job training
   - Programmed instructions
   - Videotape
   - Correspondence courses
   - Interactive computer assisted
   - Stand-up/tailgate meetings
   - Other

5. Assemble Resources Needed to Provide Training
   - Funding
   - Time
   - Media
   - Facilities
   - Qualified instructor

6. Deliver Training
   - Schedule
   - Provide
     - OSHA-required hazard communication and other as needed
     - College
     - On-the-job training
     - On-site training
     - Job training
     - Rate training
     - Correspondence and web-based courses
     - Stand-up/tailgate meetings
   - Track completion

7. Evaluate Effectiveness
   - Work site observations
   - Retention testing
     - Short-term
     - Long-term
   - Mishap rate for target accident type
   - Student critique
   - Other feedback
     - Safety office
     - Labor organizations
     - Managers

8. Modify Training as Required

Performance Measures for the Training Process

1. Matrix Match Against Requirements

- Compile Data Sources
  - Industrial hygiene surveys
  - Military manning documents
  - Command mission/function statements
  - Command mishap experience
  - Command occupation physical qualification statements
  - Other

- Determine the following:
  - Does a formal training plan exist?
  - Would execution of the plan ensure delivery of all required training?
  - Would execution of the plan ensure delivery of appropriate specific hazard recognition and control training?
  - Is course content documented by formal lesson plans that are approved by appropriate technical personnel?
  - Is training executed in accordance with the plan?
  - Is the training provided evaluated in terms of:
    1. Appropriateness of course content?
    2. Instructor effectiveness?
    3. Behavior of trainees in the workplace?
    4. Are evaluation results used to improve training?

2. Employee Interface/Challenges

- Compile Data Sources
  - Industrial hygiene surveys
  - Military manning documents
  - Command mission/function statements
  - Command mishap experience
  - Command occupation physical qualification statements
  - Other

- For Target Processes/Occupations, Determine if:
  - Employees are accomplishing their work in a safe manner
  - Employees are aware of job hazards and requirements
  - Employees are complying with regulatory requirements pertinent to their job assignment
  - Employee failures are due to: *
    1. Inadequate training
    2. Employee failure to comply with known requirements
    3. Other factors. (Lack of tools, time, etc., needed to perform work)
  - Employee successes are due to: *
    1. Effective training
    2. Knowledge/experience not attributable to the command's training program
    3. Other factors. (Close supervision, reward system, peer pressure, etc)

* NOTE: For these items, if the failure/success is due to training, utilize the employee observation/interview results to evaluate the TRAINING key process. If the failure/success is due to other (non-training) factors, utilize the employee observation/interview results to support the evaluation of another appropriate key process.

(Evaluate by identifying several appropriate occupations within the command, then observing/interviewing randomly selected employees within each identified occupation or process.)

#5 THE SELF-ASSESSMENT PROCESS MODEL
(15% OF OVERALL RATING)

Self-Assessment - a comprehensive internal evaluation of how a safety and occupational health program meets the requirements of its internal/external customers.

1. Identify Program Elements to be Evaluated
   - Mishap Prevention
     - Mishap investigation
     - Risk assessment
     - Hazard abatement
   - Adequacy of resources (internal/external)
     - Safety staff
     - Funding
     - Medical/HRO support
     - PWC support
     - FISC support
     - Other
   - Supervision
     - Management involvement/example
     - Performance evaluation
   - Personnel participation
     - Worker input mechanisms
     - Union involvement
     - PPE use
   - Training
     - Formal
     - Informal
     - Communication
   - Regulatory Compliance
     - All applicable regulations
     - Deficiency abatement
   - Injury Cost Control (process model under development)
   - Customer Focused Support (support commands only)

2. Develop Assessment Plan for Each Element
   - Develop assessment strategy
   - Identify element customers and customers' needs
   - Identify element performance criteria and indicators
   - Develop assessment tools/procedures
   - Develop assessment schedule
   - Determine reporting mechanisms and who receives reports
   - Identify and provide for resources needed to assess:
     - People
     - Data
     - Time

– Technical competence

3. Conduct Assessment of Each Element
   - Conduct/Compile information
   - Analyze
     - Trends
     - Patterns
     - Causes
     - Priorities
     - Actual observed performance vs. desired performance
   - Develop conclusions/recommendations
   - Prepare/submit reports
     - Documentation as required by regulations
     - Reports to appropriate responsible persons

4. Adjust/Improve Self-Assessments
   - Obtain/Evaluate customer feedback
   - Develop improvements
   - Implement improvements
   - Advise customers of change

Performance Measures for the Self-Assessment Process

1. Quality Assessment of Command Self-Assessment Program
   - Has the command established a formal self-assessment process?
   - Is a self-assessment of each key process, adequacy of resources, and personnel participation conducted annually?
   - Does the self-assessment include a data-driven analysis of key safety and occupational process trends/patterns?
   - Does the self-assessment identify/quantify the actions and resources needed to correct process deficiencies?
   - Does the self-assessment drive process improvements?
   - Does the self-assessment identify further process improvement opportunities for programs that already meet basic requirements?

   (Evaluate by review of current self-assessment documentation.)

#6 THE CUSTOMER-FOCUSED SUPPORT PROCESS MODEL
(0-100% - TO BE SCORED SEPARATELY, AS APPLICABLE)

Customer-Focused Support - providing safety and occupational health support, services, and guidance that meet customer needs.

1. Identify Your Customers
   - Commands receiving service
   - Students
   - Patients
   - Managers within commands
   - Workers/employees
   - Laboratories
   - Contractors
   - Your boss

2. Identify Your Customers' Needs (As Perceived by the Servicing Command)
   - Requirements (mandated programs)
   - Non-disruptive service
   - Schedule and frequency
   - Reports and documentation
   - Usefulness and reliability of products/services
   - Cost vs. value
   - Consultation with command management
   - Responsiveness
   - Policy/guidance
   - Anticipation of unexpressed customer needs
   - Communication of available services

3. Evaluate Current Product/Services
   - Policy/guidance
   - Schedule and frequency
   - Reports and documentation
   - Usefulness and reliability of products/services
   - Requirements (mandated programs)
   - Non-disruptive service
   - Cost vs. value
   - Consultation with command management
   - Responsiveness
   - Communication of services available

4. Determine Resources Required to Provide Product/Services
   - People
   - Funding
   - Time
   - Consumables

- Facilities
- Contracts
- Support organizations
- Procedures and policies
- Training and education
- Communication and Information Technology
- Equipment

5. Develop Customer Survey
   - Assess knowledge level of people being surveyed
   - Tailor questions accordingly
   - Develop questions around the following:
     - What do you need from me?
     - What do you do with what I give you?
     - Do gaps exist between what I give you and what you need?

6. Develop Survey Implementation Plan
   - Determine survey format and delivery method
   - Identify forms and checklists
   - Develop schedules
   - Train surveyors/conduct dry run
   - Refine survey

7. Conduct Survey

8. Evaluate Survey Results
   - Determine gaps between product/services provided and the customer's needs/requirements/expectations

9. Improve Delivery of Products/Services to Better Meet Customer Needs
   - Develop partnership with customer to eliminate problems
   - Provide new services
   - Eliminate Unneeded services
   - Re-prioritize efforts
   - Improve efficiency/effectiveness of current product/service
   - Adjust customer/supplier expectations
   - Identify alternative provider of service

10. Identify Potential Improvements
    - Customer feedback
    - Data
    - Field Observations
    - Follow-up survey

11. Pursue Continuous Improvement of Process
    - Ensure customer satisfaction

Performance Measures for the Customer-Focused Support Process

- Has the command established a formal process for determining customer needs?
- Has the command determined customer needs (as perceived by the servicing command) and evaluated current service?
- Are customer needs surveyed:
  - At least triennially?
  - At least annually?
  - Significantly more often than annually?
  - By written surveys?
  - By meetings/workshops?
- Do customer surveys/workshops/etc. result in the development of initiatives to improve the products or services being delivered?
- Are customers advised of survey results and improvement initiatives planned/undertaken in response to surveys
- Are customers involved in the development of improvement initiatives?
- Are improvement initiatives tracked and making progress toward implementation?

Is customer feedback solicited concerning the effectiveness of changes implemented in response to customer surveys?

CHAPTER 3

ORGANIZATION AND STAFFING

0301. Discussion

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.

0302. Organization of Safety Organizations at Headquarters Commands

Headquarters commands shall designate an safety official who will have sufficient authority and responsibility to represent effectively and support the headquarters commander in the management and administration of the headquarters command safety program. The designated safety official shall report directly to the headquarters commander. A safety organization, staffed and organized commensurate with the mission and functions of the command, shall support and report directly to the designated safety official. A safety professional shall head the safety organization. Professional certification is recommended, per paragraphs 0304.c and 0606. The designated command safety official shall:

a. Establish, coordinate, direct, and evaluate the effectiveness of safety policies, plans, programs, and procedures.

b. Serve as the focal point within the command for safety-related matters.

c. Provide technical advice, direction and guidance on safety matters to other commands or bureau organizational elements and to subordinate field activities.

d. Interpret safety standards and regulations and develop or participate in developing new or revised standards, when appropriate.

e. Conduct assessments of the effectiveness of the command's overall safety program by performing subordinate command management evaluations and reviewing self-assessments.

f. Serve as the headquarters command's representative on safety councils, committees and working groups established by higher authority and the private sector. The safety official shall serve as technical advisor to cognizant offices of the Chief of Naval Operations (CNO) on safety-related matters in areas over which the headquarters command is assigned cognizance.

g. Review illness/injury analyses from command activities to identify and initiate actions to improve the effectiveness of the safety 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 safety and coordinate budget submissions, as appropriate. Ensure that the safety official in each region and field 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 safety and occupational health program.

0303. Organization, Functional Responsibilities, and Staffing Criteria for Shore Safety Organizations

a. Organization.

(1) Each shore activity not receiving Base Operating (BOS) safety services from their cognizant Naval Region shall have a safety organization, staffed and organized commensurate with the mission and functions of the command. A safety professional shall head the safety organization and shall have the authority, responsibility, and visibility to manage and represent effectively the activity's safety program. Implementation of the safety program is considered a command staff level function. Accordingly, the head of the safety organization shall report directly to the commanding officer of the shore activity.

(2) Shore activities receiving Base Operating Support (BOS) safety services from their cognizant Naval Region shall establish an organizational chart that includes safety as a staff function, reporting to the Commanding Officer. The description of this function shall state that the regional host Safety Department provides this service.

b. Navy Reorganization. On 1 October 2003, installation claimant consolidation occurred with the establishment of a new Echelon 2 Command: Commander, Navy Installations (CNI). The new reorganization places ownership of land and buildings under the command of CNI. Funding for safety within CNI is part of "Base Operating Support" (BOS). Other Echelon 2 commands retained "Mission Safety." A summary of mission safety and BOS safety are:

(1) Mission Safety. Mission Safety supports the Navy safety programs unique to specific Echelon 2 missions. Echelon 2 Mission Safety is integrated into "unique and integral" mission accomplishments for which the cognizant Echelon 2 receives separate funding. All shore activities support the mission of the Navy and Marine Corps through their safety and occupational health (SOH) programs, regardless of funding sources. Special circumstances require the activity to request/receive services supported by Echelon 2 mission safety programs like diving, ship and building design and construction, aviation, medical, and training. The following are identified examples of mission-related SOH functions by Budget Submitting Office (BSO). These examples are not all-inclusive:

- Fleet commands performing SOH functions in support of ship intermediate and maintenance work, aircraft intermediate maintenance, operational units (including those with deployable units), construction battalions, and high-risk mission training.

- NAVFAC commands responsible for the global NAVFAC mission such as BRAC caretaker, MILCON design and construction, contractor safety, and environmental clean up.

- BUMED commands mission critical safety services are defined as Joint Commission on Accreditation of Healthcare Organizations standards for employee, patient, and visitor safety.

- NAVAIR commands performing SOH functions in support of aircraft RDT&E, acquisition, and intermediate/depot maintenance.

- NAVSEA commands performing SOH functions in support of ship intermediate and depot maintenance work, RDT&E, and acquisition and contractor oversight (i.e., SUPSHIPS).

- NETC commands performing mission and high risk training.

- CNRF Commands performing SOH functions in support of reserve aircraft intermediate maintenance operational units (including those with deployable units).

(2) BOS Safety. BOS functions are normally provided by the host command. BOS Safety includes all common and core installation management safety functions that are identified under the Installation Management BOS Safety umbrella, namely: Navy Safety and Occupational Health, Traffic Safety, Recreation and Off-duty Safety (RODS), and BOS-related Explosives Safety, as described below:

SOH - Provides support for management and coordination of region-wide program, including but not limited to inspections, evaluations, surveys, education, training, instructions, mishap prevention, accident investigation and reporting, and other activities involved with the operation of the Navy and Marine Corps safety and occupational health programs.

Traffic Safety - meets the traffic safety program requirements per OPNAVINST 5100.12G and MCO 5100.19. Provides support for management and coordination of region-wide program, including but not limited to management inspections, evaluations, surveys, education, training, instructions, and mishap prevention.

RODS - Meets the RODS program requirements per OPNAVINST 5100.25A and MCO 5100.30. Provides support for management and coordination of region-wide program, including but not limited to management inspections, evaluations, surveys, education, training, instructions, and mishap prevention.

Explosives Safety - Meets the Navy's Explosives Safety program requirements per OPNAV Instruction 8020.14 and MCO P8020.11. Provides support for management and coordination of region-wide program, including but not limited to management inspections, evaluations, surveys, education, training, instructions, and mishap prevention.

c. Functional Responsibilities. Core safety programs refer to the program areas that safety organizations perform in order to support the region, command, or activity that they are part of or support. Safety organizations also perform administrative duties to support core program requirements.

(1) For Core Programs, as minimum core requirements, regional organizations, and commands with their own safety staffs, shall conduct the following minimum core programs, as applicable:

(a) Manage Programs. Plan, direct and administer the program using the components of the process review and measurement system or an equivalent management system (e.g. OSHA VPP) to focus efforts in those areas that will yield the best overall outcomes for the command's safety and health program.

(b) Conduct Reviews. Perform and document reviews and evaluations to ensure that appropriate requirements and considerations affect all operations, facilities, material and equipment.

(c) Conduct Inspections. Plan, conduct and document workplace inspections of all buildings, grounds, facilities, materials, equipment, devices, operations and conditions to ensure compliance with applicable policies, laws, regulations, and standards. For detailed program information, refer to chapter 9, Inspection Program, and chapter 11, Inspections and Investigations of Workplaces by Federal and State safety and health officials.

(d) Abate Hazards. Manage the program for the correction of workplace hazards. For detailed program information, refer to chapter 5, Prevention and Control of Workplace Hazards and chapter 12, Hazard Abatement Program.

(e) Provide Consulting Services. Provide consulting services to all regions and activity organizational elements and all levels of supervision on safety principles and technical aspects and their application to employees and workplaces.

(f) Investigate, Report and Record Mishaps. Coordinate the investigation of all mishaps. For detailed information, refer to reference 3-1.

(g) Implement Employee Hazard Reports. Implement requirements and procedures for employee hazard reporting. For detailed program information, refer to chapter 10, Employee Reports of Unsafe or Unhealthy Working Conditions.

(h) Analyze Program Effectiveness. Prepare annual self-evaluation(s) of program and program elements following Program Review and Measurement System (PR&MS) Self Assessment Model guidelines contained in Chapter 2, appendix 2-B or equivalent methods, (e.g. OSHA-VPP). For detailed information regarding self-evaluations, refer to chapter 5, section 0505.

(i) Attend and Conduct Meetings. Attend, conduct, or participate in Safety Council and Committee meetings. For detailed information, refer to chapter 4, Councils and Committees.

(j) Promote Training and Education. Coordinate training and educational programs. For detailed program information, refer to chapter 6, Training.

(k) Determine Personal Protective Equipment (PPE) Requirements. Evaluate all workplaces and determine PPE requirements. For detailed program information, refer to chapter 20, Personal Protective Equipment.

(l) Coordinate Hazardous Material Control and Management (HMC&M). Coordinate safety aspects of the HMC&M program. For detailed program information, refer to chapter 7, Hazardous Material Control and Management.

(m) Coordinate Occupational Health. Coordinate all aspects of occupational health matters with the cognizant medical command. For detailed program information, refer to chapter 8, Occupational Health.

NOTE:

If activity personnel actually conduct workplace sampling, this is an additive function. The basic region and activity function is to coordinate these programs, develop local instructions, and ensure compliance with regulations.

In addition, most organizations shall perform core functions in paragraphs 0303.b(1)(n) through (q), as necessary.

(n) Administer the Confined Space Entry/Gas Free Engineering Program. Non-maritime shore safety organizations administer the Confined Space Entry program. For detailed program information, refer to chapter 27, Confined Space Entry program (Non-Maritime). Maritime shore-based activities administer the Navy Gas Free Engineering program. For detailed information, see NAVSEA S6470-AA-SAF-010 (NOTAL).

NOTE:

Where multiple full-time test personnel are necessary and the safety organization conducts the testing, organizations shall develop a specific additive to the staffing equation based on the local workload for confined space testing.

(o) Administer the Asbestos Control Program. Coordinate the development and implementation of the Asbestos Control program. For detailed program information, refer to chapter 17, Asbestos Control.

(p) Administer the Respiratory Protection Program. Administer the Respiratory Protection program. For detailed program information, refer to chapter 15, Respiratory Protection.

(q) Administer the Radiation Safety Program. Coordinate and/or manage radiation protection and control programs including applicable ionizing and non-ionizing sources (i.e., lasers, radio frequency radiation (RFR), etc.). For detailed information, refer to chapter 22, Non-Ionizing Radiation.

(r) Administer the Motor Vehicle and Traffic Safety Program per reference 3-2.

(s) Administer the Recreation and Off-Duty Safety (RODS) Program per reference 3-3

(t) Manage Certain Other Program Elements. The following safety-related programs are not included in the minimum core elements used for determining staffing requirements. The level of application varies greatly among activities, depending on their mission, function, location and support. At activities where these programs have a major impact, organizations should treat them as additive functions requiring additional resources. Activities should determine resource requirements to perform the functions locally or have them performed by commands, based on workload analysis:

1. Weapons and explosive safety.

2. Fire prevention.

3. Diving safety.

4. Mercury control.

5. Contractor oversight.

6. Industrial hygiene interface.

7. Environmental protection.

8. Weight handling equipment safety.

9. Compensation program support.

10. Systems safety.

11. Anti-Terrorism Force Protection (ATFP) Support.

(u) Other Considerations. Other considerations in determining staffing requirements include the geography of a region or activity, the number of locations and the distance between them and sub-units and tenants supported. Geography can have a significant impact on workload where large distances exist between normal work sites and locations of inspections,

investigations and evaluations. Organizations must evaluate the degree of support provided tenants and other personnel on and off base in determining staffing needs.

For locations outside the continental U.S. (OCONUS). Activities shall not gap safety positions for more than 30 days. When possible, activities should identify a relief before transferring the incumbent.

When applicable, perform the additional functions listed in paragraph 0303 c(1)(t). Activities shall treat these functions as additives when determining staffing requirements. In addition, activities must treat any collateral duties assigned to the safety organization as additive when determining staffing.

(2) For indirect (administrative) programs, all safety organizations shall:

(a) Supervise Personnel. Supervise personnel, accomplish administrative duties and provide training to personnel supervised.

(b) Provide Administrative and Clerical Support.

1. Provide mail, messenger, receptionist, stenographic, typing, duplicating and supply/fiscal services.

2. Implement an office automation system to include database management, report generation, word processing and records maintenance.

3. Process correspondence.

4. Consult or confer with individuals.

5. Prepare and distribute reports.

6. Maintain publications.

(c) Manage Travel. Travel between work centers and to and from safety seminars, training courses or conferences, when essential to the job.

(d) Hold or Attend Meetings. Attend or conduct meetings, briefings and conferences pertaining to other direct support of the work center.

(e) Maintain Office Space. Maintain individual workspaces in a neat, orderly condition and conduct periodic housekeeping ("field days") as required.

d. Staffing Criteria. Regions/Activities with more than 400 employees shall assign, at a minimum, a full time safety manager and adequate clerical support. The staffing criteria that follow are not mandatory but provide a good method of determining the number of qualified personnel to perform necessary safety functions. The real measure of adequate staffing is whether all designated functions are performed effectively and strong mishap prevention programs are

implemented. Activities shall determine the number of professional (non-clerical) personnel needed to perform the primary functions listed above by the following method:

(1) Use the equation provided below, predicated upon the level of risk by major job hazard category and the number of personnel in each category. Most 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 3-A explains the job hazard categories. Commands shall 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:

0.0033 X the first 1200 persons in Category A

\+ 0.0025 X the next 800 persons in Category A

\+ 0.0020 X the remaining persons in Category A

\+ 0.0020 X total number of persons in Category B

\+ 0.0016 X total number of persons in Category C

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:

900 employees in Category A requires 3.0 staff

\+ 500 employees in Category B requires 1.0 staff

\+ 1200 employees in Category C requires 2.0 staff

= Six professional employees required for office plus clerical staff.

(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 above includes the safety manager and assistant manager(s).

(6) Base clerical support on workload. All safety organizations supporting a region or activity population exceeding 600 need, at least, full-time clerical support.

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 3-4 describes qualification and training requirements for safety professionals. Classification guidance is provided as follows:

(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. Appropriate military equivalents include Navy Officer Billet Codes (NOBCs) 0862, 2740, 8656, and 8995, from ensign to commander, Navy Enlisted Classifications (NECs) include 9571, SW-6021, and 8301, from E-4 to E-9. Military equivalents shall have acquired additional professional training appropriate to their assignment.

(2) Classification series that apply, but are not inclusive, include:

Position	May Compete
Manager/Assistant/ Specialists	GS/GM-018, 081, 602, 610, 690, 803, 804, 1306, 1320, 1815, 1825, 2125
Technicians/ Other Technical Services	GS-019, 645 699, 1311
Administrative Others as appropriate	GS-318, 303, 326

NOTE:

The staffing criteria in this section replace all previous guides and standards for staffing of safety organizations.

0304. Regional and Consolidated Safety Organizations

Regionalization of safety services was established to meet the aggregate requirements of a number of activities within the same geographic area and to support tenants of an installation. Region Headquarters shall staff their consolidated safety organizations following the criteria described in section 0303.

a. Regions providing safety services and commands that receive those services, shall establish written agreements such as an Intra Service Support Agreement (ISSA) or memorandum of understanding (MOU). The agreements shall specify the services provided and the conditions under which they are provided. Administrative control over the Region safety organization shall rest with the Region Headquarters Command.

b. Command/Activities shall negotiate agreements on a fiscal year or an as needed basis, at which time adjustments shall be made to take into account differences in size or

number of activities serviced, services required, and cost of operation of the Regional safety organization.

c. It is strongly recommended that safety and occupational health professionals attain board certification through the American Board of Industrial Hygiene, the Board of Certified Safety Professionals, or other certifications recognized by the Council on Engineering and Scientific Specialty Boards (http://www.cesb.org/). Per section 0606, professional certification is recommended for all safety and occupational health professionals.

0305. Organization and Staffing of the Occupational Health Function

Integral to the proper establishment of a comprehensive safety and occupational health program is a comprehensive occupational health program. 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 within their assigned area of responsibility (see chapter 8 for further details).

a. The Preventive Medicine and Occupational Health Division administers the program within the Chief, Bureau of Medicine and Surgery (BUMED). The occupational health and preventive medicine directorate administers the program at the hospital or clinic level. The director shall have direct access to the medical facility commanding officer and/or clinic officer in charge. Industrial hygiene and occupational medicine shall be divisions of occupational health and preventive medicine directorates. As a rule, military industrial hygienists shall provide dedicated service to the operating forces and the fleet, and civilian industrial hygienists shall maintain essential program continuity and provide services to the Navy shore establishment.

b. Functions. Refer to chapter 8.

c. Activities may deliver occupational medical services through a wide variety of organizational structures, ranging from single-physician clinics to multi-physician clinics that are co-located with a hospital or major medical clinic. The organization size affects the distribution of labor among physicians, nurses and other support staff.

d. Occupational Health Staffing Guides and Industrial Hygiene Laboratory Support Policy. Factors influencing the guidance provided below 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. Expressed in mathematical notation, the staffing guide for occupational medicine is as follows:

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

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 3-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 4,000 employees from other 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.

(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 shall 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, activities shall 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 region is dispersed among numerous small medical treatment facilities, activities shall 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 by the American Academy of Occupational Medicine. However, the complement of physicians in an occupational health clinic may include family practice physicians, internal medicine physicians and General Medical Officers. Appendix 3-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 following formula:

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 shall base the industrial hygiene staffing on the total military and civilian personnel supported. Staffing for industrial hygienists in BUMED organizations that directly support line activities can be determined based on the following formula:
IH = 0.002A + 0.0008B + 0.0004C + 0.0004E + 0.0004F + 0.004L + S

Where:

IH = the required number of industrial hygiene staff

A = population in risk category "A"

B = population in risk category "B"

C = population in risk category "C"

E = population in risk category "E"

F = population in risk category "F"

L = number of activities (locations) supported

S = support to ships that designate the claiming BUMED organization (Navy Environmental and Preventive Medicine Unit (NAVENPVNTMEDU) or clinic) as primary source of industrial hygiene support, calculated per formula below:

$$S = 0.87CV + 0.87AS + 0.35LH + 0.17CG + 0.13DD + 0.087(FF + AM + AO + AT) + 0.044SS + 0.022OT$$

Where:

CV = number of ships designated CV or CVN

AS = number of ships designated AS

LH = number of ships designated LHA, LHD or LPH

CG = number of ships designated CGN

DD = number of ships designated DD, CG or DDG

FF = number of ships designated FF or FFG

AM = number of ships designated LPD, LSD, LST, AGF or LCC

AO = number of ships designated AO, AOE, AE, AOR or AFS

AT = number of ships designated ARS or ATS

SS = number of ships designated SSN or SSBN

OT = number of ships not in any category listed above

(a) This guide applies to all medical regions. However, unique circumstances may require increases or decreases in the staffing derived from its use. Where such

adjustments are appropriate, the local medical region should define and justify them. Possible adjustment factors include the following:

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)/Engineering Field Divisions (EFDs) in facilities acquisition and review of construction plans and specifications for the elimination or engineering control of health hazards per chapter 5.

(b) Most regions will require at least one individual with skills and experience expected at the GS-12 level. Regions 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 are appropriate, depending on the size and complexity of the region's programs. Appendix 3-C provides recommended rank or grade levels.

Organizations with more than 18 individuals generally include several divisions, and may apply this recommended grade level structure at the division level.

(4) Industrial Hygiene Officer Career Path. This is the established career path for industrial hygiene officers:

Tour	Assignment/Grade
1	Assignment to a shore medical command or NAVENPVNTMEDU for training (O-1 to O-2).
2	Assignment to an aircraft carrier as assistant safety officer (O-2 to O-3).
3	Assignment to a shore medical command, NAVENPVNTMEDU, Marine Aircraft Wing, Force Service Support Group or Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) (O-3).
4	Assignment to a tender as safety officer. Assignment to Naval Sea Systems Command (COMNAVSEASYSCOM) ship/submarine design or acquisition support (O-3 to O-4).

5 Assignment to Type Command (TYCOM), NAVENPVNTMEDU, Navy Environmental Health Center (NAVENVIRHLTHCEN), Submarine Training Facility (SUBTRAFAC), Shore Medical Command or Commander, Naval Safety Center (O-4 to O-5).

6 Assignment to Fleet Commanders staff, officer in charge, commanding officer, or director of a naval medical or line activity, President, Board of Inspection and Survey (PRESINSURV), Navy Inspector General (NAVINSGEN), BUMED or NAVENVIRHLTHCEN (O-5 to O-6).

(5) Industrial Hygiene Laboratory Support

(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, serve to evaluate the uptake of such toxic substances as lead and mercury.

(b) Analytical techniques shall conform to those recommended by the Occupational Safety and Health Administration (OSHA) or the National Institute for Occupational Safety and Health (NIOSH). The laboratory shall also be capable of preparing sample media and performing any other related chemical or instrumentation work in support of the industrial hygienist.

(6) 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 shall maintain not more than three large consolidated laboratories, each to serve a specific geographical area. Each consolidated industrial hygiene laboratory (CIHL) shall be accredited by the American Industrial Hygiene Association (AIHA) and maintain such accreditation. Each laboratory shall have, as a minimum, three gas chromatographs, two atomic absorption spectrophotometers, two microscopes, a UV-visible spectrophotometer, a high-pressure liquid chromatograph and a zinc protoporphyrin analyzer.

(b) Activities shall staff laboratories to meet the expected sample analysis requirements of Navy industrial hygienists, based on extrapolation of the trend in requested determinations performed by each laboratory. Activities may use the following formula to estimate the staffing needed:

$y = 1.0 + 0.00025x$

Where:

y = the number of laboratory staff (professional staff, including chemists and technicians)

x = number of laboratory determinations to be completed each year

Activities that analyze environmental samples (such as indoor air quality or air toxics) should not use this formula to calculate staffing for analyzing these samples. Until experience is gained with such analyses, which may be different in time requirements from industrial hygiene samples, activities may justify their staffing for these analyses based on evaluation of commercial prices for similar analyses.

(c) Appendix 3-D provides an appropriate grade level structure for a given staff size. Each laboratory shall also have one clerical billet to handle sample receipt, logging and administrative correspondence.

(d) BUMED has CIHLs at the following activities:

1. Navy Environmental and Preventive Medicine Unit Two, Norfolk, VA.

2. Navy Environmental and Preventive Medicine Unit Five, San Diego, CA.

3. Navy Environmental and Preventive Medicine Unit Six, Pearl Harbor, HI.

(e) Medical activities having an industrial hygienist on staff shall maintain or establish minimum laboratory capabilities for local usage to include the following:

1. Asbestos identification and quantification using polarized light microscopy (PLM) and phase contrast microscopy (PCM).

2. Gravimetric sample analyses using a micro- or semi-micro-balance.

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

4. Equipment and supplies necessary to prepare sampling media. The above capabilities, not offered by the CIHLs, shall be available locally. The CIHLs perform analyses requiring staff chemists (i.e., chromatography and spectrophotometry). Regions and activities with a local asbestos laboratory shall enroll it in the proficiency analytical testing (PAT) program operated by the AIHA. Each local laboratory shall participate in the Asbestos Bulk Identification Proficiency Testing Program that is contractor-operated. Local laboratories may only perform asbestos analyses when they have achieved proficient ratings in each of the testing programs.

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

(7) Emergency Industrial Hygiene Laboratory Support. Some samples will require quick analysis because of the hazardous toxicants involved and potentially costly curtailment in production. In such situations, 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).

(b) The forms required by Section 0802.5 are used.

(c) Copies of the laboratory results are mailed to NAVENVIRHLTHCEN.

Chapter 3

References

3-1. OPNAVINST 5102.1D/MCO P5102.1B, of 10 December 2004, Navy and Marine Corps Safety Investigation, Reporting and Record keeping, http://www.safetycenter.navy.mil/instructions/ashore/5102/default.htm.

3-2. OPNAVINST 5100.12G, of 7 February 2001, "Navy Traffic Safety Program", http://www.safetycenter.navy.mil/instructions/ashore/510012G.doc.

3-3. OPNAVINST 5100.25A, OF 25 September 1990, "Navy Recreation, Athletics and Home Safety Program", http://neds.daps.dla.mil/Directives/5100_25a.pdf.

3-4 NAVEDTRA 10076A, of Sept 97, "Career Development Plan for Safety and Occupational Health and Industrial Hygiene Personnel." http://safetycenter.navy.mil/training/aids/files/cdp.pdf.

Appendix 3-A

Job Hazard Categories

Review manpower authorization lists to identify all jobs by hazard exposure category as listed below. The number of personnel performing jobs in each category are totaled and entered into the equation in section 0303d. Most activities will have employees in more than one category. The following work center descriptions are examples of the type of work performed in each job hazard category. They are not all inclusive:

JOB HAZARD CATEGORY	HAZARD LEVEL	WORKCENTER DESCRIPTION
A	HIGH	INDUSTRIAL OPERATIONS: 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 rework; and spray painting. MEDICAL: Radiation sources, communicable diseases, contaminated medical substances and handling chemicals. HEAVY EQUIPMENT OPERATIONS AND MAINTENANCE: 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). TOXIC/HAZARDOUS MATERIALS HANDLING: Work involving use or cleanup of acids, corrosives, reactives, pyrophoric materials, carcinogens, pesticides, radioactive material and other high hazard chemicals or materials (asbestos, PCBs, etc.). CONSTRUCTION: 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). OTHER: Work involving extreme exposures to heat, cold, diving/salvage, heights or other high risk work.

JOB HAZARD CATEGORY	HAZARD LEVEL	WORKCENTER DESCRIPTION
B	MODERATE	SUPPLY/TRANSPORTATION: Movement of materials in storage facilities using forklift trucks, overhead cranes and powered hand trucks, where materials are stacked above three feet in height. Manual material handling/lifting (i.e., assembly line, exchanges and warehouse operations).
		MECHANICS: Repair and maintenance of automotive vehicles, building maintenance and aircraft maintenance.
		RDT&E: Engineers, test mechanics and laboratory personnel involved in the research, development, evaluation and test of systems.
C	LOW	ADMINISTRATIVE/CLERICAL/CLASSROOM: Those positions that involve primary work in an office environment but may include visits to worksites for inspection or evaluation.
D*		SHIPBOARD PERSONNEL: Those positions that involve working on board ships at sea.
E*		OPERATING FORCES: Those positions on shore and at sea that involve the operation and support of aircraft operations.
F*		STUDENTS: Positions allotted to personnel who are receiving formal, offsite training in excess of five working days.

NOTE:

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

JOB HAZARD CATEGORY	HAZARD LEVEL	HAZARD ACTIVITY
A	HIGH	NAVSHIPYD, SRF, SIMA, AIMD, NAVAVNDEPOT, PWC, WEAPONS/ORDNANCE STATION, MEDICAL/DENTAL ACTIVITIES, CONSTRUCTION ACTIVITY (NMCB, NMOBU, NMCBR), SURFACE WARFARE CENTERS, TEST CENTER OR LAB, SUB IMA.
B	MODERATE	NAS, NAF, NAVSTA, NAVCOMTELSTA, NCTAMS, NAVCOMMU, FISCs, TRADE SCHOOLS (only those involving the teaching of industrial operations, repair or maintenance operations).
C	LOW	NAVPRO, HEADQUARTERS, and all activities with primarily office or classroom work.
D*		Personnel serving onboard CV, CVN, AS, LHA, LHD, DD, CG, DDG, FFG, LPD, LSD, LCC, PC, AGF, ARS, AOE, MCM, MHC, SSG, AAGSS, SSN, SSBN and other ships not designated. All applicable MSC ships.
E*		Wings, air squadrons.
F*		Students at FTCs, NTCs, OCS, Aviation OCS and midshipmen at U.S. Naval Academy.

NOTE:

* 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 3-B

Distribution of Occupational Health Physicians by Rank/Grade Level

Rank/Grade	Total Number of Physicians														
	15	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
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.

Appendix 3-C

Suggested Rank/Grade Level Structure for Industrial Hygiene Support

Rank/Grade	Number of Persons																	
	18	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
05/GS-14	1	1	1	1	1	1												
05/GS-13	1	1	1	1	1	1	1	1	1	1	1	1						
04/GS-12[a]	3	3	3	3	3	3	3	2	2	2	2	1	1	1	1	1	1	1
03/GS-11[b]	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	1	1	0
02/GS-09	4	4	3	2	2	2	2	2	1	1								
01/GS-07	2	1	1	1	1													
GS-05	4	4		4	3	3	3	3	3	2	2	2	2	1	1	1		
Clerical Support[c]	4	4	4	3	3	3	3	2	2	2	2	2	1	1	1	1	1	1

Notes:

[a] GS-12: Considered a non-supervisory journeyman level industrial hygienist.

[b] GS-05 to GS-11: Billets may be either for industrial hygienists or industrial hygiene technicians (mix to be determined at the local level). GS-09 is considered a non-supervisory journeyman level for industrial hygiene technicians and GS-11 could be a technical supervisor.

[c] Represents recommended clerical support based on the table above.

Appendix 3-D

Suggested Grade Level Structure for Consolidated Industrial Hygiene Laboratories

Rank/Grade	Size of Staff (professional billets)								
	12	11	10	9	8	7	6	5	4
05/GM-13 chemist	1	1	1	1	1	1	1	1	
04/GM-12 chemist	3	3	3	2	2	2	2	2	2
03/GS-11 chemist	2	2	2	3	2	2	1	1	1
02/GS-09 chemist	2	1	1	1	1	1	1	1	1
01/GS-05, 06, 07 chemist	2	2	2	1	1	1	1		
GS-05, 06, 07 technician	2	2	1	1	1				
GS-04 technician									
Each laboratory should also have one clerical billet to handle sample receipt, logging and administrative correspondence.									

CHAPTER 4

COUNCILS AND COMMITTEES

0401. Discussion

a. Regional and activity safety committees and councils provide opportunities for various 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 Safety and Occupational Health program.

b. Councils or committees have three basic functions:

(1) Create and maintain an active interest in safety.

(2) Serve as a means of communications regarding safety.

(3) Provide program assistance to commanding officers, including proposing policy and program objectives.

0402. Councils and Committees Ashore

a. The Federal Advisory Council on Occupational Safety and Health (FACOSH) acts in an advisory capacity to the Secretary of Labor to assist in carrying out his/her responsibilities. The Council consists of 15 members appointed by the Secretary and includes representatives of Federal agencies and labor organizations representing Federal employees. (Such labor organizations, for representation, require at least five members.) The Deputy Under Secretary of Defense (DUSD) Environmental Security (ES), assisted by the designated officials from each component service, represents Department of Defense (DOD) interests on this council. Navy units proposing items for review by the council must submit them through the Chief of Naval Operations (CNO) (N09F).

b. Field Federal Safety and Health Councils exist in many metropolitan areas, functioning on a local level as FACOSH functions at a headquarters level. These councils consist of representatives of local area Federal agencies. The Navy supports these councils, and encourages local Navy officials to participate on local councils. The Navy shall support the operation of local councils by making available, where appropriate, facilities for meetings, speakers and the use of educational resources (films, libraries, etc.).

c. DOD chose not to establish an Occupational Safety and Health committee that conforms to the provisions of reference 4-1 at the national level. Instead, it established a Safety and Occupational Health Committee under the provisions of reference 4-2. DUSD (ES) staff chairs this Council, which includes representatives from all the military departments and major defense agencies. The Assistant Secretary of the Navy (Installations and Environment) (ASN(I&E)) and CNO (N09F) represent the Navy.

d. Navy and Marine Corps Safety Council is composed of operator-level Navy and Marine Corps safety leaders who advise and recommend safety performance improvements to the Chief of Naval

Operations (CNO), the Commandant of the Marine Corps (CMC), and the Deputy Assistant Secretary of the Navy for Safety (DASN(S)). Council membership consists of co-chairs and appointed Chairs of each of the following Safety Committees:

(1) Afloat Safety Committee

(2) Aviation Safety Committee

(3) Ground Tactical Safety Committee

(4) Shore Safety Committee

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

f. Safety councils shall be established at all Navy regions, as well as at activities that provide their own safety support. At the region level, the Program Manager responsible for Safety shall chair the council; at the activity level, the CO, XO or equivalent shall chair the council. Commanding officers shall appoint members in writing, either by letter to an individual or by title or position, in a local instruction. Membership shall include civilian and military personnel representing key organizational elements at the region and activity, as well as safety and health professionals. Civilian employees shall be represented on the council. Many local labor-management agreements contain provisions on employee representation. The requirement for a safety council can be met by any formally established region and activity management 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. Commands that do not have a safety staff and receive safety services from a region may be asked to participate in the Regional safety council meetings. Participation on the regional council shall be determined by the mission of the command and complexity of its work environment. Commands that do not participate in the regional safety council shall be provided minutes of the meetings as necessary.

(1) If the region or activity safety manager attends routinely scheduled department head (staff) meetings or personally briefs the CO/XO on a recurring basis, where safety Items can be discussed in a timely manner, only one formal annual meeting is required. Otherwise, the council shall meet annually or more frequently as needed. The region or activity safety organization shall retain minutes on file for a minimum of three years.

(2) The council develops agendas and action items based on the nature of the region or activity, its scope of operations and its hazard or 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 shall develop proposed agendas and presentations for the council and ensure meetings are scheduled.

g. Regions or 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, regions or activities shall make provisions for their communication with the region or activity council.

h. Activities that are primarily administrative in nature, or have fewer than 100 employees, are not required to establish formal safety council. However, heads of such regions or activities shall 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.

0403. Federal Safety and Health Conferences

Attendance and participation, by Navy personnel, in regional and national safety conferences are strongly encouraged. Where commands sponsor regular seminars or workshops, commanders or commanding officers should consider possible benefits derived from scheduling such meetings in conjunction with a regional Federal Safety and Health Conference.

0404. Shore Safety Committee

a. SECNAV established the Navy and Marine Corps Safety Council along with aviation, shore, afloat, and ground/tactical committees. (See reference 4-3).

b. The Shore Safety Committee is chaired by CNI and includes representation from the Naval Safety Center, the Naval Facilities Engineering Command (NAVFAC), the Naval Sea Systems Command (NAVSEA), the Naval Air Systems Command (NAVAIR), the Naval Education and Training Command (NETC) and/or Naval Personnel Development Command (NPDC), the Bureau of Medicine and Surgery (BUMED), Naval Military Personnel Command, U.S. Pacific Fleet (PACFLT), U.S. Atlantic Fleet (FFC), Naval Inspector General (NAVINSGEN), U.S. Naval Forces Europe (COMNAVEUR), Naval Ordnance Safety and Security Activity (NOSSA), U.S Marine Corps, Safety Division, U.S. Marine Corps Forces Pacific, and U.S. Marine Corps Forces Atlantic. Various activities will be called to serve as advisors on the Committee as needed.

c. The Shore Safety Committee has the authority in its charter to establish working groups as required, with representation from the Navy and Marine Corps. The Shore Safety Committee convenes at least semiannually. Examples of working groups are: Directives Working Group, Traffic Working Group, Fall Protection Working Group, Ergonomics Working Group, Occupational Health Support Working Group, Process Review and Measurement System Working Group, and Education and Training Working Group.

d. The overall goal of the committees is to lead initiatives to reduce mishaps and associated costs to Navy and Marine Corps. The Shore Safety Committee Charter is available at http://www.safetycenter.navy.mil.

Chapter 4

References

4-1. Executive Order 12196, Occupational Safety and Health Programs for Federal Employees. http://tis.eh.doe.gov/feosh/resource/eo12196.htm.

4-2. DOD Instruction 6055.1 of 19 Aug 98, DOD Safety and Occupational Health Program (SOH). http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf.

4-3. Department of the Navy/Navy and Marine Corps, Safety Council Charter of 14 Nov 03. http://www.safetycenter.navy.mil/safetycouncil/downloads/SafetyCouncilCharter03.pdf.

CHAPTER 5

PREVENTION AND CONTROL OF WORKPLACE HAZARDS

0501. Discussion

Section 19(a) of the Occupational Safety and Health Act (OSHAct) 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 to establish and maintain an effective hazard control program. The first method to be followed in hazard control is preventing hazards through the design process of systems, equipment, and facilities. The command designing the equipment, systems or facilities is responsible for design safety.

Prevention and control of workplace hazards is integral to risk management and control of costs, waste and inefficiency, per reference 5-1. In addition to the direct costs of mishaps (medical costs, compensation costs, etc.) indirect costs (reduced productivity, investigation time, hiring and training time, etc.) can exceed direct costs by as much as 10 to 1. Examples of effective hazard mitigation and related cost savings can be found at http://www.safetycenter.navy.mil/success/downloads/costSavings.pdf.

The Defense Acquisition system is responsible for identification of military threats; evaluation of the capabilities of existing and prospective strategic and material (equipment) solutions to these hazards; direction of research and development, and ultimately the design and development of new weapons systems and supporting equipment. Control of safety in the initial design and development is best achieved through the acquisition process. For example, the Navy Fall Protection Guide for Ashore Facilities (see reference 33-1) estimates that the cost of fall protection increases by a factor of ten with each stage of consideration in design and development.

Reference 5-2 describes the required process for integration of system safety as a risk and cost management method. References 5-3 and 5-4 describe the operation of the DOD Acquisition System, including requirements for inclusion of safety evaluation in design. Reference 5-5 describes the process for generation of requirements (essential capabilities and characteristics) of new and modified systems and equipment including integration of criteria related to safety. Reference 5-6 describes Navy acquisition program requirements and regulations and requires the integration of human factors/human systems integration and systems safety into the systems engineering process. References 5-6 through 5-8 require the application of system safety in all acquisition systems and MILCON projects. Management of the system safety process within the Navy is directed by reference 5-8. The above references describe a mandatory systematic process for hazard assessment, tracking and management of hazards at an organizational (management) level proportional to the level of risk.

To minimize hazards in the workplace, commands shall identify hazardous conditions through workplace inspections (discussed in chapter 9), employee hazard reports (discussed in chapter 10), and industrial hygiene survey reports (discussed in chapter 8). They shall promptly eliminate or control all identified safety and health hazards, subject to priorities based upon the degree of risk posed by the hazards in accordance with guidance of Chapter 12 (Hazard Abatement Programs). The preferred method of hazard abatement is through application of engineering

controls or substitution of less hazardous processes or materials. The next preferred method is the use of administrative controls, possibly in conjunction with personal protective equipment (PPE). Total reliance on PPE is acceptable only when all other methods are proven to be technically and/or economically infeasible. The OSHA Standards controlling workplace use of protective equipment require that alternative control measures be evaluated as infeasible or not fully protective before reliance on protective equipment is acceptable. This chapter discusses the basic principles of hazard control and assigns responsibility for implementing hazard abatement actions.

0502. Principles of Hazard Control

Safety professionals and industrial hygienists are specialists with training and experience in recognition, evaluation and control of workplace hazards. They shall be thoroughly familiar with potential hazards created by various materials, equipment and work processes used in Navy facilities. They shall also be aware of special designs required by OSHA and Navy developed standards to mitigate certain hazards. In order to ensure that OSH and IH professionals receive appropriate training in hazard abatement, the guidelines in reference 5-9 should be followed. Additional training in fiscal management and the Navy Program Planning Budget System (PPBS) is encouraged to support understanding and involvement of the process of funding of hazard abatement projects.

The following sections discuss some of the principles applied to prevent or mitigate workplace hazards.

a. Substitution. The risk of injury or illness may be reduced by substituting a known hazard (process or material) with a less hazardous process or material.

(1) Examples of process substitutions may include:

(a) Brush painting instead of spray painting to reduce inhalation hazards.

(b) Installing maintenance platforms, mezzanines, and catwalks for maintenance personnel instead of using scaffolding for routine equipment maintenance.

(2) Equipment changes may include:

(a) Use of electric motors rather than internal combustion engines for indoor operation to eliminate potential carbon monoxide exposures.

(b) Use of safety cans in place of bottles to store flammable solvents, presenting less of a fire hazard.

(c) Use of ergonomically designed tools that meet job requirements and provide the best fit for the employee and the job.

(3) Examples of material substitution include:

(a) Switching from methylene chloride to citrus-based formulas for paint stripping to reduce risk of injury to the liver and kidneys of exposed workers.

(b) Replacing sand with abrasives that do not contain crystalline silica to eliminate the silicosis hazard associated with exposure to airborne crystalline silica dust during abrasive blasting.

Acquisition program managers, regions and activities shall exercise care in any substitution to ensure that the substitute materials are technically acceptable and they avoid introducing a new or unforeseen hazard. The Navy Environmental Health Center provides technical assistance in comparison of the hazardous properties of alternative materials in accordance with references 5-10 and 5-11.

b. Isolation. Hazards may be controlled by using isolation. Isolation is the placing of an appropriate barrier or limiter between the hazard and an individual who may be affected by the hazard. Isolation includes using physical barriers, time separation or distance. Examples include machine guards, electrical insulation, acoustical containment, semi-automatic equipment that does not require constant attendance (time separation) and remote controlled equipment.

c. Ventilation. Potentially hazardous airborne substances may be controlled by ventilation, using one of two methods:

(1) Local exhaust ventilation (LEV). LEV captures and removes the contaminant at its point of generation. It is generally the preferred and more economical method of hazard control.

(2) General or dilution ventilation. Properly used, general/dilution ventilation can be effective for the removal of large volumes of heated air or for the removal of low concentrations of low toxicity contaminants from minor and decentralized sources.

Regions and activities shall design, operate and maintain ventilation systems per the principles outlined in references 5-12 through 5-14.

d. Administrative Control. Hazards can be controlled administratively. This method of hazard mitigation depends on effective operating practices that reduce the exposure of individuals to chemical or physical hazards. These practices may take the form of limited access to high hazard areas, preventive maintenance programs to reduce the potential for leakage of hazardous substances or adjusted work schedules that involve a regimen of work in high hazard and low hazard areas. As an administrative control, adjusted work schedules are appropriate only when the hazard has an occupational exposure limit below which nearly all workers may experience repeated exposure without adverse effects. The amount by which the 8-hour time weighted average-occupational exposure limit may be exceeded for short periods without injury to health depends on a number of factors such as the nature of the contaminant, whether or not the effects are cumulative, the frequency with which high concentrations occur and the duration of such periods. All factors shall be taken into consideration in determining whether a hazardous condition exists and whether or not excursions from the limit are permitted.

NOTE:

Exposure limits, such as permissible exposure limits (PELs) established by the Occupational Safety and Health Administration (OSHA), or Threshold Limit Values (TLVs) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are intended for use in the practice of industrial hygiene and are to be interpreted and applied only by a person trained in this discipline.

e. Personal Protective Equipment (PPE). Hazard exposures may also be mitigated by using PPE. This method of hazard control is least preferred because personal protective devices may reduce a worker's efficiency and protective equipment may not be fully effective in control of exposures, particularly if not selected, maintained or used properly. In addition, it is the only method of control that does not reduce levels of contaminants in the workplace. Nevertheless, there are instances where adequate levels of risk reduction cannot be achieved through other methods and personal protective devices must be used, either alone or in conjunction with other protective measures. Specific PPE and situations where it may be used are described throughout this manual.

0503. Application of Hazard Control Principles

a. Safety and Occupational Health in the Acquisition Process. Reference 5-4 requires that Program Managers (PM) for all Defense Acquisition Programs develop a programmatic environment, safety and health evaluation at the earliest possible time in the acquisition process. This evaluation describes the PM's strategy for meeting environmental, safety, and health requirements during system construction, operation, maintenance, and disposal. PMs responsible for the acquisition of Navy weapons systems, facilities, and support equipment or major modifications to existing weapon systems, facilities or equipment shall perform a safety and occupational health review which includes human systems integration, as described in references 5-3 and 5-4. This evaluation shall identify and evaluate safety and occupational health hazards and legacy mishap data, define risk levels, and establish a process that will manage the probability and severity of all hazards associated with the development, use, and disposal of these systems, facilities and equipment. These hazards shall be managed consistent with mission requirements, and management efforts employed shall be cost-effective. The safety and health hazards to be managed include any conditions that create a significant risk of death, injury, acute or chronic illness, disability, and/or reduced job performance of personnel who will produce, test, operate, maintain, or support the system, facility or equipment. Each management decision to accept the risks associated with an identified hazard shall be formally documented.

Navy PMs shall establish a hazardous material control and management program that ensures appropriate considerations are given to eliminating and reducing the use of hazardous materials in construction, maintenance, operation, and disposal processes. They shall manage the selection, use, and disposal of hazardous materials to incur the lowest cost required to protect human health and the environment over the system's facilities or equipment's life cycle. Where use of a hazardous material cannot be avoided, the PM shall develop and implement plans and

procedures for identifying, minimizing use, tracking, storing, handling, and disposing of such materials.

b. Design Reviews. In many instances facility design engineers are not totally familiar with all potential health hazards created by various materials, equipment, and operations used in Navy industrial facilities, nor are they aware of the special design considerations required to control these hazards. To ensure that appropriate hazard control techniques are applied, it is essential that cognizant industrial hygienists and safety professionals actively participate in planning, design, construction and acceptance processes for all facility projects including both special projects and military construction projects. Reviewers shall consider, appropriately influence the design, and engineer safety and occupational health aspects into all facilities that are acquired or constructed for use by Navy personnel. Design engineers shall ensure that projects involving potential health hazards, such as toxic materials, radiation, noise, or other health hazards, shall follow established principles of industrial engineering and comply with references 5-3 through 5-8 and 5-12 through 5-17. Unified Facilities Criteria (UFC) should be considered and relevant criteria incorporated into contract specification and design reviews. Military Handbook 331F (or latest edition) Directory of DOD Engineering Data Repositories may be consulted for additional sources of technical information.

c. Operating Procedures. Acquisition program managers, regions and activities shall include appropriate health and safety requirements in standard operating procedures or similar directives that are issued to direct the manner in which work is performed. Originators of instructions that affect productivity shall integrate instructions that affect well-being of workers to achieve organization goals in both areas with minimal conflict or confusion. Originators of directives that involve work with potential hazards shall coordinate with cognizant safety and health personnel to ensure that they have considered applicable requirements.

d. Contracting Procedures. The Federal Acquisition Regulation (FAR) Subpart 42 prescribes policies and procedures for contract administration. Nothing herein changes the requirements of FAR 42. Appendix A summarizes some of the key provisions of the Federal and Navy acquisition regulations requiring application of safety in contracting.

(1) Contractors must comply with applicable federal, state and local codes and standards, including safety and occupational health requirements, as well as any additional specific requirements invoked by contract. In addition, certain types of construction and demolition contracts require inclusion of the FAR 52.236-13 Accident Prevention Clause that requires compliance with the US Army Corps of Engineers Safety and Health Requirements Manual, EM-385-1-1. The Accident Prevention Clause should also be added to contracts involving high hazard work such as roofing, scaffolding, high voltage electrical, confined space, etc. By adding this requirement, the Navy is requiring the contractor to implement EM-385-1-1 and provide an Accident Prevention Plan and develop an Activity Hazard Analysis for each phase of work. Navy standards, such as this instruction, should not be referenced as a requirement for the contractor unless the contractor is hired to perform safety and occupational health services for Navy employees.

(2) Administrative oversight of contractors is the primary responsibility of the Contracting Officer and/or the Contracting Officer's designated representative. It is essential that Safety and Occupational Health personnel not assume a regulatory role relative to oversight of the contractor safety activities and performance except in an imminent danger situation. The role of the safety and occupational health offices is to serve as an advisor and provide professional safety and occupational health support to the Contracting Officer. Safety and occupational health personnel should assist in identifying specific safety and health requirements to be included in contracts; participate in pre-performance or pre-construction conferences; participate in review of safety and health issues/concerns with the Contracting Officer regarding all contractors working on the facility; review and provide comments to the Contracting Officer on specific submittals, such as Accident Prevention Plan, Activity Hazard Analyses, Fire and Flooding Protection Plan, Asbestos Removal Plan, etc.

(3) Multi-Employer Worksites. Under worker safety and occupational health laws, every employer is charged with providing employees with a safe and healthful workplace. If there is a violation of OSHA standards, OSHA will look first to the employer of the injured employee as the responsible party. However, in instances where multiple employers are sharing a workspace, OSHA multi-employer worksite policy may apply. Additionally, an employer determined to control the worksite and the safety practices of other employers may also be held accountable for those hazards. With the continued increase of functions performed by contractors at Navy shore facilities and onboard vessels, the potential implications are significant. Navy activities must have a clear understanding of who has responsibility, by contract, agreement or practice for the safety and health of all contractor employees. This determination should only be made in consultation with the Contracting Officer and appropriate legal counsel.

e. Purchasing Procedures. Activities can avoid many hazards by incorporating appropriate safety and health hazard requirements into specifications for purchased equipment/material. Where Navy facilities develop specifications for purchases, the activity organizations responsible for purchase requests shall coordinate with cognizant safety and occupational health personnel.

f. Interim Hazard Abatement Measures. Activities shall use immediate, temporary hazard abatement 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 hazard abatement measures.

g. Permanent Hazard Abatement. Engineering control methods are the preferred method of hazard control, followed by administrative controls and PPE. Regions and activities shall use feasible engineering controls to reduce hazardous exposure, even when only partial reduction of exposure is possible through engineering methods. They shall 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.

0504. Development of Hazard Control Recommendations

Acquisition program managers, regions and activities shall consider the following possible actions when recommendations are developed for prevention or reduction of hazards:

a. Avoiding, eliminating, or reducing deficiencies by engineering design, material selection, or substitution.

b. Isolating hazardous substances, components, and operations from other areas, personnel and incompatible materials.

c. Incorporating fail-safe principles to prevent a catastrophic injury to personnel, damage to the equipment, or inadvertent operation of critical equipment.

d. Relocating equipment/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.

e. Providing suitable warning and notes of caution concerning required personnel protection during operation, assembly, maintenance and repair instructions.

f. Providing distinctive markings on hazardous components, equipment or facilities.

g. Requiring use of PPE when other controls do not reduce the hazard to an acceptable level.

h. Monitoring exposure to ensure that engineering controls effectively reduce the hazard.

i. Training employees to recognize hazards and take appropriate precautionary measures.

j. The region/activity safety council, where established, shall review and concur with self assessments and improvement plans and shall review the progress achieved in implementing improvement actions at least annually. For activities not requiring a council, the commander, commanding officer, or officer in charge shall review and approve the annual self-assessment and improvement plans.

0505. Safety and Occupational Health Program Self-Assessment and Improvement Plans

Regions and field activities shall perform a self-assessment of the command program at least annually following either Process Review and Measurement System (PR&MS) Self Assessment

Model guidelines contained in Chapter 2, appendix 2-B and additional guidance on the Naval Safety Center website, or equivalent (e.g. OSHA VPP). Headquarters Commands shall also develop an Annual Self Assessment of their Command program. Based on the results of the assessment, they shall develop and implement plans of action to address program areas in need of improvement. The activity safety council, where established, shall review the progress achieved in implementing improvement actions at least annually. For activities not requiring a safety council, the commander, commanding officer, or officer in charge shall review and approve the annual self-assessment and improvement plans. Headquarters commands will review subordinate activity self-assessments and plans of action to develop improvement plans for their overall chain of command's safety program.

a. The region or activity self assessment shall include, as a minimum, a review of mishap statistics and analysis data, inspection records, hazard reports and risk assessments, evaluations of compliance posture, and the industrial hygiene exposure assessment reports outlined in chapter 8. Headquarters commands shall also develop an annual self-assessment of their command safety program. The assessment of headquarters programs shall determine the effectiveness of meeting headquarters program requirements as outlined in chapter 3 section 0303.

b. Regions and activities shall develop specific improvement strategies for each area identified as needing improvement. For each strategy, regions and activities shall define performance or measurement standards and establish target completion dates.

0506. Acquisition Program Assessment and Reviews

a. Acquisition programs are required to develop Programmatic Environmental Safety and Health Evaluations (PESHEs) that are summarized in the Acquisition Strategy and evaluated by external program reviewers. System Safety plans and hazard tracking are required by references 5-4 and 5-8.

b. Within acquisition programs, life cycle costs and risks, including those associated with hazardous material usage and physical safety, survivability and physical agents, are required to be evaluated in Integrated Logistics Assessments (ILAs), reference 5-18. ILAs are required before acquisition programs can progress to the subsequent major phase (milestone) and are considered in Milestone reviews performed by Major Decision Authorities (high-level external evaluators in the acquisition system). Safety and occupational health professionals familiar with the acquisition system should become involved with ILAs and with direct program support through participation in Integrated Process Teams (IPTs) (multidisciplinary committees), particularly those involved with system development and review.

0507. Responsibilities

The control of hazards is the inherent responsibility of each command with specific responsibilities to apply controls assigned to the command's supervisory levels. The following are assigned responsibilities for directing and supervising effective hazard controls.

a. Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Assist the Special Assistant for Safety Matters CNO (N09F) in carrying out program responsibilities in matters of hazard control.

(2) Determine, validate and establish health criteria and standards.

(3) On a continuing basis, identify and/or evaluate equipment, facilities and materials in Navy systems, as well as processes, procedures and work practices, which may adversely affect the health of all Navy employees to ensure health risks are recognized and evaluating corrective measures taken.

(4) Provide technical advice for occupational health education in applicable training curricula and conduct specialized training in occupational health.

(5) Perform research identifying and controlling health hazards related to occupational exposures.

(6) Review and evaluate the effectiveness of occupational health policies and procedures and recommend appropriate actions to the CNO.

(7) Provide occupational health assistance to requesting regions and activities.

(8) Assist in reviewing plans and specifications for facilities construction projects to identify and control potential health hazards as requested.

(9) Assist in reviewing the programmatic Environmental Safety and Health (ESH) evaluation of new systems during the design and operational test and evaluation phases in the acquisition process.

b. Commanders of Headquarters Commands shall:

(1) Assist CNO (N09F) and COMNAVSAFECEN (90) in carrying out responsibilities in the area of hazard control.

(2) On a continuing basis, identify and evaluate, in coordination with BUMED, safety and occupational health exposure in naval systems, equipment, and material affecting the safety and health of Navy employees ashore.

(3) Identify and develop, in coordination with appropriate commands, manpower and material requirements in support of the control of safety and occupational conditions ashore.

(4) Ensure that safety and occupational health problems associated with the development, production and disposal of new equipment and materials are recognized and that provisions are made in the development process for their control.

(5) Ensure that systems safety engineering and management principles are applied during research, development, test, evaluation, production, and acquisition of equipment, facilities and material. Ensure that safety and occupational health professionals are included in Integrated Product and Process Development (IPPD) teams and that comprehensive programmatic ESH evaluations are performed at appropriate phases in the acquisition process.

(6) Provide technical and managerial assistance to regions and subordinate activities on hazard control measures.

(7) Provide regions and subordinate activities with a systematic approach to conduct the annual self-assessment of the safety and occupational health program, including desired key measures of effectiveness.

(8) Provide mishap data information from legacy systems and appropriate recommendations formulated from mishap investigations.

c. Commanders, Commanding Officers, and Officers in Charge shall:

(1) Monitor hazard control on a continuing basis including engineering, maintenance, management policy, and supervisory control to ensure the identification and elimination of hazards.

(2) Apply procedures for control across the design/engineering/installation/ operations/maintenance/disposal interface ensuring the integration of a dynamic hazard control program consistent with operational and safety and occupational health requirements.

(3) Encourage safety and occupational health professionals at R&D labs and other acquisition activities to obtain basic acquisition training as described in Chapter 6, appendix 6-A.

d. Commander, Navy Facilities Engineering Command should establish, as necessary, Facility Safety Working Groups (FSWGs) to ensure hazards are identified and controlled for new military construction (MILCON) projects. The FSWGs should include the procuring region or activity safety manager, industrial hygienist, environmental engineer, planner, user and Naval Facilities Engineering Command safety engineer. The FSWG should develop a list of hazardous operations that are of concern and review the control methods that will be used. The NAVFACENGCOM Safety Engineer in coordination with the FSWG will determine adequacy of controls and track hazard and risk resolution and verify installation of the required controls as stated by the designers.

Chapter 5

References

5-1. OPNAVINST 3500.39B, of 30 July 04, Operational Risk Management http://neds.daps.dla.mil/Directives/3500_39b.pdf.

5-2. Military Standard 882D, of 10 February 00, Department of Defense Standard for System Safety.

5-3. DOD Directive 5000.1, of 12 May 03, The Defense Acquisition System (NOTAL).

5-4. DODI 5000.2, of 12 May 03; Operation of the Defense Acquisition System,. http://www.dtic.mil/whs/directives/corres/html/50002.htm.

5-5. CJCSM 3170.01B, of 11 May 05, Operation of the Joint Capabilities Integration and Development System http://www.dtic.mil/cjcs_directives/cdata/unlimit/m317001.pdf.

5-6. SECNAVINST 5000.2C, of 19 Nov 04, Implementation of Mandatory Procedures for Major and Non-Major Defense Acquisition Programs and Major and Non-Major Information Technology Acquisition Integration and Development System http://neds.daps.dla.mil/Directives/5000_2c.pdf.

5-7. SECNAVINST 5100.10J, of 26 Oct 05, Department of the Navy Safety, Mishap Prevention, Occupational Health and Fire Protection Program http://neds.daps.dla.mil/Directives/5100_10h.pdf.

5-8. OPNAVINST 5100.24A, of 3 Oct 86, System Safety http://neds.daps.dla.mil/Directives/5100a24.pdf.

5-9. NAVEDTRA 10076A of Sep 97, "Career Development Plan for Safety and Occupational Health and Industrial Hygiene Personnel" http://safetycenter.navy.mil/training/aids/files/cdp.pdf.

5-10. BUMEDINST 6270.8A, of 3 January 02, Procedures for Obtaining Health Hazard Assessments Pertaining to Operational Use of Hazardous Materials http://navymedicine.med.navy.mil/Files/Media/directives/6270-8a.pdf.

5-11. NAVSUP Publication 718, of Aug 98, Navy Guidance Manual for the Hazardous Material Substitution Process.

5-12. ACGIH, Industrial Ventilation, "A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienists", Inc., P.O. Box 453, Lansing, MI 48902, (NOTAL) http://www.acgih.org/store/.

5-13. American National Standards Institute (ANSI), Z9.2-2001, "American National Standard for Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems", (NOTAL) http://www.ansi.org.

5-14. Military Handbook – "Industrial Ventilation Systems", MIL-HDBK-1003-17C http://enviro.nfesc.navy.mil/ps/guidance/guidance.htm.

5-15. NIOSH DHEW (NIOSH) Publication No. 80-116, of May 1980, “Compendium of Materials for Noise Control” National Institute for Occupational Safety and Health, Robert A. Taft Laboratories, Cincinnati, OH, (NOTAL).

5-16. “Noise Control, A Guide for Workers and Employers”, U.S. Department of Labor, Occupational Safety and Health Administration, Office of Information, 1980, http://www.osha-slc.gov/SLTC/noisehearingconservation/index.html.

5-17. 29 CFR 1910.16, Occupational Safety and Health, Adoption and Extension of Federal Standards, Effective Dates http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9709

5-18. SECNAVINST 4105.1A, of 5 March 04; Independent Logistics Assessment (ILA) and Certification Requirements, http://neds.daps.dla.mil/Directives/4105_1a.pdf.

Appendix 5-A

DOD and Navy Requirements for Safety and Health in Contract Documents

1. Contractors

a. Contractor safety and integration into base operations:

Refer to NAVFAC Safety information on website, including contractor safety guidelines, provided at http://www.navfac.navy.mil/safety.

NAVFAC Safety Instruction NAVFACINST 5100.11J including safety associated factors for consideration in contractor selection and performance evaluation. NAVFAC Safety Instruction (NAVFACINST 5100.11J) requires that contract selection criteria consider safety records (including insurance risk ratings/worker's compensation modifier factors) and evaluation of contractor safety performance during contract work as key elements of cost and schedule risk management.

NAVFAC Construction Safety Resource
http://www.navfac.navy.mil/safety/site/construc/construc.htm

b. Citations and Web links for Sections of Federal Acquisition Regulations (FAR) and DFAR Defense Federal Acquisition Regulations (DFAR) requiring inclusion of safety in contracts are provided below:

c. DFARS Part 223 Environment, Conservation, Occupational Safety and Drug-Free Workplace

d. SUBPART 223.3--HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA
http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/dfars/dfars223.htm - P70_1191
http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/dfars/dfars223.htm - P70_1191

2. FAR 52.236-13 -- Accident Prevention 36.513 of Nov 1991.

a. Construction operations must provide for the protection of the general public and require a contractor's accident prevention plan and related review by the COR (COTR) before contract performance.

b. If the contract is for construction or dismantling, demolition or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

CHAPTER 6

TRAINING

0601. Discussion

a. This chapter provides requirements, guidelines and recommendations for safety and occupational health and hazard communication (HAZCOM) training necessary for employees to perform their work in an occupationally safe and healthful manner. Adherence to safe operating practices and procedures cannot be assured unless there is a clear and defined knowledge of the job, its potential hazards and of the strategies necessary to perform the job properly and prevent mishaps. To attain this type and level of knowledge, a well-developed and coordinated training effort keyed to all levels and types of personnel is required. Properly applied training can change behavior and lead to not only mishap reduction but also performance improvement.

b. Regions or activities shall design, provide and tailor training programs to the level of responsibility of the individual so as to instruct individual employees to perform their work in a safe and healthful manner. As a minimum, the training shall meet the requirements of reference 6-1, Subpart H, and shall provide personnel with sufficient knowledge for their effective participation in the region or activity's safety and occupational health program.

c. The Occupational Safety and Health Administration (OSHA) regulations require employers to train their employees on the specific hazards and safe work practices for the hazardous material (HM)/chemicals they use in the workplace. The regulations include training requirements for personnel involved in hazardous material control and management (HMC&M) and personnel who must handle hazardous material or hazardous waste (HW) (see chapter 7).

0602. Shore Training Programs

Appendix 6-A provides minimum training for personnel assigned ashore. Similarly, Appendix 6-B provides HAZCOM training requirements. A listing of courses offered by NAVOSHENVTRACEN that meet the requirements of this instruction can be viewed on the NAVOSHENVTRACEN website at http://safetycenter.navy.mil/training/default.htm.

a. Management Personnel. Commands shall provide management personnel with sufficient training to enable them to actively and effectively support programs in their specific areas of responsibility. This training shall include:

(1) An overview of appropriate statutes.

(2) An in-depth examination of management's responsibilities in relation to the region or activity’s safety program. Ensuring that an aggressive and continuing safety program is implemented throughout the region or activity is the general emphasis for this aspect of management level training. Training topics shall include compliance procedures, mishap costs and prevention strategies, and performance standards and evaluation.

(3) A review of Navy policy on all relevant aspects of safety. A broad understanding of the material addressed in this manual is essential.

(4) An examination of region and activity program goals and objectives. Training shall also include a review of local mishap experience, trends and reduction target areas.

(5) An overview of current safety emphasis programs as defined by higher command.

b. 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. Region or activities shall provide training for supervisory personnel and employee representatives that include introductory and specialized courses to enable them to recognize unsafe and unhealthful working conditions and practices in the workplace.

(2) Regions or activities shall provide supervisory personnel with training that includes the development of skills necessary to manage their programs at the work unit level. These management skills require the training and motivation of subordinates in the development of safe and healthful work practices and involve the integration of safety with job training. Regions or activities shall ensure that training for supervisory personnel meets the requirements of reference 6-1, Subpart H and also includes safety performance measurement (both in terms of mishap/hazard prevention and individual employee/supervisor performance), hazard identification and analysis, enforcement of standards, mishap investigation, the use and maintenance of personal protective equipment, and HMC&M.

(3) Regions or activities shall provide newly appointed supervisors with safety training as soon as possible but no later than 180 days after becoming a supervisor.

c. Non-Supervisory Personnel.

(1) Regions or activities shall provide training to non-supervisory personnel that includes specialized job safety and health training appropriate to the work performed by the employees. This training shall include a review of the relevant standards, an analysis of the material and equipment hazards associated with the worksite and standard operating procedures (SOPs) for specific tasks. Regions or activities shall also provide instructions on employee rights and responsibilities under relevant statutes, regulations, and the safety program. Electronic training methods are acceptable.

(2) Safety offices shall direct specialized training for non-supervisory personnel to the individual's worksite.

(3) Regions or activities shall 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 shall include:

(a) Command and/or local policy on safety and occupational health.

(b) Work unit policy on safety and occupational health.

(c) Individual responsibility for safety and health.

(d) Employee reporting procedures for hazardous operations/conditions.

(e) Awareness of hazards common to the individual's worksite, trade, occupation or task.

(f) Specific hazards of chemicals/materials used in the workplace and the region or activity's HAZCOM plan.

(g) An introduction to the local occupational health program, including how to obtain occupational medical assistance, obtain routine medical evaluations and procedures to follow in case of occupational illness or injury.

(h) Personal protective equipment requirements for the job.

d. Safety and Occupational Health Personnel. Regions or activities shall ensure that safety and occupational health personnel are trained through courses, laboratory experience and field study to perform the necessary technical monitoring, consulting, testing, inspecting and other tasks that are required of safety and occupational health professionals.

(1) Managers shall establish and implement individual development plans (IDPs) for each professional. They shall use reference 6-2 as guidance in planning training for personnel identified. The NAVOSHENVTRACEN, Norfolk, VA, is the primary source for formal classroom training.

(2) As a minimum, managers shall include the following courses (or equivalents, such as OSHA Training Institute (OSHTI) courses) in IDPs for safety and occupational health professionals: Navy Occupational Safety and Health Assessment Tools and Strategies, A-493-0089; Introduction to Navy Occupational Safety & Health (Ashore), A-493-0050; General Industry Standards, A-493-0061; Electrical *Safety Standards*, A-493-0033; *Introduction to Hazardous Materials (Ashore)*, A-493-0031; *Introduction to Industrial Hygiene*, A-493-0035; Navy Ergonomics Program, A-493-0085; Machinery and Machine Guarding Standards, A-493-0073. Certified Safety Professionals (CSPs) are exempt from all minimum requirements except Navy Ergonomics Program and Assessment Tools and Strategies, and Certified Industrial Hygienists (CIHs) are not required to take Introduction to Occupational Safety & Health, Introduction to Hazardous Materials, Introduction to Industrial Hygiene, and General Industry Standards.

NOTE:

Managers shall include in IDPs provisions for completing the core courses (or equivalents such as OSHTI courses) listed above. See reference 6-2 for instruction on preparation of IDPs.

e. Collateral Duty Safety Personnel.

(1) Regions or activities shall provide training to personnel to enhance the performance of their duties as specified by Navy programs within the nature and scope of the region or activity's operations.

(2) As a minimum, military and/or civilian personnel assigned collateral duty responsibilities for safety management shall satisfactorily complete the NAVOSHENVTRACEN course, *Introduction to Navy Occupational Safety and Health (Ashore)*, A-493-0050.

(3) Personnel conducting formal safety training are encouraged to complete a formal instructor-training course (e.g., *OSHA Train the Trainer*) or an equivalent course (as determined or approved by the cognizant Echelon 2 headquarters) prior to their assumption of safety duties.

(4) Managers shall prepare individual development plans (IDPs) for collateral duty safety personnel per the guidance provided in reference 6-2 and shall address training necessary to accomplish assigned duties.

f. First Aid and Cardiopulmonary Resuscitation (CPR) Training Requirements.

(1) The region or activity commanding officer shall provide first aid and/or CPR training to those personnel who require it, due to the nature of their work and responsibility. The manager shall:

(a) Identify those personnel who require such training.

(b) Ensure that training is conducted for those personnel identified in section 0602f(1)(a).

(c) Ensure maintenance of appropriate records or documentation, as required by this chapter.

(d) Coordinate development of procedures and requirements to ensure position descriptions are modified to include the requirement for training and administering CPR as a condition of employment, where necessary.

(2) As a minimum, regions or activities shall review the following categories of personnel to identify specific individuals or job positions required to administer first aid and/or CPR:

(a) Emergency response teams

(b) Fire department personnel

(c) Security personnel

(d) Medical provider(s)

(e) Safety and industrial hygiene personnel

(f) Electrical power plant, power distribution, electrical and electronics personnel

(g) Supervisors of above personnel or of personnel whose jobs pose comparable risks or risk of severe injury

(h) Personnel whose jobs pose comparable risks to above personnel or who work at remote sites.

(3) The primary source of training should be through the American Heart Association facilitator located at Navy hospitals and clinics. The American Heart Association course of instruction is provided to Navy personnel through the Navy Military Training Network, the approved DOD Lead Agent for all Resuscitative Medicine Training. The American Red Cross is another recognized CPR training certification source. First aid training may be through the BUMED hospitals/clinics or through nationally recognized consensus standards training developed by the American Red Cross for Basic and Advanced First Aid.

(4) Regions or activities shall obtain refresher training as necessary to maintain current certification of the trained personnel.

NOTE:

Personnel undergoing this training should use mouthpieces in CPR as personal protective equipment to prevent exposure to bloodborne pathogens.

0603. Safety Training for Forces Afloat

The shore establishment provides both logistic and training support to forces afloat. The Navy encourages fleet units to attend special topic training applicable to local geographic area programs on safety and HMC&M when they are available and/or appropriate. References 6-3, and 6-4 provide specific details on forces afloat training requirements.

0604. Educational and Reference Materials

Educational and promotional materials such as posters, films, technical publications, pamphlets and related materials are useful in promoting the reduction and prevention of workplace-related accidents and illnesses. Navy regions and activities shall maintain and subscribe to appropriate materials as an integral element of the program.

a. Reference Library. Each Navy region or activity shall maintain a suitable safety and health reference library appropriate to the size and functions of the region or activity.

b. Defense Automated Visual Information System. A current library of safety and occupational health videotapes and interactive multimedia instructions (IMIs) useful for activity and regional training curricula may be ordered via the Defense Automated Visual Information System's (DAVIS) website at http://dodimagery.afis.osd.mil/dodimagery/davis/. The library

contains media from all service branches and may be used by DOD activities at no cost and without restriction.

c. National Safety Council Material. Regions and activities may make arrangements to purchase National Safety Council educational and promotional materials through a Federal Supply Schedule contract and local funding. Regions and activities shall use Schedule Title: FSC Group 76, Part 1 to purchase various safety-related publications, posters, periodicals and films.

d. Information Sources on Hazardous Materials.

(1) The Department of Defense (DOD) Hazardous Material Information System (HMIRS) provides information on the safe use, transportation, handling, storage and disposal of HM. Information is designed to educate personnel on the safe use and storage of HM, protective equipment and emergency treatment. Personnel shall refer questions on the HM program to:

Commanding Officer
Navy Environmental Health Center
620 John Paul Jones Circle, Ste. 1100
Portsmouth, VA 23708-2103
Telephone: (757) 953-0746
DSN (377) 0746
FAX: (757) 953-0689
DSN Fax 377-0689

or

Commander
Naval Supply Systems Command
P.O. Box 2050
5450 Carlisle Pike
Mechanicsburg, PA 17055-0791

(2) A variety of materials are available to assist naval regions and activities in implementing HM and HAZCOM programs. Sources of instructional material include a DOD/Federal Agency Hazard Communication Training Program (see Appendix 6-B); manufacturer's material safety data sheets (MSDSs); product labels; and technical publications, such as the National Institute for Occupational Safety and Health (NIOSH) criteria documents, OSHA regulations and publications and various commercial subscription services. See chapter 7 for additional information on HAZCOM.

e. Other Material. Various periodicals (such as Ashore, the Navy's official shore safety magazine) are available from the Naval Safety Center 375 A Street, Norfolk, VA 23511-4399, (757) 444-3520, ext7256. Ashore as well as other publications are available on the Naval Safety Center's website at www.safetycenter.navy.mil/. Occupational Hazards magazine is available at no cost from Penton Media Inc., 1100 Superior Ave., Cleveland, Ohio 44114-8245, and (216) 696-7000. Applicable portions of the Federal Register are also helpful in updating information for training programs.

NOTE:

Citation of specific educational or reference material does not constitute approval of, or an endorsement of the publication. Rather, it is intended to provide an example of the type of publication.

0605. Record keeping (Shore Regions and Activities)

Navy regions' and activities' safety offices shall ensure maintenance of training records for 5 years. For military personnel, the safety office shall record training in the Service Record following applicable regulations. Copies of official training records may accompany personnel transferred within the Navy. Region and activities' safety offices shall make the records accessible to authorized personnel involved in safety, occupational health and the management and administration of HM/HW.

a. The minimum required record keeping data for individuals trained includes the following:

Name Rate/Rant/Series
Organization
(Code/shop)
Job title

b. For each training session or course an individual completes, the following data is needed:

Course Date(s)
Course Title
Instructor's Name
Description and/or Reference to Lesson Plan

c. For each training course, the region or activity shall implement a means to determine the effectiveness of the training. This may take the form of end-of-course testing, follow-up testing, feedback systems, etc. For National Safety Council products/training, go to www.nsc.org/.

d. Safety offices shall maintain copies of lesson plans used for local training classes.

0606. Professional Certification

Certification of individuals in their professional specialty is highly desirable and fully supported by the U.S. Navy. Commanders of local commands should encourage personnel to obtain professional certification, such as certified safety professional (CSP), certified industrial hygienist (CIH), certified occupational health and safety technologist (OHST), certified occupational health nurse (COHN), and certification by the American Board of Preventive Medicine in occupational medicine (ABPM). Local commands shall support the efforts (within funding capabilities) for the certification of their staff by providing funding for preparatory courses and attendance at meetings/courses for the purpose of maintaining certification. NAVOSHENVTRACEN offers CIH, CSP or CHMM computer study programs for those individuals preparing for the certification examinations. For information on OHST, ASP and CSP certification, contact the Board of

Certified Safety Professional's website: www.bcsp.org/. For CIH certification, contact the Institute of Hazardous Materials Management's website: www.abih.org/. For Certified Hazardous Materials Manager (CHMM) certification, contact the Institute of Hazardous Materials Management's website: www.ihmm.org/. For COHN certification, contact the American Board for Occupational Health Nurses at www.abohn.org.

The performance of occupational health and safety management is far more complex than ever before. As such, safety specialists (GS 0018), especially those desiring to serve as safety managers and directors, at the activity or regional level should possess for purposes of qualification an undergraduate degree from an accredited college or university and have demonstrated timely progress toward safety, occupational health, or industrial hygiene certification. The two certifications currently recognized are Certified Safety Professional (CSP) and Certified Industrial Hygienist (CIH).

For civilian personnel, 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. 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 6-5 for further details.

0607. Responsibilities

a. Chief of Naval Operations (N09F) shall establish policy for safety and HMC&M training programs.

b. CNO (N09F) and provide resources for safety and HMC&M training programs.

c. Naval Education and Training Command (NETC) and/or Naval Personnel Development Command (NPDC) shall perform those duties identified in section 0206e as well as:

(1) Integrate safety as appropriate into all Navy training

(2) Develop HMC&M Navy Training System Plan (NTSP)

(3) Evaluate training to ensure courses met the training guidelines

d. Navy Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) shall:

(1) Direct, coordinate, monitor and evaluate the adequacy and effectiveness of safety and HMC&M training.

(2) Implement assigned actions in the safety and HMC&M Navy Training System Plan (NTSP).

(3) Ensure safety and HMC&M courses are listed in the Catalog of Naval Training (CANTRAC), NAVEDTRA 10500.

e. Commander, Naval Safety Center and Commander, Navy Personnel Development Command shall maintain a Memorandum of Agreement to establish appropriate policies, responsibilities, and execution of safety and occupational health training.

f. Naval Inspector General (NAVINSGEN) and President, Board of Inspection and Survey (PRESINSURV) shall include evaluations of safety training programs as a part of all inspections.

g. Commanders of Headquarters Commands shall:

(1) Establish programs to provide safety training to personnel under their authority. To encourage efficient use of resources and avoid duplication of effort, commanders shall utilize existing programs in other commands, other DOD components, OSHA and other Federal agencies wherever practical. In the event other service, agency or contract training is used, the local region or activity remains responsible for record keeping.

(2) Submit to the NAVOSHENVTRACEN by 1 September each year, via the chain of command, a listing of the next fiscal year training requirements for safety and occupational health personnel. The listing shall identify courses and/or subject matter by recommended delivery location and anticipated number of command attendees. The listing may include prioritized training requirements considered necessary to comply with standards.

h. Commanders, Commanding Officers, Directors and Officers in Charge shall:

(1) Identify local safety training requirements and sources for training appropriate for personnel and operations under their cognizance.

(2) Accomplish training consistent with the region or activity needs and the requirements of this chapter as set forth in a local written training plan.

(3) Maintain local training records.

Chapter 6

References

6-1. 29 CFR 1960, Basic Program Elements for Federal Employee Occupational Safety & Health Programs and Related Matters Section 1960.28, "Employee Reports of Unsafe/Unhealthful Working Conditions." http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=11279.

6-2. NAVEDTRA Publication 10076A, Career Development Program for Safety and Occupational Health and Industrial Hygiene Personnel http://safetycenter.navy.mil/training/aids/files/cdp.pdf.

6-3. OPNAVINST 5100.19D of 30 August 01, Navy Occupational Safety and Health Program Manual for Forces Afloat. http://www.safetycenter.navy.mil/instructions/afloat/510019D.htm.

6-4. Navy Occupational Safety and Health and Hazardous Material Control and Management Navy Training Plan (NTSP S-40-8603D) http://www.safetycenter.navy.mil/instructions/osh/NTSP_S-40-8603D.pdf.

6-5. Department of the Navy (DON) Civilian Human Resources Manual, Subchapter 410: http://www.donhr.navy.mil/donchrm/410_SubCHnew.asp.

Appendix 6-A

Safety and Occupational Health Training Requirements

Type of Training	Top Management Personnel	Supervisory Personnel & Employee Reps.	Non-Supervisory Personnel	Collateral Duty Safety Personnel	Full-Time SOH Profs.
Safety Orientations***	CH-6, Section 0602a	CH-6, Section 0602b	CH-6, Section 0602c	CH-6, Section 0602e	
Hearing Conservation (when applicable)		Initial and Annual refresher IAW CH-18	Initial and annual refresher IAW CH-18		
Asbestos Hazards (when applicable)		Initial and annual refresher IAW CH-17	Initial and annual refresher IAW CH-17		
Respiratory Protection (when applicable)		Initial and annual refresher IAW CH-15	Initial and annual refresher IAW CH-15		
Lead (when applicable)		Initial and annual refresher IAW CH-21	Initial and annual refresher IAW CH-21		
Exposure Monitoring				CH-8	CH-8
Hazardous Material	See appendix 6-B	See appendix 6-B	See appendix 6-B	CH-7	CH-7
Confined Space Entry		CH-27	CH-27	CH-27	CH-27
Safety & Occupational Health Topics (as applicable)	Monthly (as appropriate)	Monthly *	Monthly *		

Type of Training	Top Manageme nt Personnel	Supervisory Personnel & Employee Reps.	Non-Supervisory Personnel	Collateral Duty Safety Personnel	Full-Time SOH Profs.
Professional Development (as applicable)				4 CEUs/ equivalent year**	8 CEUs/ equivalent year**
Personal Protective Equipment (PPE) (when applicable)		Initial IAW CH-20	Initial IAW CH-20		
Laser Safety Training (when applicable)		Initial and annual refresher IAW CH-22	Initial and annual refresher IAW CH-22		
Ergonomics (when applicable)		Initial IAW CH-23	Initial IAW CH-23		
Energy Control (when applicable)		Initial IAW CH-24	Initial IAW CH-24		
Weight Handling (when applicable)		Initial and annual refresher IAW CH-31	Initial and annual refresher IAW CH-31		

NOTES:

NOTE: THE HOURS/CONTINUING EDUCATION UNITS (CEUs) GIVEN ABOVE ARE RECOMMENDED AND NOT MANDATORY EXCEPT WHERE SPECIFIED ELSEWHERE IN THIS MANUAL. THE MEASURE OF SUCCESS OR COMPLIANCE IS KNOWLEDGE AND UNDERSTANDING OF SUBJECT MATTER, NOT LENGTH OF TRAINING. OFF-THE-SHELF VIDEO TRAINING TAPES AND COMPUTER-BASED TRAINING PROGRAMS ARE TO BE USED ONLY AS SUPPLEMENTAL TRAINING TOOLS SINCE THESE TRAINING AIDES DO NOT NECESSARILY MEET ALL TRAINING REQUIREMENTS ESTABLISHED IN THIS CHAPTER OR BY OSHA.

* Cover various topics applicable to employees including mishaps, compensation, MSDSs, work procedures, smoking, stress, plans and goals, radiation, etc. The supervisor can provide these at "stand-up" safety meetings at industrial regions or activities, safety stand-downs or through routed handouts/publications in offices. Formal classroom training is not required, however, where meetings or informal classroom training are conducted, document training by roster with subject, date, instructor and attendees; electronic media can be used to document such training. For non-industrial (office) regions or activities, or personnel, the supervisor should use monthly or periodic "captain's call" or other meetings or methods to distribute information to promote safety.

** Continuing Education Unit: One Continuing Education Unit (CEU) is awarded for each 10 contact hours of instruction. One and one tenth CEUs is generally equivalent to one college course credit hour. For Certified Industrial Hygienists: 5 certification maintenance (CM) points (or 1 week per year) are required to maintain certification. For Certified Safety Professionals: 5 points per year are required for Continuation of Certification (COC). To certify as an Occupational Health Nurse (OHN), a nurse must be registered, have 5 years experience as an OSH, and have 50 contact hours in the past 5 years. To re-certify an OHN must have 4,000 hours of OHN practice and 75 contact hours of continuing education in the past 5 years. For CEU courses, 1 CEU equals 1 COC point and for non-CEU courses, 3 hours of instruction equals 1/4 COC point. (Regions and activities should provide other occupational health professionals with appropriate levels of professional training.)

***All new employees regardless of their position require safety orientation training.

Acquisition Safety Training

Type of Training [a]	Top Management Personnel	Others [b]	Full-Time SOH Professionals
Personnel working in areas associated with acquisition of defense systems and involved in maintenance operations for major weapons systems (ship, aircraft) [a][c]			
Systems acquisition training [c] [d]	Acq 101 [c]	Others [b]	Acq 101 [c]
Personnel involved with facility design, review of facility plans and related safety engineering and industrial hygiene support [e]			
Facilities acquisition training [e] 2	Acq 101 [c] FE 201 [f]	Others [b]	Acq 101 [c] FE 201 [f]
Personnel involved with research and development organizations. There are two related acquisition management fields; [g] Systems Planning, Research, Development and Engineering, Science & Technology (S&T) Manager (typically related to oversight and management of S&T goals and oversight and funding for research and technical customers); and Systems Planning, Research, Development and Engineering, Systems Engineering (typically related to engineering management policies and specification)			
Program management for S&T [h]	Acq 101 [c] STM 301 [i]	Others [b]	Acq 101 [c] STM 301 [i]

[a] **Knowledge of the Acquisition Process**: The Defense Acquisition Workforce Improvement Act (DAWIA) requires professionals involved in the "systems acquisition" process to receive training and certification managed by the Defense Acquisition University http://www.dau.mil/catalog/cat2004/Chapter%201.pdf. Systems acquisition involves needs identification, research/development, procurement of defense systems - including major platforms- aircraft, ships, vehicles, supporting equipment and weapons.

Navy personnel can use DON Acquisition One Source website at: http://www.acquisition.navy.mil/

[b] Others (Personnel who do not have safety as a primary job responsibility): Supervisory personnel, employee representatives, non-supervisory personnel, and collateral duty safety personnel should be considered for this training, where related to their primary job.

[c] Acq 101 = Acquisition 101 Fundamentals of Systems Acquisition (40-hour Internet course) providing familiarity with the acquisition process

[d] Recommend DAWIA Certification for personnel designated as SOH professionals at headquarters commands (e.g., NAVFAC, NAVAIR, NAVSEA, NAVSUP, MSC, SPAWAR, and BUMED) and at least one safety professional in each depot repair facility such as a Naval Air Depot or shipyard. (See note [a]).

[e] Recommend DAWIA Certification for designated SOH professional at headquarters of systems commands (e.g., NAVAIR, NAVSEA, NAVSUP, MSC, and SPAWAR) and at least one

safety and health professional in each major installation and/or depot repair facility such as a Naval Air Depot or shipyard become in Facilities Engineering. (See note [(a)]).

[(f)] 201 Intermediate Facilities Engineering (40-hour Internet course) providing familiarity with the facility engineering process and its role within the acquisition system. Pre-requisite, Acquisition 101.

[(g)] Recommend DAWIA Certification for designated SOH professionals at headquarters commands (e.g., NAVAIR, NAVSEA, NAVSUP, MSC, SPAWAR) and at least one safety and health professional in each major installation and/or depot repair facility such as a Naval Air Depot or shipyards associated with acquisition management supporting research, development and systems engineering. (See note [(a)]).

[(h)] Recommend DAWIA certification for industrial hygienists assigned to Naval warfare centers and other research establishments and the safety manager at these locations in order to become familiar with the R&D Process and Program Management fields related to research and development.

[(i)] STM 301 Program management for S&T Managers three day resident class. This course provides an understanding of the procedures and mechanisms used to transition advanced technologies and mechanism into war fighting systems. Pre-requisite: Acquisition 101 is highly recommended.

Appendix 6-B

Hazard Communication Training

This appendix provides guidelines for implementation of HAZCOM training at the local level. HAZCOM training is required to orient all personnel to the HAZCOM program as discussed in chapter 7 and training for personnel occupationally exposed to hazardous material. Regions and activities shall tailor the latter training to individual jobs and specific exposures. The OSHA HAZCOM Standard does not establish time requirements for training, but instead depends upon employee knowledge of the standard, the HAZCOM program plan, chemical hazards on the job and safe performance of the job. Regions and activities shall use that knowledge as the indicator of program effectiveness and compliance with the Standard. DOD has developed a HAZCOM training program, which meets OSHA requirements. The program, entitled *The Department of Defense Federal Hazard Communication Training Program*, consists of seven videotape lessons (DODFHCTP 3/4 Videotape 505215DN), a trainers guide (DOD 6050.5-G-1 of April 88) and a workbook for employees to complete in conjunction with the videotape lessons (DOD 6050.5-5-W of April 88). The videotapes are available from Navy audio-visual libraries and centers.

Category of Personnel	HAZCOM Training
Top Management	Initial
Supervisors and Employee Reps *	Initial and annual refresher plus spill response & emergencies for supervisors
Non-supervisory Personnel *,**	Initial plus OJT and refresher by supervisor, as required
Hazardous Waste Site Workers	29 CFR 1910.120(e)
Hazardous Waste Facility Workers	29 CFR 1910.120(p)
Emergency Response (Supervisors and Workers), HW Spill, Handlers & Cleanup Personnel	See 29 CFR 1910.120 and OPNAVINST 5090.1B

* For personnel occupationally involved with the use of or exposure to HM. All training must be accomplished prior to exposure to HM.

** OJT must include appropriate review of chemicals used such as review of Material Safety Data Sheets (MSDSs). Stand-up safety meetings can be used for this purpose. Retain records per section 0605.

Appendix 6-C

Occupational Safety and Health Administration Courses for Safety Professional Development

In order to meet IDP and career development needs of the occupational safety and health staff, the Occupational Safety and Health Administration Training Institute (OSHATI) provides a variety of alternative technical training courses. The following partial list of courses may be provided periodically by OSHATI or qualified contractors. More specific information on OSHATI courses may be found at http://www.osha.gov. Following is a list of courses that will be provided periodically either through OSHATI or qualified contractors. For more specific information on OSHATI courses, see annual OSHATI notices (OSHA Notice TED1).

Course No.	Title
200/A	Construction Standards
201/A	Hazardous Materials
203	Basic Electrical Principles
204/A	Machinery and Machine Guarding Standards
205	Cranes and Rigging Safety for Construction
206	Maritime Standards
207/A	Fire Protection and Life Safety
208	Cranes and Material Handling for General Industry
220	Industrial Noise
221	Principles of Industrial Ventilation
222/A	Respiratory Protection
223	Industrial Toxicology
224	Laboratory Safety and Health
225/A	Principles of Ergonomics
226	Permit-Required Confined Space Entry
228	Recognition, Evaluation and Control of Ionizing Radiation
233	Indoor Air Quality
301	Excavation, Trenching and Soil Mechanics
304	Power Press Guarding
308	Principles of Scaffolding
309/A	Electrical Standards
310	Applied Spray Finishing and Coating Principles
311	Fall Arrest Systems
331	Hazardous Waste Site Inspection and Emergency Response

CHAPTER 7

HAZARDOUS MATERIAL CONTROL AND MANAGEMENT (HMC&M)

0701. Background

a. This chapter identifies safety and occupational health (SOH) functions and defines requirements and responsibilities for shore activity and region hazardous material control and management (HMC&M). HMC&M focuses on preventing, minimizing, or eliminating the introduction of hazardous material (HM) into the Navy system, substituting less hazardous HM for HM already in the Navy system, safely using HM in the workplace, and safely handling and disposing of hazardous waste (HW). HMC&M incorporates the requirements of the Occupational Safety and Health Administration (OSHA) Hazard Communication (HAZCOM) Standard, the OSHA Hazardous Waste and Emergency Response (HAZWOPER) Standard, the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Superfund Amendments and Reauthorization Act (SARA), or references 7-1 through 7-5 respectively. HMC&M involves a variety of local organizational and functional elements due to the requirements in reference 7-1, 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. HMC&M reinforces the importance of many basic SOH objectives and functions. All SOH personnel have a crucial role in support of the HMC&M program. Active participation of SOH staff in the program should reduce unnecessary functional overlaps and duplication of effort within the activity or region organization. Further, active and aggressive safety, HMC&M, and HAZCOM efforts are an optimal means to eliminate or control personnel exposures to HM in the workplace, as well as reducing Navy liability related to HM use. Management leadership and the active involvement of employees and supervisors in implementing HMC&M-related programs are essential.

c. This chapter summarizes the HMC&M program elements for shore activities, identifies functions for each element, and defines specific responsibilities and actions required for HMC&M program implementation including the implementation and maintenance of a Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP). Section 0704 addresses afloat requirements.

0702. Responsibilities

a. Chief, Bureau of Medicine and Surgery (BUMED) shall, in addition to the general occupational health responsibilities for HM evaluation and consultation addressed in chapter 8 of this instruction:

(1) Perform health hazard assessments (HHAs) for new HM or for new uses for existing HM and confirm requirements for toxicological research for new systems or for Navy-unique HM or Navy-manufactured HM. BUMED shall take action, as appropriate, to

ensure development of needed data for the safe use and handling of the HM in Navy systems, both ashore and afloat. Reference 7-6 provides additional guidance.

NOTE:

The Navy operates a toxicology research unit, the Naval Health Research Center Detachment Environmental Health Effects Laboratory (Toxicology) (TOXDET) at Wright Patterson Air Force Base, which conducts toxicological profiles (TP) HHAs for materials of operational concern for the Navy. The Navy directly uses TPs completed by this unit in the setting of allowable exposure limits for HM in operational scenarios. The National Academy of Sciences (NAS) Committee on Toxicology (COT) collaborates with this unit to ensure the quality of the HHAs, proposed allowable limits, TPs, and other application of toxicology information necessary to determine the hazards posed by identified materials. Reference 7-6 contains detailed guidance regarding the procedures for obtaining HHAs for operational use of HM.

(2) Assist Navy systems commands (SYSCOMS), program managers, Region Commanders and activities with implementing HMC&M requirements and performing HHAs associated with management of the facility level authorized use list (AUL). Additionally, BUMED shall, in conjunction with subordinate commands, perform risk assessments and evaluate the potential health hazards associated with reducing or eliminating the use of HM, including specification of protocols for substitution of less hazardous HM. BUMED will partner with the SYSCOMS, Navy Region Commanders, and individual Navy facilities to identify potential alternative actions, materials, and processes in support of cost effective compliance, promotion of personnel safety and health, and reduced emissions. Reference 7-8 provides additional guidance.

b. Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) shall, in conjunction with subordinate commands:

(1) Manage the supply system, develop and recommend to CNO (N09F)/ COMNAVSAFECEN, 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 the entry of new HM into the supply system.

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

(3) Provide guidance to, and coordinate efforts on Navy-wide HM substitution. Reference 7-8 provides guidance on substituting and eliminating HM.

(4) Provide assistance to implement Pollution Prevention program initiatives, CHRIMP, CHRIMP operating warehouses (known as HM Minimization Centers), and the Hazardous Substance Management System (HSMS) or Regional Hazardous Material Inventory

Control System (RHICS). Reference 7-9 provides guidance on CHRIMP implementation. Reference 7-13 provides guidance on implementation of CHRIMP afloat.

(5) With cooperation of Commander, Navy Installations (CNI), develop and implement. Regional CHRIMP operations as prescribed in Reference 7-10.

(6) Implement the Enhanced CHRIMP Afloat Program (ECAP) to improve shipboard HM management practices in cooperation with the Fleets as specified in Reference 7-10.

c. Naval Education and Training Command (NETC) and/or Naval Personnel Development Command (NPDC) shall incorporate HMC&M requirements into the Navy Occupational Safety and Health and Hazardous Material Control and Management Navy Training System Plan (NTSP 40-S-8603D) and provide HMC&M training management and training materials per chapter 6 of this instruction.

d. Commanders of Headquarters Commands and budget submitting offices shall coordinate with BUMED, COMNAVSUPSYSCOM, program managers, field activities, and Navy Region Commanders to implement and maintain HMC&M programs as required by this manual and references 7-7 through 7-10. Budget submitting offices shall provide safety support and funding appropriate to develop and implement HM elimination and substitution processes for all systems and operations under their cognizance. Budget submitting offices and subordinate command safety professionals shall assist in managing the facility AUL to ensure the use of non-hazardous or least hazardous, technically acceptable materials.

e. Navy Region Commanders shall coordinate with CNI, program managers, and field activities to which they provide support to implement, manage, and maintain HMC&M programs as required by this manual and references 7-7 through 7-11. Navy Region Commanders executing centralized HMC&M program functions on behalf of regional shore facilities shall comply with those provisions applicable to shore activities per this chapter and references 7-7 through 7-10.

f. Commanders, commanding officers, and officers in charge of Navy activities in foreign countries shall 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, or other official agreements which are more restrictive than U.S. regulations.

g. Commanders, Commanding Officers, and Commanding Officers of Installation Tenant Activities shall:

(1) Define and assign responsibilities within the facility for the HMC&M program and ensure compliance with this chapter and references 7-1 and 7-7 through 7-10.

(2) Develop, implement, manage, and revise as necessary an activity level HM AUL. The AUL shall include all HM and any materials having components that meet, or have potential to meet, the definition of HW per 40 CFR 261 during any phase of its existence.

Materials exempted by 29 CFR 1910.1200(b)(6) do not have to be listed on the AUL. For each HM listed, the AUL must include the stock number and item name (for stock numbered items purchased via the stock system) or the product name and manufacturer name as they appear on the product label/material safety data sheet (MSDS). In addition, the AUL shall identify the process(es) for each HM listed. The activity shall maintain this AUL for all HM it allows for use.

(3) Ensure that the appropriate SOH professionals perform a safety and health review of HM proposed for addition to the AUL prior to purchase of the HM and that a periodic review of the AUL is performed to eliminate unnecessary HM, substitute less hazardous HM where feasible, and comply with the provisions of reference 7-8. Contact the Navy Environmental Health Center (NEHC) for assistance, as required. See references 7-6 through 7-9 for further guidance.

(4) Develop, implement, and revise as necessary a facility level HM inventory that includes, as a minimum, the identity and quantity (by building) of HM present at the facility, including whether the material is an extremely hazardous substance, hazardous substance, or toxic chemical as defined under EPCRA (see chapter 3 in reference 7-7).

(5) Ensure HM is uniquely identified for reference, retrieval, and cross-reference between the label, MSDS, AUL, and HM inventory.

(6) Maintain an MSDS for all HM issued, received, or brought onto the facility. This requirement may be satisfied by subscription to an online MSDS service in lieu of maintaining a hard copy. This does not remove the requirements of Appendix 7-A. See appendix 7-A of this chapter for additional information.

(7) Establish systems to ensure that all HM is properly labeled per the requirements of reference 7-1. There are several allowable options for accomplishing this requirement. All HM must be labeled with:

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

(b) Standard Department of Defense (DOD) Hazardous Chemical Warning Labels (DD 2521 or DD 2522), or

(c) A label developed by the facility that contains the following information from the MSDS: the manufacturer's name, product identity, and hazard warnings.

NOTES:

- Labeling requirements outlined in this section do not apply to the labeling of FIFRA regulated pesticides. Substitute labeling may be in violation of FIFRA if the new labeling does not contain all of the information found on the original label.

- Activities and regions may accept the content of manufacturer-provided HAZCOM labels at face value and do not need to verify the technical content of the label. The activity or region shall, however, ensure that these labels provide the manufacturer's name, the product name, and hazard warning as required by reference 7-1.

- Labeling deficiencies should be reported to the external supply organization, manufacturer, or distributor that supplied the material to the activity or region.

- National Fire Protection Association (NFPA) labels do not comply with reference 7-1 and may only be used as a supplement to a HAZCOM compliant label.

(8) Implement and conduct CHRIMP operations as specified in References 7-7 and 7-10.

(9) Ensure activity managers, such as shop heads, general foremen, and supervisors participate in the HMC&M program by:

(a) Notifying the facility's responsible organization, usually the safety office or the HAZMIN center, if HM not allowed for use is delivered to the shop or work center. When notified, the responsible organization shall take action or provide guidance in rectifying the problem. This shall be accomplished before the HM is used.

(b) Overseeing their respective areas of responsibility to ensure that 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 disposal.

(c) Ensuring pipes, tanks, and breakdown containers within their respective areas of responsibility are properly labeled per paragraph 0702(g)(7)(c) and the region's or activity's written HAZCOM Plan.

(10) Ensure that a compliant hazard communication program is implemented at the facility. In meeting this responsibility, the facility's responsible organization shall:

(a) Participate in the DOD Hazardous Material Information Resource System (HMIRS) per the guidance contained in Appendix 7-A.

(b) Establish a system to ensure that current MSDSs are obtained and made readily available to employees during all working hours and that employees have an opportunity to review them prior to working with HM.

NOTE:

The term "readily available" means that employees who wish to do so must have access to MSDSs prior to beginning work with HM. It does not mean MSDSs must be available

in any specific time frame. As long as employees can obtain MSDSs prior to using HM, and there are no significant physical or administrative barriers that inhibit the employee's ability to gain access to a needed MSDS, the MSDS is readily available. It is also important to note that neither employees nor supervisors are required to have MSDSs in their possession, as long as the MSDS can be obtained when needed.

(c) Assist in establishing and implementing procedures for preparing MSDSs for locally developed or manufactured HM and conducting reviews of all locally prepared MSDSs.

(d) Establish criteria and procedures for reviewing incoming MSDSs to ensure they contain the information required by reference 7-1. Report MSDS deficiencies to the cognizant manufacturer/distributor for correction. Report deficiencies in the DOD HMIRS to NEHC at the address listed in Appendix 7-A.

(e) Provide reports and recommendations resulting from the safety and health review to appropriate line supervisors, managers, and the region or activity HMC&M committee (where established).

(f) Provide consultation on the identification of HM, the labeling and marking of HM containers for special applications or conditions of use, and for HM produced or manufactured locally by the facility.

(g) Ensure that a compliant written HAZCOM plan is implemented that addresses the key elements of reference 7-1.

(h) Establish a program that ensures employees receive required HAZCOM training. Assist supervisors and training specialists in conducting HAZCOM training when requested.

NOTE:

Safety professionals or collateral duty personnel assigned duties or responsibilities for the region or activity HMC&M program require the following courses, available through the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) or equivalent courses (as determined or approved by the Echelon 2 headquarters):

- Introduction to Hazardous Material (Ashore), course A-493-0031;

- Hazardous Material Control and Management Technician, course A-322-2600 (available and required only for shore and afloat commands with a Secondary Navy Enlisted Classification (SNEC) 9595 authorized billet requirement listed on the region's or activity's manning document.

(i) 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 MSDSs for contractor-owned HM.

(j) Ensure that the activity Pollution Prevention Plan adequately addresses unresolved safety concerns regarding the facility AUL, local purchases of HM, other HM management methods and means used to reduce and eliminate HM use, or operation of hazardous material minimization (HAZMIN) centers and implementation of CHRIMP and HSMS or RHICS, either directly or as support services.

0703. Headquarters Command, Budget Submitting Office, and Program Management Safety and Occupational Health Functions in Support of HMC&M

The full scope of HMC&M extends beyond safety and encompasses all aspects of management, logistics, acquisitions and environmental protection. Those aspects of HMC&M involving occupational environments and workplaces are a major component of SOH programs, and headquarters commands shall support them accordingly.

a. Headquarters commands and budget submitting offices shall assess environment, safety, and occupational health (ESOH) effects of chemicals and materials posing a high hazard potential in operations under their cognizance and use the results in all life cycle cost and trade-off decisions.

b. Headquarters commands and budget submitting offices shall coordinate with program managers to address safety aspects as an integral part of ESOH. Safety considerations shall be integral to system engineering processes, human factors engineering, and HM management principles and practices consistent with reference 7-12, DODI 4715.4, the DOD Desk Book, SECNAVINST 5000.2B, and SECNAVINST 5100.10H. Headquarters commands and budget submitting offices shall assist program managers whenever practicable to assess the ESOH effects of chemicals, processes, and materials posing a high hazard potential and use the results in all life cycle cost and trade-off decisions.

0704. Afloat HMC&M

Chapter 19 of reference 7-7, references 7-8 and 7-9, and chapters B3, C23 and D15 of reference 7-13 delineate functional responsibilities of key HMC&M participants aboard Navy ships. Reference 7-9 outlines responsibilities for CHRIMP operations, and Reference 7-10 prescribes requirements for the Enhanced CHRIMP Afloat Program (ECAP). In general, receiving shore activities shall coordinate with ships regarding the movement of used and excess HM and ensure that containers are properly labeled in accordance with reference 7-1 and section 0702, and ensure that MSDSs not already possessed by the shore activity are provided to the shore activity along with the applicable used or excess HM.

0705. Shore Activities in Foreign Countries

Safety offices shall support and participate in all HMC&M program elements discussed in section 0702 except where legally binding conflict exists with the laws of the foreign country and/or under local status of forces agreements or Final Governing Standards. In such cases,

the region or activity shall identify the conflict to the appropriate higher authority for resolution.

0706. Chemical Hygiene Plans

Activities or regions with laboratories, as defined in reference 7-11, shall 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 7-11 are met. There may be instances where a laboratory may need both a Chemical Hygiene Plan and a HAZCOM program. Cognizant headquarters commands shall assist subordinate activities in identifying specific laboratories that meet the definitions in reference 7-11.

0707. Process Safety Management

Activities or regions having processes that meet the threshold quantities of reference 7-14 shall follow the requirements of that reference.

Chapter 7

References

7-1. Title 29 Code of Federal Regulations (CFR) Section 1910.1200 of 1 Jul 97, OSHA Hazard Communication Standard, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099.

7-2. Title 29 CFR Section 1910.120 of 1 Jul 97, OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9765

7-3. Title 40 CFR Part 240 of 1 Jul 97, Resource Conservation and Recovery Act (RCRA), http://www.access.gpo.gov/nara/cfr/waisidx_99/40cfr240_99.html.

7-4. Title 40 CFR Subchapter J of 1 Jul 97, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), http://www.epa.gov/docs/epacfr40/chapt-I.info.

7-5. Title 40 CFR Part 302 of 1 Jul 97, Superfund Amendments and Reauthorization Act (SARA) http://www.access.gpo.gov/nara/cfr/waisidx_01/40cfr302_01.html.

7-6. BUMEDINST 6270.8A, of 2 Jan 02, Procedures for Obtaining Health Hazard Assessments Pertaining to Operational Use of Hazardous Materials http://navymedicine.med.navy.mil/Files/Media/directives/6270-8a.pdf.

7-7. OPNAVINST 5090.1B, of 1 Nov 94, Environmental and Natural Resources Program Manual.

7-8. NAVSUP Publication 718, Navy Guidance Manual for the Hazardous Material Substitution Process.

7-9. NAVSUP Publication 722, Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) Manual.

7-10. CNO ltr 5090, ser: N4/4u745710 of 4 Feb 04, CHRIMP/Regional HMC&M at Navy Shore Activities.http://www.naspensacola.navy.mil/logistics/N4%20ltr%205090%20(4Feb04).pdf.

7-11. Title 29 CFR Section 1910.1450 of 1 Jul 97, Occupational Exposure to Hazardous Chemicals in Laboratories, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10106.

7-12. DOD Instruction 6050.5 of 29 Oct 90, DOD Hazard Communication Program http://www.dtic.mil/whs/directives/corres/pdf/i60505wch1_102990/i60505p.pdf.

7-13. OPNAVINST 5100.19D CH-1, of 30 Aug 01 Navy Occupational Safety and Health Program for Forces Afloat http://safetycenter.navy.mil/instructions/afloat/510019D.htm.

7-14. Title 29 CFR 1910.119 of 1 Jul 97, OSHA Process Safety Management of Highly Hazardous Chemicals, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9760

7-15. Federal Standard (FEDSTD) 313, Material Safety Data Sheets, Transportation Data, and Disposal Data for Hazardous Materials Furnished to Government Activities Series, (NOTAL).

7-16. Defense Federal Acquisition Regulation (DFAR) clause 52-223-3 of Jan 97, Hazardous Material Identification and Material Safety Data http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/dfars/Dfars223.htm.

7-17. Public Law 94-499 of 17 Oct 86, Emergency Planning and Community Right to Know Act (EPCRA).

7-18. Defense Federal Acquisition Regulation (DFAR) clause 252.227-7013 of Nov 95, Rights in Technical Data-Non-Commercial Items, http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/dfars/dfars252_227.htm#P298_15719.

7-19. Executive Order 13101 of 14 Sept 98, Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition, http://www.ofee.gov/eo/13101.htm.

Appendix 7-A

Hazardous Material Information Resource System (HMIRS)

1. **Background and Discussion**

a. DOD established HMIRS to store and disseminate MSDS and related information on HM. 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 7-12. This appendix discusses the Navy's implementation and operation of HMIRS.

b. The Defense Logistics Agency (DLA) manages the DOD HMIRS. Local users receive MSDSs via vendors or suppliers who provide them per references 7-15 and 7-16. MSDSs sent by local users to a service focal point are the means by which HMIRS is populated and updated. The Navy service focal point for HMIRS is the Navy Environmental Health Center (NEHC).

c. The provisions of this appendix and reference 7-1 are not applicable to:

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

(2) The acquisition of laboratory quantities of chemicals or other HM when used by qualified professions in Navy laboratories as defined in reference 7-11. In both these situations, however, the special provisions of reference 7-1 apply.

2. **System Operation**

a. Vendors and Suppliers. Vendors selling material to DOD activities will submit a fully completed MSDS to the procuring activity or region per the procurement contract. Reference 7-15 contains instructions for completing the MSDS forms.

b. Commands, Region Commands, and Activities

(1) Contracting officers for Navy regions, shore activities, or ships purchasing HM or consumables through vendors or other federal agencies (e.g., DLA, Government Services Administration (GSA), etc.) shall require the MSDS as a line item deliverable in the contract, per reference 7-16, for all HM. Contracting officers shall attach a copy of documentation that adequately identifies the product (including National Stock Number (NSN)/Locally (service)-assigned temporary 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 region or activity) to the MSDS.

(2) Upon award and per reference 7-16, the contracting officer shall forward the MSDS (and the manufacturer's current hazard communication standard compliant hazard warn-ing label) to the Navy Environmental Health Center (NEHC), which is the Navy (service) focal point for MSDS submission. Submissions should be addressed to:

Commanding Officer
Navy Environmental Health Center (NEHC)
Attn: IH (HMIRS)
620 John Paul Jones Circle Ste. 1100
Portsmouth, VA 23708-2103

(3) For HM locally acquired (blanket purchases, direct buys or "off-the-shelf" purchases) by a Navy region, activity, or ship, that region, activity, or ship shall ensure it obtains an MSDS from the vendor and the MSDS is available at the activity. The Navy region, activity or ship shall determine whether the MSDS is present in the HMIRS and forward the MSDS to NEHC, at the address specified above if it is not present in the HMIRS.

NOTE:

There may be more than one MSDS for a given HM or stock number (LSN or NSN) due to formulation changes or different manufacturers.

(4) To fulfill the requirements of reference 7-1, each activity shall retain either the HMIRS MSDS or copies of the manufacturer's MSDSs for all HM received by that activity.

c. Navy Environmental Health Center (NEHC). NEHC shall:

(1) Act as the Navy service focal point for HMIRS, coordinate Navy HMIRS record processing and review, and train and certify Navy HMIRS data submitters.

(2) Review each MSDS for completeness.

(3) Ensure that all complete MSDSs are properly disseminated or processed for entry into HMIRS in accordance with the requirements and guidelines specified in reference 7-12.

(4) Notify the Naval Operations Logistics Support Center Transportation and Distribution (NOLSC – T & D) of each new Navy-managed HMIRS entry that has a corresponding NSN or LSN so that HMIRS transportation data can be prepared for the record.

(5) 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.

d. Naval Operations Logistics Support Center Transportation and Distribution (NOLSC (T&D)). Upon notification from the NEHC that a Navy-managed HMIRS record needs transportation data, NOLSC (T&D) shall prepare and enter transportation data HMIRS using the

procedures and guidelines found in reference 7-12.

e. Naval Sea Systems Command Detachment Radiological Affairs Support Office (NAVSEA DET RASO). Upon notification from NEHC that a Navy-managed record in HMIRS needs radiological data, NAVSEA DET RASO shall prepare and enter radiological data into HMIRS using the procedures and guidelines found in reference 7-12.

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 managed User Ids and Pass codes for HMIRS. Contact NEHC at the address listed above for more information about obtaining a User ID and Pass code for HMIRS.

b. The HMIRS Compact Disc – Read Only Memory (CD-ROM) set is produced on a periodic basis and contains the complete HMIRS database of MSDS and related information. The HMIRS CD-ROM is available in both proprietary (LR) and non-proprietary versions and is intended primarily for use by deployable units and activities that do not have reliable Internet access. The Naval Supply Systems Command (NAVSUPSYSCOM) manages the Navy HMIRS CD-ROM distribution list. Requests for distribution additions or changes should be forwarded to:

NAVICP-M
Attn: Code M0772
Building 312
5450 Carlisle Pike
P.O. Box 2020
Mechanicsburg, PA 17055-0788

4. **Proprietary Information**

The HMIRS outputs and MSDSs may contain information that the supplier considers proprietary. To protect both the supplier and the Government, the contract under which the MSDS is obtained from the supplier shall contain the "Rights in Technical Data and Computer Software Clause" of reference 7-15. 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. Local activities shall protect this data.

CHAPTER 8

OCCUPATIONAL HEALTH

0801. Discussion

a. The primary objective of the Navy Safety and Occupational Health Program is to ensure a safe and healthful work environment for all Navy personnel. The safety part of the program focuses on the elimination or control of the type of hazard that can result in instantaneous (acute) traumatic injury or death. The occupational health part deals with insidious health effects, usually produced by long-term (chronic) exposure to toxic chemicals or harmful physical agents (e.g., noise, radiation, etc.) and treatment of work related injuries. Since many hazardous agents can produce both acute and chronic effects, depending on the nature and degree of exposure, this control requires the close and continuing teamwork of all SOH personnel.

b. Two major specialties comprise the occupational health program: industrial hygiene and Occupational and Environmental Medicine (OEM). Each of these specialties has, as one of its major functional components, a long-term surveillance program. Industrial hygiene involves the anticipation, identification, evaluation and control of occupational health hazards. OEM focuses on the medical surveillance of employees potentially exposed to the hazards identified during the industrial hygiene workplace evaluation, the physical requirements of the job, and on the prevention, diagnosis and treatment of occupational injuries and illnesses. These two specialties working together form the basis for an active Occupational and Environmental Health (OEH) program. Their integration at the local level provides a valuable tool in preventing, identifying and treating occupational injuries and illnesses.

c. This chapter applies to occupational health efforts at all Naval shore activities including those that support Marine Corps activities. Reference 8-1 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 Occupational Health (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 DODI 4000.19 of 9 August 1995 (NOTAL).

0802. Industrial Hygiene

a. Navy industrial hygiene personnel anticipate, recognize, evaluate, and make recommendations to control unacceptable workplace exposures. Exposure assessment of Navy workplaces requires a sound, logical strategy and shall be based on references 8-2 through 1.1.1. Inform the Secretary of Defense on 8-5. 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 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

Chief, Bureau of Medicine and Surgery (BUMED) shall provide all Navy shore activities with a current, thorough occupational exposure assessment of each workplace per reference 8-2. BUMED activities shall routinely update the exposure assessment. The following subparagraphs outline the basic requirements for occupational exposure assessment.

c. 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 industrial hygienist (IH) shall conduct a survey of each workplace to obtain, as a minimum, the following information:

(1) Descriptions of operations, tasks and work practices that take place in the workplace (e.g., welding, spray painting). The description shall include a layout sketch incorporating relevant aspects of the factors listed below, along with the number of persons

assigned to the operation/task and the specific work area(s) occupied. The IH shall note the frequency and duration of events taking place within the workplace.

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

NOTE:

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

(3) 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).

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

d. 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 because of 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. 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 determining exposure levels.

(3) Make Judgments on Acceptability of the Exposure Profile for each SEG - The BUMED IH shall judge the SEG exposure profile as acceptable, uncertain, or unacceptable as defined in reference 8-3. The BUMED IH shall determine and document the rationale for each judgment. The BUMED IH shall evaluate and determine the adequacy of existing controls.

(4) Make Control Strategy Recommendations - The BUMED IH shall 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.

e. 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/or 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 shall 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 determining requirements for the medical surveillance of exposed personnel.

(2) Qualitative Exposure Decisions - Examples may include exposure modeling, biological monitoring or determining an appropriate Occupational Exposure Level. The BUMED IH shall 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.

f. 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 shall provide an exposure assessment report, as outlined in reference 8-3, to the surveyed activity.

(2) The cognizant BUMED IH shall maintain documentation on:

(a) Workplace basic characterization

(b) Exposure profiles

(c) Exposure assessment judgments and findings

(d) Health hazard controls

(f) Recommendations

(g) Reassessment frequency

(3) The cognizant BUMED IH shall 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 BUMED IH shall design this plan to obtain samples representative of actual exposures and to analyze the data collected to minimize any bias involved in the process. He or she shall base the plan on a sampling strategy, such as the one outlined in reference 8-4. Standards shall specify the frequency of monitoring. Where such standards do not exist, the IH shall use professional judgment to determine the frequency of monitoring. When the BUMED IH performs the exposure monitoring, he or she may incorporate the exposure-monitoring plan in the industrial hygiene report. If the BUMED IH takes this course, he or she shall include the following information: what must be sampled, how many samples are needed and how often the sampling should be performed. If the BUMED IH does not include the exposure-monitoring plan in the industrial hygiene survey report, he or she may use Appendix 8-A or a computer-generated facsimile (i.e., containing data fields of Appendix 8-A) for developing the exposure-monitoring plan, per reference 8-3.

NOTE:

IH's (or IH technicians or exposure monitors under the technical direction of an IH) shall conduct all exposure monitoring per reference 8-3.

Exposure monitors shall successfully complete the industrial hygiene techniques and exposure-monitoring course and a period of on-the-job training as determined and documented by the supervising BUMED IH.

g. Reassessment. The BUMED IH shall, at a minimum, conduct a periodic reassessment per appendix 8-B and provide a report for each serviced activity.

Regardless of any activity's category, the BUMED IH may specify more frequent evaluations for specific workspaces or processes depending upon the industrial hygiene exposure assessment. For example, isolated high hazard spaces within an otherwise administrative Category III activity - will require reevaluation more frequently than every 4 years. Regardless of their activity's category, the IH can evaluate all administrative workplaces and tasks at the Category III periodicity. For operations governed by reference 8-6 through 8-8, the cognizant IH shall comply with the exposure assessment required by those references. Any changes in the workplace that could affect exposures shall prompt a reevaluation. The surveyed activities shall establish procedures to ensure that the cognizant IH is notified of any such changes

0803. Retention and Access to Sampling Records (Disposition)

a. The BUMED IH shall forward individual exposure monitoring information to the cognizant OEM staff (or medical department supporting operational commands) for review and placement into the individual's medical record. (Section 0807 discusses medical records.)

b. BUMED shall retain survey, evaluation and sampling records (section 0802) 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 shall assure that access is provided in a reasonable time, place and manner as required by reference 8-9.

0804. Occupational Exposure Registry and Data Bank

The Navy requires standardization of industrial hygiene data (e.g., Defense Occupational and Environmental Health System (DOEHRS) and Industrial Hygiene Information Management System (IHIMS). Analysis of this data will allow for the assessment of hazardous operations Navy-wide and reduce personnel exposure to health hazards. To satisfy this requirement, personnel conducting surveys shall use:

a. Sampling survey forms contained in reference 8-3 or computerized equivalent (i.e., at a minimum containing the same data fields). Sample forms may be obtained by writing to Commanding Officer Navy Environmental Health Center, NEHC, 620 John Paul Jones Circle, Ste. 1100, Portsmouth, VA 23708-2103 or via the internet at: http://www-nehc.med.navy.mil/ih/ihfom.htm

b. Activities submitting their samples to laboratories other than the Consolidated Industrial Hygiene Laboratories (due to special projects or contracted services) shall submit a copy of analytical results to NEHC.

0805. Occupational and Environmental Medicine (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 healthy work- practices throughout the Naval workforce. 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

(b) Medical surveillance examinations per reference 8-10

(3) Fitness for duty medical evaluations (e.g., pre-placement, return-to-work, etc.).

(4) Job certification examinations per reference 8-10

(5) Worksite consultations

(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

b. For more details of program requirements see reference 8-11, "Occupational Medicine Field Operations Manual," Navy Environmental Health Center publication NEHC6260 TM96-2 at http://www-nehc.med.navy.mil/od/Documents/FOM.PDF.

0806. Consultative Assistance Teams

To facilitate OEH support, Consultative Assistance Teams (CATs) from NEHC IH and OEM directorates are available to provide timely, high quality, technical and professional assistance to field activities. CATs are available for all aspects of occupational health programs (e.g., industrial hygiene, OEM/nursing, audiology).

a. The three 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 affects 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. Any activity requiring CAT assistance shall submit requests to BUMED (M3F4) by letter or message. After receiving a request, BUMED shall contact the requesting activity and determine the scope of work. In emergency situations, a request by telephone is acceptable; however, confirmation by message or letter shall follow.

c. Limitations. CATs shall not conduct pre-NAVINSGEN OSH program oversight reviews. Requesting activities are ultimately responsible for all required sampling and surveys. CATs will not normally conduct complete routine periodic surveys, but will assist in evaluating new processes or environments.

0807. Medical Records

Maintenance, retention, and disposition of personnel medical records shall be performed in accordance with references 8-6 and 8-12.

0808. Responsibilities

a. Chief, Bureau of Medicine and Surgery (BUMED), through its Echelon 3, 4, and 5 activities, shall provide OH support Navy-wide (see chapter 2) including:

(1) A comprehensive industrial hygiene exposure assessment program as defined in section 0802 including:

(a) Initial and periodic exposure assessments of the conditions at each Navy shore activity.

(b) Technical direction of exposure monitoring programs, including training, procedures, sampling and analytical methods, sample analysis and analysis/interpretation.

(c) The industrial hygiene techniques and exposure-monitoring course.

(2) A comprehensive occupational medical program as defined in paragraph 0806.

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

(4) Participate in Workers' Compensation Working Group as requested.

(5) Other consultative occupational health support, as requested by the activity commanding officer to meet the requirements of this instruction.

b. Activity Commanders, Commanding Officers and Officers in Charge shall provide a safe and healthful work place for their employees and coordinate with the cognizant BUMED activity for the provision of the OH services described above. 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 shall supplement BUMED programs by the continued operation of their exposure monitoring programs.

Chapter 8

References

8-1. OPNAVINST 5100.19D, of Dec 05; Navy Occupational Safety and Health (OSH) Program Manual for Forces Afloat http://www.safetycenter.navy.mil/instructions/afloat/510019D.htm.

8-2. DODI 6055.5 of Jan 89, Industrial Hygiene and Occupational Health http://www.dtic.mil/whs/directives/corres/pdf/i60555wch1_011089/i60555p.pdf.

8-3. Industrial Hygiene Field Operations Manual of Dec 04, NEHC Technical Manual, NEHC-TM6290.91-2, http://www-nehc.med.navy.mil/ih/ihfom.htm.

8-4. AIHA "A Strategy for Occupational Exposure Assessment", latest revision (NOTAL) http://www.aiha.org/.

8-5. "DOD IH Exposure Assessment Model of January 00," DOD Industrial Hygiene Working Group Report 2000-1. https://www.denix.osd.mil/denix/Public/News/Army/DOHP/Occhealth/Documents/IHEAM/ihassessmodelv8.html.

8-6. Title 29 CFR 1910, Occupational Safety and Health Standards http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1910.

8-7. Title 29 CFR 1915, Occupational Safety and Health Standards for Shipyards http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1915.

8-8. Title 29 CFR 1926, Occupational Safety and Health Standards for Construction http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926.

8-9. Title 29 CFR 1910.1020, Subpart Z, Toxic and Hazardous Substances http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10027.

8-10. NEHC Technical Manual OM 6260 of Feb 01, Occupational Medical Surveillance Procedure Manual and Medical Matrix http://www-nehc.med.navy.mil/downloads/Occmed/Medical_matrix_Feb_2001.pdf.

8-11. NEHC Technical Manual NEHC 6260 TM96-2 of Apr 96, Occupational Medicine Field Operations Manual, http://www-nehc.med.navy.mil/od/Documents/FOM.PDF.

8-12. NAVMED P-117, revision of Aug 02, Manual of the Medical Department, http://www.vnh.org/Admin/MMD/001Contents.html.

Appendix 8-A

Exposure Monitoring Plan

OPNAV 5100-25

WORKPLACE INFORMATION				
Organization:				
Shop or Work Center:				
Location:				
Supervisor:		Phone:		
No of Workers	Male	Female:		
Shop Operations:				
Work Task	**Potential Hazard**	**Frequency/ Duration**	**Workers Involved**	**Controls ((E)xisting or (R) Recommended)**
EXPOSURE ASSESSMENT				
Comments				
Signed:		Date:		

5100/14(08/05)

MONITORING PLAN					
Task/Potential Hazard	**No. of Measurements**	**Method of Measurement[1]**	**Location of Measurement[2]**	**Frequency (per year)**	**Man-Hours (Per year)**

OPNAV 5100/14 (08/05) BACK

[1] Use the following codes:
DR - Direct reading instrument
IT - Indicator tube
AT - Adsorption tube (charcoal, silica gel, etc.)
B/I - Bubbler/Impinger
F - Filter
PD - Personal Dosimeter
O - Other

[2] Use the following codes:
GA - General area
BZ - Breathing zone of personnel
SZ - Source zone
O - Other (specify)

Appendix 8-B
Periodic Industrial Hygiene Reassessment Frequency Categories

ACTIVITY CATEGORY	REQUIRED IH EXPOSURE ASSESSMENT FREQUENCY	ACTIVITY EXAMPLES
I High Hazard	Annual	NAVSHIPYD, SRF, NAVAVNDEPOT, SIMA, AIMD, PWC, WEAPONS/ORDNANCE STATION, NAVIMFAC, TEST CENTER OR LAB, MEDICAL/DENTAL ACTIVITIES, ACU, BMU, PHIBCB, NUWC, NSWC
II Moderate Hazard	Every 2 years	NAVAL STATIONS, AIR STATIONS, NCTAMS, FISC, SEAL TEAMS, AVIATION SQUADRONS, SUBTRAFAC, FLTIMAGING, NAVFAC EFD, NCIS, NAVBASE, EXCHANGE, EOD, NAVCOMTELSTA, NAVCOMMU, FLETRACEN, FASO, NETC/NPDC, FACSFAC, NOSTRA, NSWC DET AND ALL SHIPS AND SUBMARINES
III Low Hazard	Every 4 years	ALL OTHER ACTIVITIES WITH PRIMARILY OFFICE OR CLASSROOM WORK, SUCH AS ADMINISTRATIVE HEADQUARTERS STAFFS AND ADMINISTRATIVE SUPPORT COMMANDS

Note: Where Category III activities have received a documented baseline industrial hygiene survey and it can be verified that the facilities and/or work processes have not changed since the last evaluation, the reevaluation does not require a site visit.

CHAPTER 9

SOH INSPECTION PROGRAM

0901. Discussion

The Navy Safety and Occupational Health (SOH) Inspection Program is necessary to ensure safe and healthful workplaces for all Navy employees. The inspection program identifies deficiencies that need correcting to protect personnel and meet regulatory requirements. The overall inspection program consists of three levels of inspection, each fulfilling different objectives:

a. Workplace Inspections. Regional safety service providers and activity commands shall inspect for hazardous conditions, unsafe work practices and violations of standards. They shall follow up on accident reports and abatement actions.

b. Command Evaluations. Headquarters commands shall ensure appropriate evaluations of safety program effectiveness are conducted at subordinate commands and field activities at a minimum of every three years per reference 9-1.

c. Oversight Evaluations.

(1) Naval Inspector General (NAVINSGEN). The NAVINSGEN shall conduct shore oversight inspections, as deemed appropriate, of headquarters and subordinate commands to evaluate compliance with requirements of the program.

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

0902. Qualifications for Inspectors

a. A successful inspection program requires trained, qualified, and competent inspectors. Inspectors shall 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 work place. The Navy shall base qualifications for inspectors on the degree of hazard and complexity of the inspection areas or operations.

b. As a minimum, a fully qualified journeyman safety inspector (GS-018, 019 or 803 classification series), shall have successfully completed the following courses available through the Naval Occupational Safety and Health and Environmental Training Center (NAVENVTRACEN): Occupational Safety and Health Assessment Tools and Strategies, A-493-0089; Introduction to Occupational Safety and Health (Ashore), A-493-0050; General Industry Standards, A-493-0061; Electrical Safety Standards, A-493-0033; Introduction to Hazardous Materials (Ashore), A-493-0031; Introduction to Industrial Hygiene, A-493-0035, Navy Ergonomics

Program, A-493-0085; Machinery and Machine Guarding Standards, A-493-0073. See Certified Safety Professional and Certified Industrial Hygienist exemptions in 0602.d(2).

NOTE:

Safety managers shall include in individual development plans (IDPs) provisions for completing the core courses listed above. See reference 6-2 for instruction on preparation of IDPs.

0903. Workplace Inspections - Shore Region or Activity Level

The region or activity's commanding officer shall ensure routine workplace inspections are conducted, and the cognizant medical activities provide occupational health support as necessary, refer to paragraph 0304.a regarding written agreements. Line managers/supervisors are responsible for day-to-day inspections and corrective actions.

a. Safety personnel shall inspect all workplaces at least annually. They shall inspect high hazard areas more frequently based upon an assessment of the potential for injuries, occupational illnesses, or damage to Navy property.

b. Section 0902 outlines qualifications for inspectors. In the event regions or activities do not have the required expertise, they shall make arrangements with the appropriate echelon commander to obtain assistance.

c. Regions and activities shall provide inspectors with appropriate technical test equipment, where required.

d. Regions and activities shall conduct inspections in a manner to preclude unreasonable disruption of the operations of the workplace. Inspections shall be consistent with the operational concepts of the Navy and local commands. Regions and activities may conduct these inspections with or without prior notice.

e. 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.

f. Inspectors shall 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.

g. When an inspector discovers an imminent danger situation during an inspection, he/she shall immediately notify supervisory personnel (in certain cases the commanding officer of the region or activity). Regions and activities shall initiate immediate abatement action or terminate the operation.

h. Inspectors shall provide Deficiency Notices for risk assessment codes (RAC) 1, 2 and 3 deficiencies to the official in charge of the operation within a reasonable time, but not later than 15 working days after the inspection. Inspectors shall provide a written report of the

inspection, including administrative findings, to the official in charge of the operation within 45 days of completion of the inspection. For notification purposes, they shall use OPNAV 5100/12, Deficiency Notice (Appendix 9-A), or a computer-generated form that includes all the information of OPNAV 5100/12. Inspectors can group multiple identical deficiencies in the same organization (jurisdiction of the same supervisor) or worksite into a single notice.

i. Regions and activities shall correct violations of standards and other deficiencies found during inspection per chapter 12.

j. Regions and activities shall conduct follow-up workplace inspections to verify that completed corrections have been made or that actions addressing specific problem areas are taken. When deficiency notices have been prepared, regions or activities shall use section C of OPNAV 5100/12 to document follow-up inspections. They shall 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.

k. Regions and activities shall retain inspection records for a minimum of five years.

0904. Command Evaluations

Headquarters commands shall ensure that appropriate evaluations of program effectiveness are conducted at subordinate commands and field activities at a minimum of every three years per reference 9-1. Whenever possible, these evaluations shall be part of a Command Inspection.

a. Command evaluations shall:

(1) Evaluate the results of mishap prevention efforts.

(2) Include a quality assessment of the region or activity Self-Assessment Program.

(3) Review compliance with program requirements, including this manual.

(4) Evaluate mishap trends.

b. NAVINSGEN program oversight evaluations may be used to meet this requirement.

0905. Oversight Program

a. A strong oversight program covering the total SOH program is central to its success. NAVINSGEN shall conduct oversight ashore to validate safety and occupational health program effectiveness. NAVINSGEN shall use SOH professionals and prioritize locations for oversight based on risk. To the maximum extent possible, the NAVINSGEN should coordinate scheduling to avoid conflicts with triennial headquarters command inspection schedules as they become available. Headquarters commands shall inform NAVINSGEN of command inspection schedules as they become available.

b. NAVINSGEN shall provide the CNO with semi-annual reports that identify safety program areas in need of improvement and recommended actions to enhance the overall Navy-wide safety program.

Chapter 9

References

9-1. DODI 6055.1 of 19 Aug 98, DOD Safety and Occupational Health (SOH) Program http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf.

Appendix 9-A
SOH Deficiency Notice

DEFICIENCY NOTICE		
SECTION A - DEFICIENCY INFORMATION	I.D. NO.:	
Organization:	Location:	
Description of Hazard:		
Standard Violated:	RAC:	
Safety Official:	Date:	
SECTION B - ABATEMENT STATUS (COMPLETE ALL APPLICABLE PARTS)		
• INTERIM CONTROLS		
• ABATEMENT PROJECT INITIATED		
Project Description:	Action Taken (Included Work Orders/Purchase Request numbers and date as appropriate):	
	Cost Estimate:	Completion Date (Est):
• DEFICIENCY CORRECTED		
Corrections Made:	Date:	
	Cost	
	Labor:	Material:
Signature:		
SECTION C - COMMENTS		

OPNAV 5100/12 (08/05)

CHAPTER 10

EMPLOYEE REPORTS OF UNSAFE/UNHEALTHFUL WORKING CONDITIONS

1001. Discussion

a. This chapter provides guidance on establishing a channel of communication between Navy civilian and military employees 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, both military and civilian. 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.

1002. 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 SOH program. Navy activities shall use the following procedures for submission of employee reports of unsafe or unhealthful conditions in the workplace per reference 10-1.

a. Immediately report unsafe or unhealthful working conditions. Since many safety and health problems can be eliminated as soon as they are identified, commanders shall encourage all Navy employees to orally report unsafe or unhealthful working conditions to their immediate supervisors who shall promptly investigate the situation and take appropriate corrective actions. Supervisors shall contact the activity occupational safety office for assistance, as necessary. Supervisors shall 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 Form 5100/11 shown in appendix 10-A may be used for this purpose. Commands shall 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 shall include a provision for an employee to indicate his/her desire to remain anonymous, should he/she wish.

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 shall maintain records of all hazard reports received. Records shall include: date, time, identifying reference number, location of condition, brief description of condition, hazard classification, and the date and nature of action taken. When necessary, the safety office shall 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 shall 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 ten working days). If the reported situation involves a health hazard, as opposed to a safety hazard, the safety office shall refer the report to the cognizant medical activity for investigation as necessary.

e. Provide an interim response to the report originator. The safety office shall provide an interim or complete response in writing to the originator of a written report within ten working days of receipt. Interim responses shall include the expected date for the complete response. If the investigator validates the reported hazard, the complete response shall include a summary of the action taken for abatement. If no significant hazard is found to exist, the reply shall include the basis for the determination.

f. Encourage the originator to follow through if he/she is dissatisfied. The complete response shall 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 shall indicate that formal appeals can be made and shall 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 shall 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.

1003. Appeals

a. If the originator of a report is dissatisfied with the assessment made by the region or activity safety office of the alleged hazard or with action taken to abate a confirmed hazard, the region or activity safety office shall encourage the employee to discuss the matter further. If the originator remains dissatisfied after such discussion, he/she may appeal up the chain of command. The written appeal shall contain at least the following information:

(1) A description of the alleged hazard including its location and standards violated, if known (a copy of the original hazard report shall suffice).

(2) How, when, and to whom the original report of the alleged hazard was submitted.

(3) What actions (if known) were 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 shall respond to the originator of the appeal within ten working days. The response shall 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/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 shall be through Echelon 4, 3, or 2, the Chief of Naval Operations (CNO) (N09F), the Deputy Assistant Secretary of the Navy (Safety) (DASN(S)), and the Assistant Deputy Under Secretary of Defense (Safety) (DASN (s)), and the Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health) (ADUSD(ESOH)). Each appeal shall include the information prescribed in paragraphs 1003a(1)-(4) with emphasis on the actions taken by the reviewing authority on the previous appeal and reasons why the originator is still not satisfied. Paragraph 1003b 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/she may contact the Office of Federal Agency Safety Programs, US Department of Labor, Washington, DC 20210.

1004. Reports to the Occupational Safety and Health Administration (OSHA)

Section 1002 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 Department of Labor (DOL) (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 for guidance concerning such investigations or inspections.

1005. Responsibilities

Regional or activity commanders, commanding officers, or officers in charge shall:

a. Publicize (e.g., posting, training) the existence of the employee hazard reporting program and notify personnel regarding their rights and obligations in regard to reporting hazardous situations.

NOTE:

Posting DD 2272, DOD Occupational Safety and Health Protection Program, alone is not sufficient notification to personnel of the existence of the employee hazard reporting program, nor is it sufficient explanation of their right to participate.

b. Maintain the anonymity of personnel making a report or named in a report if requested by the reporting or named employee.

c. Encourage the submission of oral reports to supervisors as the quickest and most effective method of hazard identification and correction.

d. Ensure that standardized hazard reporting forms and procedures are available to all personnel.

e. Include safeguards to ensure that the command does not subject Navy employees to restraint, interference, coercion, discrimination, or reprisal by virtue of their participation in the region or activity's safety program.

NOTE:

Personnel shall file allegations of reprisal for such participation under existing grievance procedures.

f. 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 10

References

10-1. DODI 6055.1, of 19 August 98, DOD Safety and Occupational Health (SOH) Program http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf.

Appendix 10-A

Navy Employee Report of Unsafe or Unhealthful Working Condition

Report Control Symbol OPNAV 5100/11

NAVY EMPLOYEE REPORT
OF UNSAFE OR UNHEALTHFUL WORKING CONDITION

THIS FORM IS PROVIDED FOR THE ASSISTANCE OF AN EMPLOYEE
AND IS NOT INTENDED TO CONSTITUTE THE ONLY METHOD BY WHICH A REPORT MAY BE SUBMITTED

1. THE UNDERSIGNED (check one) ☐ EMPLOYEE ☐ REPRESENTATIVE OF EMPLOYEES

BELIEVES THAT A VIOLATION OF AN OCCUPATIONAL SAFETY OR HEALTH STANDARD WHICH IS A JOB SAFETY OR HEALTH HAZARD HAS OCCURRED AT

a. Navy installation/region/activity and mailing address

b. Building or worksite where alleged violation is located, including address

2. NAME AND PHONE NUMBER OF GOVERNMENT SUPERVISOR AT SITE OF VIOLATION

3. DOES THIS HAZARD IMMEDIATELY THREATEN DEATH OR SERIOUS PHYSICAL HARM?

☐ NO ☐ YES

4. BRIEFLY DESCRIBE THE HAZARD WHICH EXISTS INCLUDING THE APPROXIMATE NUMBER OF EMPLOYEES EXPOSED TO OR THREATENED BY SUCH HAZARD

5. IF KNOWN, LIST BY NUMBER AND/OR NAME, THE PARTICULAR STANDARD (OR STANDARDS) ISSUED BY THE AGENCY WHICH YOU CLAIM HAS BEEN VIOLATED

6. TO YOUR KNOWLEDGE, HAS THIS VIOLATION BEEN THE SUBJECT OF ANY UNION/MANAGEMENT GRIEVANCE OR HAVE YOU (OR ANYONE YOU KNOW) OTHERWISE CALLED IT

O THE ATTENTION OF, OR DISCUSSED IT WITH, THE GOVERNMENT SUPERVISOR ☐ NO ☐ YES (List results, including any efforts by management to correct violation)	
7. EMPLOYEE NAME (PLEASE PRINT OR TYPE CLEARLY)	8. EMPLOYEE SIGNATURE
8. EMPLOYEE ADDRESS	10. EMPLOYEE PHONE NUMBER
11. MAY YOUR NAME BE REVEALED? ☐ NO ☐ YES	12. ARE YOU A REPRESENTATIVE OF ☐ NO ☐ YES (List
13. DATE FILED:	

CHAPTER 11

INSPECTIONS AND INVESTIGATIONS OF WORKPLACES BY FEDERAL AND STATE OSH OFFICIALS

1101. Background and Discussion

a. Per reference 11-1, Navy facilities are subject to Department of Labor (DOL) inspections with few exceptions.

b. In addition, with few exceptions, contractor operations at Navy activities are subject to DOL inspections.

c. 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.

d. The provisions that follow apply to the actions of Federal and State Occupational Safety and Health (OSH) officials while inspecting Navy shore installations, ships and Navy civilian workplaces. The inspection authority of Federal and State OSH officials is summarized in Appendix 11-A.

1102. Federal and State Occupational Safety and Health Inspections at Contractor Workplaces on Navy Shore Installations

a. The OSHAct provides for the development, issuance and enforcement of standards. 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. Accordingly, and subject to the conditions and exceptions stated here, Navy shore activities shall grant permission for Federal and State Occupational Safety and Health Administration (OSHA) officials, to enter their installations without delay and at reasonable times to conduct inspections of contractor workplaces. These inspections may be routine or based on reports of unsafe or unhealthful conditions, specific complaints, accidents or illnesses of contractor employees.

b. Federal and State safety and health officials shall present appropriate identifying credentials and shall state the purpose of the visit to the Navy shore installation commander or his/her authorized representative and to the administrative contracting officer (ACO) (if appropriate), before conducting an inspection of contractor workplaces situated on a Navy shore installation.

c. A State may exercise jurisdiction over OSH matters involving a contractor workplace at a Navy shore installation provided the State has an OSH plan approved by the Secretary of Labor. Exceptions are stated in paragraphs 1102e and f.

d. Authorized safety and health officials from States without OSHA-approved OSH 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 shall request the State to provide confirmation that there is no relevant Federal OSHA standard applicable to the contractor workplace.

e. Under reference 11-1, only Federal OSHA officials may perform inspections in DOD contractor workplaces situated in areas where the United States holds exclusive Federal jurisdiction.

f. The Secretary of Labor has no authority over nuclear safety/health or explosive safety aspects of operations specifically covered by:

(1) Any State nuclear safety or health standard or regulation implementing 42 U.S.C. Section 2021 and 2121(b), or 2201(b).

(2) Any explosive safety or health standard or regulation implementing 10 U.S.C. 172.

NOTE:

This does not circumvent Secretary of Labor authority over other health/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.

g. The Regional Commander and/or activity commanders shall immediately forward requests to inspect or investigate a contractor workplace, on a Navy shore installation involving handling or storage of ammunition or explosives, nuclear facilities or nuclear weapons by message to Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) with copies to the CNO (N4), COMNAVSAFECEN and the cognizant Echelon 2 command. All such requests shall identify the contractor workplace involved and furnish all other immediately available details. Installation commanders shall withhold access pending receipt of reply. Where granted, access shall be subject to the requirements of this manual and any conditions contained in the COMNAVSEASYSCOM reply. COMNAVSEASYSCOM shall furnish a reply as quickly as possible after receipt of the request.

h. Installation commanders shall not provide DOD contractors with advance notice of inspections by Federal or State OSHA officials except:

(1) In cases of apparent imminent danger to Navy or contractor employees.

(2) When specifically requested by Federal OSHA or State OSHA officials.

NOTE

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.

i. 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 following procedures apply:

(1) The Navy shore installation commander or the contractor, as appropriate, shall immediately notify the OSHA official and the Navy region or activity exercising security supervision over the contractor's workplace of the need for a personnel security clearance to enter the closed area.

(2) In the case of State OSHA officials or other State safety and health officials, the Navy security activity, after verifying the need for a personnel security clearance, shall in coordination with the State official, request the cognizant security office to contact the nearest OSHA regional or area office for a cleared Federal OSHA official to conduct the necessary inspection of the closed area.

(3) In the case of Federal OSHA officials, the Navy security activity, after verifying the need for a personnel security clearance, shall contact the appropriate cognizant security office and request:

(a) Verification of the Federal OSHA official's personnel security clearance.

(b) Expeditious processing of the visit request under reference 11-2. If the official's name is not on the list of cleared Federal OSHA personnel maintained by the cognizant security office, the Navy security activity shall request the cognizant security office to contact the OSHA regional or area office and request an appropriately cleared Federal OSHA official.

j. Federal or State OSHA officials or other state safety and health officials shall not take photographs on any Navy shore installation. Only Navy personnel or cleared contractor personnel shall take photographs requested by any such officials. Navy or contractor personnel shall not deliver photographs to the requesting official until all film, negatives, and photographs have been fully screened and classified by proper Navy authority, as appropriate, in the interest of national security. Activities shall 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 shall normally complete this process within a period of 15 working days from receipt of the material.

k. Representatives of the Navy shore installation, Regional Commander and the ACO (if appropriate), shall accompany Federal OSHA and State OSHA officials on inspections and investigations. Representatives of the contractor and contractor employees may accompany these officials where requisite security clearances are verified.

l. Federal OSHA or State OSHA officials shall 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 engineering field division (EFD) of the Naval Facilities Engineering Command (COMNAVFACENGCOM) has defined the boundaries, Navy shore installation commanders 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.

m. Navy shore installation commanders and/or Regional Commanders shall refer all information regarding citations and notices issued to Navy contractors for violations of OSHA, state OSHA or other State safety and health standards involving DOD-furnished equipment, facilities or other property to the responsible ACO for appropriate action. Shore installation commanders and/or Regional Commanders shall send a copy to CNO (N09F) with copy to COMNAVSAFECEN.

n. 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.

o. Regional Commanders and/or activity commanders shall advise CNO (N09F) with copy to COMNAVSAFECEN, 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.

1103. Federal and State Occupational Safety and Health Inspections of Contractor Workplaces Aboard Navy Ships

This section provides guidance and procedures regarding requests by Federal or State OSH officials to inspect or investigate contractor workplaces aboard Navy ships in port or located at associated facilities (e.g., repair operations).

a. Subject to the conditions and exceptions stated below, Navy afloat activities shall permit Federal OSHA compliance officials, to be taken aboard U.S. Navy ships in port to conduct safety and health inspections and investigations of contractor workplaces. Commanding officers shall not grant State occupational safety and health officials access aboard naval ships and service craft or in areas of exclusive Federal jurisdiction.

(1) Except for the limitations imposed in paragraphs 1103a(2) and (3), commanding officers shall provide OSHA compliance officials, upon request, immediate access to contractor workplaces where contractor employees are currently performing work or where the contractor has equipment or other work-related material or paraphernalia in the workplace under a government contract.

(2) If the requested inspection/investigation involves handling or storage of ammunition or explosives, commanding officers shall deny the request for access. The commanding officer shall make a report of any such request to COMNAVSEASYSCOM by message, with a copy to CNO (N09F) and COMNAVSAFECEN.

(3) With respect to 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 shall forward the request for access by message

and by the telephone to COMNAVSEASYSCOM with a copy to CNO (N09F) and COMNAVSAFECEN. All message requests shall identify the contractor workplace involved and furnish all other immediately available details. Commanding officers shall withhold access pending receipt of the reply. Where granted, access shall be subject to the requirements of this chapter and any conditions imposed in the COMNAVSEASYSCOM reply. COMNAVSEASYSCOM shall furnish a reply expeditiously, and, if possible, within a period of 3 working hours from receipt of the request.

(4) In cases of non-nuclear ships or nuclear ships, with the exceptions stated in paragraphs 1103a(2) and (3), and per the procedures in paragraphs 1103a(1), commanding officers shall grant access to contractor workplaces (as defined above) after requesting Federal OSHA compliance officials to conduct inspections and investigations of such workplaces within reasonable limits and in a reasonable manner during regular working hours (except when other times are mutually agreed upon by the concerned officials).

(5) OSHA officials shall not take photographs. Navy personnel shall take any photographs requested by OSHA officials. Commanding officers shall tentatively classify these photographs as confidential, and shall not deliver them to OSHA compliance officials until all film, negatives and photographs have been sent to COMNAVSEASYSCOM and fully screened and censored, as appropriate, in the interest of national security. Commanding officers shall forward any design or system performance data (e.g., recordings of noise sound level profiles, etc.) to COMNAVSEASYSCOM for screening, as above, prior to release. COMNAVSEASYSCOM shall complete this process within a period of 15 working days from the receipt of material.

(6) Commanding officers shall not give OSHA officials copies of any Federal records or reports. If OSHA officials request access to Navy records or reports, commanding officers shall forward the request to the appropriate releasing officials.

(7) In addition to presenting appropriate identification credentials, commanding officers shall require all OSHA compliance officials to possess appropriate security clearance for entry into areas where the contractor workplace is located.

(8) Representatives of the ship's commanding officer, and, if appropriate, the ACO and the commanding officer or officer in charge of the region or shore activity at which the ship is located, shall accompany the OSHA compliance official at all times during the physical inspection of contractor workplaces. A representative of the contractor and a representative of the contractor's employees may accompany the OSHA compliance officials during the inspection/investigation provided proper security clearances are verified. If there is no authorized contractor employee representative, the OSHA compliance officer is only authorized to consult with a reasonable number of contractor employees concerning matters of health and safety in pertinent workplaces.

(9) OSHA compliance officials may privately question contractors, contractor employees or their authorized representatives during their inspection.

b. Unless the responsible OSHA official specifically requests it, Regional Commanders and/or activity commanders, and ship commanding officers shall not provide contractors with advance notice of OSHA inspections, except in cases of apparent imminent

danger to Navy or contractor employees. Any person who violates the foregoing is subject to a fine of not more than $1,000 or to imprisonment of not more than 6 months, or both.

c. Ship commanding officers shall report full information regarding any OSHA inspection/investigation or request for inspection aboard ship in writing to the ships chain of command with copies to CNO (N09F), COMNAVSAFECEN, and COMNAVSEASYSCOM, see reference 11-5 for more detailed information.

1104. Federal Occupational Safety and Health Inspections of Navy Civilian Workplaces

a. Under the provisions of reference 11-1, Federal OSH 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. Such inspections may be in response to a complaint from a Navy civilian employee or employee representative. They may schedule these inspections as part of DOL's targeted inspection program or as part of an evaluation of the DOD safety program. These inspections may also be solely at the discretion of the Secretary of Labor.

b. In addition to the exclusions mentioned above, the Secretary of Labor has no authority over nuclear safety/health or explosive safety aspects of operations specifically covered by:

(1) Any State nuclear safety or health standard or regulation implementing 42 U.S.C. 2021.

(2) Any nuclear safety or health standard or regulation implementing 42 U.S.C. Section 2021, 2021(b) or 2201(b).

(3) Any explosive safety standard or regulation implementing 10 U.S.C 172.

NOTE:

This does not circumvent Secretary of Labor authority over other health/safety matters in the same operations. For example, a workplace in a munitions depot, subject to DOD explosive safety standards, is subject to OSHA jurisdictions for matters relating to machine guarding, noise, etc.

c. Navy regions and/or activities employing civilians shall designate a coordinator with whom Federal OSHA officials may interface for inspection purposes. Regional Safety offices shall be the designated representatives for all activities to which they provide safety services.

d. Federal OSHA officials shall initially report to the Navy installation commander or his/her authorized representative, present identification credentials, and state the purpose of the visit. Regional Commanders and/or installation commanders shall admit these officials to conduct inspections of authorized Navy workplaces without delay, at reasonable times and in a reasonable manner. If the inspection is to involve areas/operations excluded under the provisions of paragraphs 1104a or 1104b, Regional Commanders and/or installation

commanders shall withhold permission for immediate access and forward a request for access by message and by telephone to CNO (N09F) and COMNAVSAFECEN and the appropriate chain of command having management cognizance. All requests shall identify the exclusion under consideration, and CNO (N09F) shall furnish an expeditious reply upon receipt of the message, as well as identifying other pertinent details regarding the inspection that must be performed.

e. Navy installation commanders shall require Federal OSHA inspectors to show appropriate security clearances if they require entry into closed areas. Federal OSHA officials must verify all security clearances. Navy personnel shall take any photographs these officials request in these areas. Navy Regional Commanders and/or installation commanders shall tentatively classify such photographs CONFIDENTIAL and shall not deliver them to Federal officials until higher authority (i.e., Echelon 2 and 3 commanders) have screened/classified all film, negatives and photographs as appropriate, in the interest of national security.

f. Representatives of the Regional and/or activity commander shall accompany Federal OSHA inspectors at all times.

g. Upon request, Navy Regional and/or installation commanders shall grant Federal OSHA officials access to available safety and health information related to Navy civilian employees. 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. Regional Commander and/or installation commanders shall also grant Federal OSHA 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 shall:

(1) Refer requests for copies of Judge Advocate General (JAG) investigative reports to the JAG (Code 35).

(2) Refer requests for copies of accident investigation reports to Commander, COMNAVSAFECEN (JAG), per reference 11-4.

h. Federal OSHA officials may interview or be accompanied by civilian employees or employee representatives with appropriate clearances during their visit.

i. If Federal OSHA officials issue reports or notices of unsafe or unhealthful working conditions discovered during their inspections, the commander of the inspected Navy activity shall or the Regional Commander on behalf of the inspected Navy activity shall forward a summary report with a copy of such notices immediately to CNO (N09F) and COMNAVSAFECEN. The commanding officer shall provide information copies to the chain of command having management cognizance. The commanding officer shall treat deficiencies discovered during such inspections in the same manner as deficiencies noted during internal Navy inspections.

j. If reports of inspections by Federal OSHA officials require a response, the commander of the inspected Navy activity shall provide such responses. Regional commanders shall provide responses for commands receiving safety support from the Regional host. Commands may participate in informal conferences with OSHA officials, and utilize established OSHA review/appeal procedures for Federal agencies in developing final resolutions to issues raised in OSHA inspections. Parent commands may require headquarters coordination prior to such responses. The activity commander shall 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 DOL channels.

(1) Replies to OSHA violation notices shall be within time frames assigned by OSHA, shall specifically state abatement action and shall include appropriate backup information.

(2) If the command cannot resolve deficiency or abatement actions at the local level, it shall refer them up the chain of command for resolution.

1105. OSHA Targeted Inspections

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 shall identify high injury frequency work areas and specify actions to reduce mishap experiences. OSHA will notify activities targeted, by letter, at the beginning of the fiscal year and request that they prepare targeting plans. Regions and/or activities may use self-assessment improvement plans, as discussed in chapter 5, as a substitute for the targeting plans. Targeted activities shall forward copies of the plans to the chain of command, CNO (N09F) and COMNAVSAFECEN. Targeted activities shall also notify the chain of command, CNO (N09F), and COMNAVSAFECEN of inspection dates, and provide copies of reports and replies to reports.

1106. Overall Information Security Requirements

State and Federal agencies exercising their regulatory authorities in the area of occupational safety and health will periodically visit Navy activities. Regions 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 regions and activities shall use the following guidelines:

a. Permit only personnel with appropriate security clearances access to classified information, under reference 11-2. Limit such access to classified information required to resolve the matter at hand.

b. Navy commands 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.

c. 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.

d. Classified or sensitive unclassified information produced during litigation or administrative proceedings also requires protection. Seek advice from the Office of the Judge Advocate General (Navy JAG) or cognizant Office of General Counsel (OGC) to ensure the classified or sensitive unclassified information is properly protected per reference 11-3.

Chapter 11

References

11-1. DODI 6055.1 of Aug 98, Department of Defense Occupational Safety and Health Program. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf.

11-2. SECNAVINST 5510.30A of Mar 99, Department of Navy Personnel Security Program. http://neds.daps.dla.mil/551030.htm.

11-3. SECNAV Instruction 5510.36 of Mar 99, Department of Navy (DON) Information Security Program (ISP) Regulation. http://neds.daps.dla.mil/551036.htm.

11-4. OPNAVINST 5102.1D/MCO, of 25 May 05, Safety Investigation, Reporting and Record Keeping Manual, http://www.safetycenter.navy.mil/instructions/ashore/5102/default.htm

11-5. OPNAVINST 5100.19D of 30 August 01, Occupational Safety & Health Program Manual for Forces Afloat. http://www.safetycenter.navy.mil/instructions/afloat/510019D.htm.

Appendix 11-A

Inspection of Department of Navy Workplaces by Federal and State OSH Representatives

	SHORE			AFLOAT		
	Contractor Workplaces	Civilian Employees' Workplaces	Exclusively Military Unique Workplaces	Contractor Workplaces	Civilian Workplaces	Exclusively Military Unique Workplaces
Federal OSH Representatives	YES 4,5	YES 4,5	NO	YES 3,4,5	YES 3,4,5	NO
State OSH Representatives	YES 1,2,4,5	NO	NO	NO	NO	NO

NOTES:

1. State OSH plan must be approved by the Department of Labor. If State plan is not approved, access may be denied. However, States without approved OSH plan may inspect contractor worksites only is 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 OSH representatives have no jurisdiction over military unique operations or equipment. 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).

5. Inspections may be announced or unannounced.

CHAPTER 12

HAZARD ABATEMENT PROGRAM

1201. Discussion

a. The Navy incurs significant costs every year as a result of injuries, illnesses and property damage resulting from workplace hazards. Therefore, it is essential that the Navy develops and maintains programs to eliminate or control all identified hazards in a systematic manner.

b. Navy regions and activities shall utilize the policy guidance discussed in this chapter to develop occupational safety and health (OSH) hazard abatement (HA) programs. These programs place the primary responsibility for corrective action upon shore commanders, with assistance as required from higher-level commands.

c. 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.

(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 shall be brought to the attention of the appropriate party for corrective action. The Federal Property Management Regulations (reference 12-1) 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 shall refer problems that cannot be resolved to Deputy Under Secretary of Defense (Environmental Security) (DUSD (ES)) through the appropriate chain of command.

1202. Hazard Abatement Processing and Tracking

Hazards can be identified through annual inspections, industrial hygiene surveys, employee hazard reports and other inspections. Activity or regional OSH 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 follows:

a. Risk Assessment. The regional/activity OSH office shall 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. Appendix 12-A provides instructions for calculating the RAC for asbestos deficiencies.

(1) Hazard Severity. The hazard severity is an assessment of the worst reasonably expected consequence, defined by degree of injury or occupational illness which is likely to occur as a result of a hazard. The region or activities shall assign hazard severity categories by Roman numeral according to the following criteria:

(a) Category I - Catastrophic: The hazard may cause death.

(b) Category II - Critical: May cause severe injury or severe occupational illness.

(c) Category III - Marginal: May cause minor injury or minor occupational illness.

(d) Category IV - Negligible: Probably would not affect personnel safety or health, but is, nevertheless, in violation of a Navy OSH standard.

(2) Mishap Probability. The mishap probability is the probability that a hazard will result in a mishap, based on an assessment of such factors as location, exposure in terms of cycles or hours of operation and affected population. The OSH office shall assign a letter to mishap probability according to the following criteria:

(a) Subcategory A - Likely to occur immediately

(b) Subcategory B - Probably will occur in time

(c) Subcategory C - Possible to occur in time

(d) Subcategory D - Unlikely to occur.

(3) RAC. The RAC is an expression of risk, which combines the elements of hazard severity and mishap probability. Using the matrix shown below, the RAC is expressed as a single Arabic number that can be used to help determine HA priorities.

	Mishap Probability			
Hazard Severity	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

RAC

1 - Critical
2 - Serious
3 - Moderate
4 - Minor
5 – Negligible

b. OSH Deficiency Notice. The OSH office shall describe workplace hazards with a RAC of 1, 2, or 3 that cannot be corrected immediately, in Section A of a OSH Deficiency Notice, OPNAV 5100/12, (see appendix 9-B). The OSH office shall forward a copy of the notice to the official in charge of the operation where the hazard exists. The workplace supervisor shall post a copy of the notice in the area of the hazard until the hazard has been corrected. The OSH office shall update the posted notice, as necessary, to accurately reflect the status of the abatement action and required interim controls.

NOTES:

- The OSH office may distribute and post a computer-generated form that includes all the information required by OPNAV 5100/12.
- The OSH office shall transcribe RAC 1, 2 and 3 hazards reported by higher echelon OSH personnel (Oversight and Command Inspections) or the Occupational Safety and Health Administration (OSHA) to NAVOSH Deficiency Notices. The OSH 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 shall take prompt action to correct the hazard and within 30 days of the date of the notice, he/she shall complete Section B of the OSH Deficiency Notice and return a copy to the OSH office. Regions and/or activities shall implement interim protective measures pending permanent abatement and list interim corrections on the notice. The notice shall also indicate the status of the hazard including whether or not the hazard has been corrected and specific abatement action taken.

c. Abatement Plans. The OSH office shall record hazards assigned RACs 1, 2, or 3 that require more than 30 days for correction in a formal HA plan. This plan shall include the following 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)

(5) Interim control measures in effect

(6) Description of the abatement action, including estimated cost and completion date

(7) Abatement priority (see section 1205)

(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 OSH office shall make the HA plan available for review locally by recognized employee organizations, where applicable.

NOTE:

The OSH office may use a file of OSH Deficiency Notices, appropriately completed, as the abatement plan. OSH offices with fewer than 50 annual deficiencies or projects that will take more than 30 days to correct may use this approach. OSH offices with more than 50 deficiencies or projects annually that will take more than 30 days to correct shall develop a formal HA Plan and establish priorities for each project listed.

1203. Interim Controls

Regions or activities may be unable to immediately abate deficiencies under normal working conditions, and some hazards may require temporary deviation from OSH standards. Therefore, appropriate interim controls shall be established as soon as deficiencies are identified. OSH Offices shall document such controls on the OSH Deficiency Notice per appendix 9-B. The OSH office shall review and approve interim protective measures in effect for more than 30 days and revise, as appropriate.

1204. Hazard Abatement Project Development

The identification of a hazardous condition and the development of a deficiency abatement project require the close cooperation of the activity's facilities management and OSH personnel. Regions and shore activities can obtain specific engineering assistance from the cognizant Naval Facilities Engineering Command (NAVFACENGCOMS) Engineering Field Division or Activity (EFD/A) via an Engineering Service Request. The proposed project should fully correct the hazard 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. Region and/or activity budgets shall include items for correction of OSH deficiencies within the local commanding officer's funding authority.

b. Centrally Managed OSH Funding. Regions and activities shall submit projects to correct hazards that are beyond the funding capability of the local commander. Regions and activities shall submit projects to COMNAVFACENGCOM and their budget submitting office, in coordination with their facilities manager and/or Regional Engineer, utilizing the web-based Hazard Abatement Program.

(1) Project Acceptance Criteria. To be considered for central funding, projects must meet the following criteria:

(a) Since Operation and Maintenance, Navy (O&M, N) funds will be used for minor construction, repair and construction/procurement of installed equipment as defined in reference 12-2.

1. Funds must be for non-Navy Working Capital Fund (non-NWCF) activities only.

2. Ranges for centrally managed HA funds are as follows:

a. Minor construction: $50, 000 to $1,000,000

NOTE:

Minor construction with O&M, N funds is typically limited to $300,000 but the National Defense Authorization Act for fiscal year 1996, P.L. 105-106, section 2811 amended title 10, U.S.C., section 2805 (c) to allow use of O&M, N funds for construction costs up to $1,000,000 for projects "intended solely to correct a deficiency that is life-threatening, health threatening, or safety threatening."

b. Repair: $50,000 to $1,000,000.

c. Ergonomics: equal to or more than $10,000.

(b) Regions or activities may only submit projects correcting deficiencies with a RAC of 1, 2, or 3.

(c) Projects must be for the protection of safety and health vice protection of property. For example, installation of fire alarms, emergency egress, and other life safety projects for the emergency evacuation of personnel is acceptable. Regions or activities may not submit the installation of sprinkler systems to protect property.

(d) HA funds will pay for asbestos projects only if the asbestos is friable, accessible and damaged or the asbestos is in a location where it is subject to frequent damage even though immediately repaired by emergency actions.

(e) Regions or activities can submit upgrading projects if they are to alleviate severe hazardous conditions. For example, projects that provide guardrails where none exist may be submitted. Projects to raise guardrails from 38 to 42 inches to meet OSH standards would not be considered as correcting severe hazards.

(2) Unauthorized Projects. Projects, which normally do not qualify for central HA funding, include the following:

(a) Projects that are clearly due to the lack of maintenance or repair or have been expanded beyond OSH scope to include such elements. Regions and/or activities

shall fund the abatement of hazards developed due to wear and tear of facilities and equipment from appropriate region/activity or claimant funds.

(b) Projects involving facilities owned (On Plant Property Accounts) by Navy Working Capital Fund (NWCF) activities.

(c) Projects for environmental cleanup, compliance, or protection.

(d) Projects to provide accommodation for the handicapped. These are covered under other programs.

(e) Projects for U.S. Marine Corps facilities

(f) Projects for GOCO facilities

(g) Projects for purchase of ergonomic furniture

(3) Project Submissions.

(a) The regional or activity OSH offices shall request projects via the Internet using the on line HA database. Instructions for using the on line database will be issued by NAVFACENGCOM via the budget submitting office. The form in appendix 12-B can be used to collect the necessary information prior to going on line but this form is NOT to be submitted as a project request. See the hazard abatement web site at: http://www.navfac.navy.mil/safety/webha/generaluser/fsetmain.htm

(b) Prior to submitting an application, the regional or activity OSH office shall consult with both the Echelon 2 OSH director and the facilities manager. They shall coordinate the submission of projects with local activity facilities managers, but submission is, nonetheless, the responsibility of the OSH manager. The OSH manager shall consult with facilities personnel to determine such issues as existing construction, repair or demolition plans that would abate the hazard as well as the replacement cost of the facility in question.

(c) In their project requests, OSH managers shall fully describe and document the problem and provide all information necessary for prioritization. They shall show a clear violation of OSH standards in their project descriptions and cite the standards violated.

1205. Prioritization of Hazard Abatement Projects

In any given year, the backlog of deficiencies may exceed the funds available for OSH projects. It is, therefore, necessary that the Navy have 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 follows:

a. Locally Funded Projects. The regional or activity OSH offices shall prioritize projects that do not meet the criteria for centrally managed funding under the OSH HA program based on the RAC assigned to each identified hazard. See section 1202a for RACs. If several projects for correction of hazards with identical RACs exist, the activity OSH office shall assign

priorities based on the number of persons potentially exposed to the hazard and the total cost. All NAVFACENGCOMS commanding officers and activity facility engineers shall ensure that health and safety projects receive full consideration and are appropriately prioritized for execution with other local activity special projects.

b. Centrally Funded Projects. COMNAVFACENGCOM shall validate all projects and shall assign an abatement priority number (APN) per reference 12-3 for all proposed OSH HA projects submitted. The APN which comprises the RAC and cost effectiveness index will be used in determining abatement priorities.

1206. Responsibilities

a. Regional Commanders/Shore Activity Commanding Officers shall:

(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 regional OSH office, it shall 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.

b. Commander, Naval Facilities Engineering Command shall:

(1) Submit to CNO (N46), by 15 July each year, a proposed OSH Mishap Prevention and Hazard Abatement (MP/HA) Program Project Execution Plan per section 1204 for the following fiscal year.

(2) Develop, prepare and submit, via the chain of command, budget documentation for the OSH Mishap Prevention and Hazard Abatement (MPHA) program.

(3) Provide to CNO, budget submitting offices, sub-claimants, regions, and activities, management information, as may be necessary, relative to the OSH MPHA program.

(4) Provide engineering review of all OSH MPHA projects approved by budget submitting offices.

(5) Manage the design and construction of OSH MPHA projects per established procedures.

Chapter 12

References

12-1. Title 41 CFR 101, of Jul 97, Federal Property Management Regulations, www.access.gpo.gov/nara/cfr/waisidx_02/41cfr101-19_02.html.

12-2. OPNAVINST 11010.20F of 7 Jun 96, Facilities Projects Manual. http://neds.daps.dla.mil/Directives/11010f20.pdf.

12-3. DOD Instruction 6055.1 of Aug 98, Department of Defense Safety and Occupational Health (SOH) Program. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf.

Appendix 12-A

Instructions for Determining Risk Assessment Code (RAC) for Asbestos Projects

Assign a risk assessment code (RAC) to asbestos projects using the following methodology derived from DODINST 6055.1 of 19 August 1998.

1. **Probability**: determine the number of people exposed to asbestos then determine the number of hours per week the average person is exposed. Note the letter where the row and column intersect. This is the probability.

	HOURS/WEEK		
NO. OF PEOPLE	1-8	9-40	>40
1-4	D	C	B
5-9	C	C	B
10-49	C	B	A
50 or more	B	B	A

2. **Hazard Severity:** determines the severity based either on the naval asbestos facility score (NAFS) if available in the activity's asbestos inventory or from a judgment of the condition of the asbestos involved. The resulting Roman numeral is the hazard severity. (For more information on NAFS see Naval Facilities Engineering Service Center Pub SP-2027-ENV of Sep 97, Asbestos Control Program Operations and Maintenance Plan.) (NOTAL)

	SEVERITY
NAFS=66-102 or Severely Damaged	**I**
NAFS=33-65 or Damaged	**II**

3. **Risk Assessment Code (RAC):** an expression of risk, which combines the elements of hazard severity and mishap probability. Using the matrix shown below, the RAC is expressed as a single Arabic numeral that can be used to help determine hazard abatement priorities.

	PROBABILITY			
HAZARD SEVERITY	**A**	**B**	**C**	**D**
I	1	1	2	3
II	1	2	3	NA

NOTE: NAFS less than 33 or undamaged asbestos is not considered to be a hazard in most cases. If you believe asbestos at your activity is an exception, complete a project application form with justification.

Appendix 12-B
HAZARD ABATEMENT PROJECT REQUEST FORM

ACTIVITY NAME AND ADDRESS:	Date submitted:
	Activity UIC:
	Budge Submitting Office:

PROJECT INFORMATION

1. Project title: (*Describe action to abate/eliminate the hazard*)

2. Project No.	3. Estimated Cost (*$K*)	4. Risk Assessment Code *(Circle one)* Severity **1 2 3** _____	Probability _____

5. Problem: No. of people regularly exposed to the hazard:

6. Proposed Corrective Action:

7. Applicable Standards/Regulations:

8. Citations (*OSHA, STATE AGENCIES, NAVINSGEN, ETC.):*

9. Interim Controls:

10. Points Of Contact (*Enter All Applicable*):

Function	Name	Phone	Fax	Internet E-mail
a. OSH	_____	_____	_____	_____
b. Facilities:	_____	_____	_____	_____
c. Claimant:	_____	_____	_____	_____

5100/19 (08/05)

Instructions for Using the Hazard Abatement Project Request Form

This form can be used to collect data for entry in the HA program on line. All Navy regions and activities except Navy Working Capital Fund activities are eligible to apply for funding. (Marine Corps activities are not eligible since the Marine Corps has a separate OSH program).

CRITERIA FOR PROJECT ACCEPTANCE:

- Projects must be for protection of personnel. Property protection projects will not be funded.
- Projects for environmental cleanup, compliance, or protection will not be funded by the HA program.
- Asbestos projects will be funded only if the asbestos is friable, accessible, and damaged.
- Government-Owned Contractor-Operated (GOCO) facilities are not eligible.

INSTRUCTIONS: Most data elements should be self-explanatory. Once the information is gathered, use the Internet accessible online HA database to submit projects.

1. Project Title: Enter a short phrase that describes the proposed action to abate/eliminate the hazard (e.g., “Eliminate fall hazards from aircraft, hangers 1,2, and 3” or “Remove hazardous paint solvent vapors in Bldg. 5).” The title should make it clear that the project is to correct a safety and/or health hazard and is not a routine maintenance project, energy conservation project, or other project not related to safety and health.

2. Project No.: Provide only if a local project has been developed. Otherwise enter “N/A”. This is usually in a format such as “R2-93” or “C003-94.”

3. Cost Estimate: Estimates at this stage are for budget development and need to be reasonably accurate. Any acceptable method for cost estimating may be used.

4. Risk Assessment Code (RAC), Mishap Probability, and Hazard Severity: The RAC is a single digit determined according to the instructions in Chapter 12 of this manual. Circle the RAC and enter the Mishap Probability and Hazard Severity. (For asbestos projects refer to Appendix 12-A: “Risk Assessment Code (RAC) for Asbestos Projects”).

5. Problem Description: Enter the number of employees regularly exposed to the hazard. Briefly describe the nature of the hazard (include information about injuries, near misses, etc. related to this hazard). Include a statement of what injury or illness the hazard might cause. Include industrial hygiene data or other survey data as appropriate. The description should be understandable to the general reader.

6. Proposed Corrective Action: This paragraph should answer the question “What will the project do and how well will it correct the deficiency?” Include numbers such as "…install climbing devices on 15 ladders." It should be understandable to the general reader.

7. Applicable Standards: Primarily Occupational Safety and Health Administration standards but could also include National Fire Protection Assoc., American National Standards Institute, American Society of Mechanical Engineers, etc. The standard must be specific to the hazard addressed.

8. Citations (if any): Enter the agency, date and nature of citation.

9. Interim Controls: Enter controls in place to protect personnel until a permanent engineering fix is installed (e.g., respirators, special procedures (describe), etc.).

10. Consult with Echelon 2 facilities and OSH personnel to determine if Budget Submitting Office Actions will abate the hazard. Enter one Echelon 2 person contacted in block 10.

11. Submit one or more digitized photographs (.jpg format preferred) with the request. The online database has a facility for attaching digitized photographs as well as documents to the online request.

12. Submit applications using ONLY the online database. Instructions for using the database will be issued by NAVFACENGCOM via the budget submitting office. For additional information call your area HA program manager.

CHAPTER 13

FALL PROTECTION PROGRAM
(Formerly Navy Occupational Safety Health Cost Data)

1301. Purpose

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 Shore activities.

1302. Background

a. Falls from heights 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.

c. The Navy requires activities to protect its personnel from recognized hazards. There is much more to workplace safety than a Navy activity representative arriving at a work site with a copy of the pertinent standards in hand. Navy activities have a duty to anticipate the need to work at heights and to plan their work activities accordingly – this means that effective mishap prevention must be incorporated into the job planning process. Falls are preventable. Careful planning and preparation lay the necessary groundwork for an accident-free workplace.

1303. Policy

Every command, work center, and unit shall have a safety culture with management commitment that promotes a safe work environment for personnel working at heights. The Regional Commander, Commanding Officer/Director, Officer-In-Charge of the Navy Activity is responsible for establishing and implementing a fall protection program, which includes identification and elimination/control of fall hazards. Navy activities are responsible for: assigning responsibilities; surveying and assessing fall hazards; providing prevention and control measures; training of personnel; inspecting the equipment; auditing and evaluation; proper installation and use of fall protection systems; and the availability of rescue equipment with accompanying rescue procedures. Fall protection must be provided to Navy civilians and military personnel exposed to fall hazards on any elevated walking working surface with unprotected sides, edges, or floor openings, from which there is a possibility of falling four feet (five feet for Shipyard Operations) 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.

1304. Basic Program Requirements

Each Navy activity, which has personnel exposed to fall hazards, is required to establish a managed fall protection program. The managed fall protection program shall be in writing and approved by the activity's safety office. As an alternative to this requirement, a Navy shore activity, in lieu of a separate written program with safety office review and approval, may state in writing that it is using

the *Department of the Navy-Fall Protection Guide for Ashore Facilities*, reference 13-1, as their fall protection program. A managed fall protection program includes:

a. Activity Policy

b. Duties and Responsibilities

c. Workplace Surveys and Assessment of Fall Hazards

d. Fall-Hazard Prevention and Control, Including the Preparation of Fall Protection and Prevention Plans (see reference 13-1)

e. Training

f. Inspection, Storage, Care, and Maintenance of Fall Protection Equipment

g. Rescue Procedures

h. Audits and Evaluation

1305. Activity Policy

Each activity may prescribe supplementary requirements for special conditions above and beyond the fall protection policy set out in this instruction.

1306. Duties and Responsibilities

Each Navy activity shall delineate duties and assign responsibilities in the implementation of a managed fall protection program. The activities shall ensure that assigned personnel have the necessary skills, knowledge, training, and expertise to manage, administer, and implement the fall protection program. Depending upon the activity size and mission, personnel who manage, administer and/or implement the fall protection program may either be assigned as full time or as part time (collateral duty) positions.

Personnel assigned to the fall protection program should have the following qualifications and responsibilities:

a. The Fall Protection Program Manager: A person authorized by the command who is responsible for the development and implementation of the program. The manager shall ensure that personnel exposed to fall hazards and other personnel involved in the program receive adequate training as outlined in appendix A.

NOTE:

The 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 or competent person.

b. Competent Person for Fall Protection: A person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest system or any component thereof, as

well as in their application and use with related equipment, AND who has the authority to take prompt corrective measures to eliminate the hazards of falling.

c. Qualified Person for Fall Protection: A person with a recognized engineering degree or professional certificate, and with extensive knowledge, training, and experience in the field of fall protection who is capable of performing design, analysis, and evaluation of fall protection systems and equipment.

d. End User of Fall Protection: A person who has been trained in the use of assigned fall protection equipment, including hands-on training in a typical fall hazard situation, and uses personal fall arrest or fall restraint/positioning device equipment while performing work assignments. A competent person who has the knowledge, expertise, and education to deliver the training should train end users. The competent person should also be qualified as a fall protection trainer for end users.

1307. Workplace Surveys and Assessment of Fall Hazards

a. Each Navy activity shall survey the workplace to identify potential fall hazards in accordance with Chapter 5 of instruction. Navy activities shall determine if the walking or working surfaces on which employees are to work have the strength and structural integrity to safely support the workers. Employees shall 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.

b. A fall hazard survey/assessment shall be conducted annually for comparison purposes.

c. After conducting the survey, a fall-hazard analysis shall be performed to determine the risk assessment, hazard severity, and fall mishap probability in accordance with Chapter 12 of this instruction. This will help in prioritizing the hazard ranking and selecting the most viable fall protection solutions.

1308. Fall-Hazard Prevention and Control Measures

a. The hierarchy or 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, 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 hazard from the general work areas (e.g., same level barriers such as guardrails, walls, or covers.)

(3) Engineering Controls - If the hazard cannot be eliminated, isolated, or separated, 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).

(4) Administrative Controls - This includes introducing new work practices that reduce the risk of a person falling (e.g., erecting warning signs or restricting access to certain areas).

(5) Personal Protective Systems and Equipment - These shall be used after other control measures (such as eliminating or isolating a fall hazard) are determined not to be practical, 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 may be situations when more than one control measure should be used to reduce the risk of a fall.

b. Navy activities shall select fall protection measures compatible with the type of work being performed. If fall hazards cannot be eliminated, fall protection can be provided through 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 reaching a fall hazard. The specifics on guardrail systems can be found in references 13-1 through 13-4.

(2) Work Platforms. When working from elevated work platforms, four feet (five feet for Shipyard Operations) or higher, the work platforms shall be equipped with a standard guardrail or other fall protection system. The specifics on work platforms can be found in references 13-1, 13-2, and 13-4.

(3) Safety Net Systems. Safety nets shall 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 ladders, scaffolds, catch platforms, temporary floors, safety lines, full body harnesses, or restraint/positioning belts are impractical. The specifics on safety net systems can be found in references 13-1 and 13-4.

(4) Personal Fall Arrest System. A system used to arrest a person in a fall from a working level. It consists of an anchorage system, connecting means, and full body harness and may include a lanyard, deceleration device, lifeline, or suitable combination of these. The specifics on personal fall arrest systems can be found in references 13-1 through 13-5. A personal fall arrest system must be rigged so that employees will not free-fall more than six feet, nor contact a lower level. See paragraph 1311 below for the requirements for tie-off points (anchorages) used for fall arrest systems. Safety belts (body belts) shall not be used in a personal fall arrest system.

(5) Work Positioning System. A combination of equipment that permits an employee to be supported on an elevated surface, such as a wall, and work with both hands free while leaning backward. The specifics on positioning systems can be found in references 13-1 through 13-4. See paragraph 1311 below for the requirements on tie-off points (anchorages) for a positioning system.

(6) Fall Restraint System. A system consisting of equipment and components connected together designed to restrain a person from reaching an exposed fall hazard. The specifics on restraint system can be found in references 13-1 and 13-3.

(7) Ladder-climbing Safety Devices. A device or climbing sleeve connected to the front D-ring on the climber's full-body harness that slides up or down a rigid rail or cable. Should

a fall occur, the device is designed to lock by inertia or cam-action to arrest the fall. Ladder-climbing safety devices must permit the worker to ascend or descend without continually having to hold, push, or pull any part of the device, leaving both hands free for climbing. These safety devices must be activated within two feet after a fall occurs. Ladder-climbing safety devices shall be attached to a frontal D-ring on the climber's full-body harness.

(8) Covers. Covers for floor holes or floor openings shall be capable of supporting, without failure, at least twice the weight of employee(s), equipment, and materials that may be imposed on the cover at any one time. When covers are removed, a guardrail, attendant, or other system shall be provided to protect floor holes or openings.

NOTE:

For fall protection solutions to specific work situations or unique military work applications see reference 13-1.

1309. Fall Arrest Equipment Selection Criteria

Navy activities shall only use fall arrest equipment where the manufacturer can substantiate through third party certification that the equipment meets the requirements addressed in reference 13-5, and/or fall arrest equipment is designed, selected, and approved by a Qualified Person for fall protection. Any equipment that has previously met ANSI A10.14 Standards, and is in proper working condition, will be deemed to be usable until January 1, 2007. After January 1, 2007, requirements of reference 13-5 are recommended. See appendix B for the fall arrest equipment selection criteria.

1310. Training

a. Training. Navy civilians and military personnel should be trained to recognize fall hazards. Navy civilians and military personnel who use fall protection equipment shall be trained in accordance with appendix A. Other Navy civilians and military personnel involved in the fall protection program should also be trained in accordance with appendix A.

b. Retraining. Retraining in relevant topics shall be provided to the end user 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 fall protection equipment properly,

(4) The end user is assigned a different type of fall protection equipment; and/or

(5) A condition in the workplace changes in a manner that could affect the safe use of the fall protection equipment that the end user is to utilize.

c. Refresher training. Personnel exposed to fall hazards shall receive refresher training on the safe use of fall protection equipment at an interval determined by the activity.

1311. Anchorages for Fall Arrest Equipment

a. Fall arrest and restraint/positioning anchorages criteria. See references 13-1 through 13-5.

(1) Fall Arrest Anchorages shall be capable of supporting a minimum force of 5,000 pounds per person attached; or shall be designed, installed, and used under the supervision of a qualified person, and shall maintain a safety factor of at least two. The specifics on anchorages can be found in references 13-1 through 13-5**.**

(2) Work Positioning Anchorages shall be capable of supporting at least twice the potential impact loading of an employee's fall.

(3) Restraint Anchorages shall 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 shall be designed, prior to use, by a registered professional engineer with experience in designing horizontal lifeline systems**;** or designed by a fall protection qualified person who has appropriate training and experience.

b. Fall arrest 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 of fall hazards is not feasible, the design should include certified and labeled anchorages.

1312. Rescue Procedures

When personal fall arrest systems are used, the Navy activity must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. A rescue plan for an employee suspended in a body harness after a fall shall be prepared in writing by the Navy activity and include a detailed discussion of the following: 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. Specific guidance on rescue procedures can be found in reference 13-1. A rescue plan for an employee suspended in a body harness after a fall shall be site-specific.

1313. Inspection, Storage, Care, and Maintenance of Fall Protection Equipment

Before each use of fall protection equipment, the user shall carefully inspect the equipment following the inspection steps recommended by the fall protection equipment manufacturer to ensure that it is in good working condition. A fall protection Competent Person, other than the user, must inspect fall protection equipment at least annually. Inspection of the equipment by the fall protection competent person shall be documented. Guidance on storage, care, and maintenance of fall protection equipment can be found in the Navy Fall Protection Guide for Ashore Facilities, reference 13-1, Chapter 7 and in literature furnished by the fall protection equipment manufacturer.

1314. Falls from Heights Mishap Reporting

Falls from heights mishaps under this section shall be reported if they meet the reporting criteria of reference 13-6. When fall arrest equipment is impacted or activated during a fall, it should also be reported as a near-miss using the Hazard Report in reference 13-6.

1315. Audits and Evaluations

Fall protection programs shall be evaluated in accordance with Chapter 2 of this instruction.

Chapter 13

References

13-1. Department of the Navy Fall Protection Guide for Ashore Facilities
http://www.safetycenter.navy.mil/osh/downloads/AshoreFallProtectionGuide.pdf

13-2. 29 CFR PART 1910, Occupational Safety and Health Standards; 1910.21 thru 1910.24; 1910.27 thru 1910.30; 1910.66-Appendices C & D; 1910.67; 1910.68; 1910.176; 1910.178; 1910.179; 1910.180; 1910.268; and 1910.269.
http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1910.

13-3. 29 CFR PART 1915, Occupational Safety and Health Standards for Shipyard Employment; 1915.5; 1015.71 thru 1915.77; 1915.151 thru 1915.152; 1915.159 thru 1915.160.
http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1915.

13-4. 29 CFR PART 1926.500, Subpart M, Fall Protection Requirements in the Construction Industry
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10922.

13-5. American National Standard Institute (ANSI) Z359.1 (latest revision), Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components (NOTAL)
http://www.ansi.org/.

13-6. OPNAVINST 5102.1D/MCO P5102, of 7 Jan 05, “Navy and Marine Corps Mishap and Safety Investigation, Reporting, and Record Keeping,
http://www.safetycenter.navy.mil/instructions/ashore/5102/default.htm

Appendix 13-A

Fall Protection Training Requirements and Methods

Trainee GROUP	Desired Training Objectives	Training Mechanism and Type
End User/Authorized Person	- Selection and safe use of equipment - Application limits - Proper anchoring and tie-off techniques - Estimation of fall distances - Determination of deceleration distance - Total fall distance - Methods of inspection - Storage, care, and maintenance of equipment - Applicable regulations - Limitations of equipment - Specific lifelines - Rescue and self rescue techniques - Recognize fall-hazard deficiencies - Recognize fall risks at worksite	Formal/hands-on training using local equipment or on-site training as applicable to the activity (16 hours or as appropriate)
Safety Professional/ROICC Personnel	- Recognize fall-hazard deficiencies - Recognize fall risks at worksite - Basic fall protection systems inspection - Methods of use - Proper anchoring and tie-off techniques - Methods of inspection and record keeping - Storage of the equipment - Applicable regulations	Interactive CD-ROM or Formal Classroom
COTR/COR/CA Personnel	- Recognize fall-hazard deficiencies - Recognize fall risks at a worksite - Basic systems identification and proper use of equipment.	Formal Classroom (Awareness Training)
Competent Person (As Designated by the Activity or Designated in Writing as the Competent Person)	- In addition to the authorized person training, the competent person training shall also include: -Various fall protection systems - Donning of the equipment - Proper inspection and record keeping - Recognize and identify fall hazards at work-site - Equipment installation techniques - Proper anchoring and tie off techniques - Risk assessment and hazard ranking - Review and approval of fall protection and prevention plans, and rescue and	Competent Fall Protection Person and Program Manager CIN A493-0084 (Minimum 32 hours)

	evacuation plans - Applicable fall protection regulations - Plan and specification review and approval	
Qualified Person	- 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	Formal Classroom (40 hours or as appropriate)
Architects and Engineers	- Understand various fall protection and prevention planning and design considerations during construction and maintenance phases - Recognize fall-hazard deficiencies - Recognize fall risks assessment and control measures at worksites - Basic systems identification and proper use	Formal Classroom Interactive CD-ROM (Awareness Training)
Fall Protection Program Managers/ Administrators	- Recognize and identify fall hazards at workplaces - 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	Course Number CIN A-493-0084 (Minimum 32 hours) Fall Protection Competent Person and Program Manager (CIN A-493-0084)
Supervisors of End Users	- Fall protection awareness training - Familiarization with SOPs - Local program requirements - Proper inspection and record keeping - Proper anchoring and tie-off techniques	Local Training plan/briefing, and/or instruction or SOP (Awareness Training)

Appendix 13- B
Personal Fall Arrest Equipment Criteria

1. Personal Fall Arrest Equipment

Elements of a Personal Fall Arrest System (PFAS) consist of an anchorage, connectors, and a full body harness and may include a deceleration device, lifeline, 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 are as follows:

a. **Harness (Full Body)** A full body harness is the fundamental component of every PFAS. A wide variety of body harnesses are available that meet the requirements of ANSI Z359.1. There are two basic types of full body harnesses. The Type I harness is the H style harness with a chest strap that horizontally connects two vertical shoulder straps. The Type II harness consists of shoulder straps that cross at the chest. Full body harnesses used in fall arrest may also be integrally designed into coveralls or vests. Fundamentally, full body harnesses meeting the requirements of ANSI Z359.1 have the following common characteristics:

(1) A dorsal "D" ring located along the centerline of the back approximately at the lower shoulder blade height.

(2) Manufactured using synthetic straps or webbing.

(3) Leg straps, shoulder straps, and buttocks strapping, which is fastened about the person and is 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.

In addition to these common characteristics, the design of a full body harness may incorporate the following additional features:

(1) A frontal "D" ring for use with ladder climbing systems (notched rail or vertical wire rope systems).

(2) Side "D" rings located at the side near the hip region, permitting the harness to be used in a work positioning system**,** which allows personnel to work with their hands free (Note: The side "D" rings are not to be used to arrest a fall).

(3) Shoulder "D" rings that can be used to lower or recover personnel from confined spaces. These "D" rings are located at the top of each shoulder strap and are usually smaller in size than the dorsal "D" ring.

(4) 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.

(5) Shoulder pads, leg padding, integral elastic webbing, and a wide variety of other features that add commercial viability to products.

Full body harnesses designed as part of a PFAS may be used in a fall restraint system. A fall restraint system is used to keep personnel from a location that exposes them to the hazards of a fall.

Consideration must be given to the following items when selecting the appropriate full body harness:

(1) Expected duration that personnel will be wearing the body harness.

(2) Body stature and size of personnel assigned (one size does not fit all).

(3) Gender of personnel expected to wear the harness.

(4) Additional features that are task specific. These features must be carefully selected. For example, if a harness is used with a ladder-climbing device, a frontal "D" ring must be provided.

b. **Lanyards**. The 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-feet lengths, although longer safety lanyards are available. Lanyards must have self-locking snap hooks or carabineers and be designed for a PFAS. Commercial variations include adjustable lanyards that allow the lanyard to be shortened, reducing potential free fall distance. Variations also include 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% tie-off (i.e., one lanyard can always be connected to an anchorage).

When selecting a lanyard consideration must be given to the availability and location of the anchorage point, free fall and total fall distance, potential chaffing and weight and bulk of the person, and equipment.

c. **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-feet lengths. Additional lengths can be purchased.

When selecting a tie-off adapter as part of a PFAS, consideration must be given to potential misuse and inappropriate use. Anchorages have failed when the tie-off adapters were not attached to sufficiently strong structural members.

d, **Self-Retracting Lanyard.** The self-retracting lanyard (SRL), also known as a self-retracting lifeline, refers to a wide variety of commercially available devices. An 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 and 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.

e. **Vertical Lifeline/Rope Grab.** A vertical lifeline is a vertical line or rope attached from a fixed overhead anchorage independent of the walking/working surface to which a lanyard or ladder climbing device is attached. Only one person shall be attached to a vertical lifeline. Two workers will require two independent vertical lifelines.

A rope grab 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 rope grab 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.

f. **Anchorage Connectors**. A wide variety of anchorage connectors are available as part of a PFAS. Examples of anchorage connectors include carabiners, beam clamps, roof anchors, and self-locking eye connectors. Anchorage connectors shall be designed in accordance with reference 13-5 to assure compatibility with other components of a PFAS.

g. **Horizontal Lifeline.** A horizontal lifeline is any flexible line commonly made of wire, wire rope, strapping, or rope strung horizontally between two anchorages. A horizontal lifeline can be a part of a PFAS. A horizontal lifeline can be either a permanent or a temporary system. A horizontal lifeline shall 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.

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.

CHAPTER 14

MISHAP INVESTIGATION, REPORTING, AND RECORD KEEPING

1401. Discussion

a. Mishaps that result in damage to Navy facilities and equipment or occupational injuries, illnesses, or deaths to Navy personnel degrade operational readiness and increase operational costs. Investigation of such mishaps to identify causes and preventive actions as well as establishing accurate record keeping are essential to the success of the Safety and Occupational Health program. Mishap investigations aimed at determining how and why the event occurred are necessary to prevent future occurrence of similar events. Accurate records are necessary to establish trends, to conduct analyses, and to assess the effectiveness of the overall program. Certain records are necessary to comply with Department of Labor (DOL) Federal agency record keeping and reporting requirements. Certain records for foreign national employees may also be necessary to meet host country standards. These records should be part of the mishap record keeping program.

b. This chapter includes procedures that apply to Navy mishap investigation, reporting, and record keeping requirements for shore on-duty Navy personnel and Navy shore operational mishaps per reference 14-1. All non-aviation mishap investigations and reporting will follow the procedures outlined in reference 14-2.

c. Recording of Occupational Illnesses and Injuries shall be in accordance with the requirements in reference 14-2. Since all recording is conducted using web enabled safety system (WESS), all civilian and military occupational illnesses and injuries are reportable in addition to being recordable. Illness and Injury Logs for civilian and military personnel, and civilian Annual Reports of Work-related Illnesses and Injuries, per reference 14-1, will be maintained using WESS.

1402. Types of Mishap Investigations

A complete comprehensive mishap investigation is an essential tool in identifying the root causes of a mishap and thereby preventing recurrence. The reports required by reference 14-2 are separate and independent of investigations required by the Manual of the Judge Advocate General (JAG). JAG investigations are used to determine accountability and culpability. The sole purpose of the safety investigation is mishap prevention, not the determination of accountability.

a. Safety Investigation. Mishap investigations and reporting procedures are outlined in reference 14-2.

b. Judge Advocate General (JAG) Manual Investigations. Conduct JAG investigations, including claims investigations, as required by the JAG Manual. The safety investigator(s) and the JAG Manual investigator(s) shall not be the same person(s). Nothing in reference 14-2 prevents JAG Manual investigator(s) from access to the same non-privileged factual material or witnesses available to the safety investigator(s). Conduct the JAG Manual

investigation independently and separately from the safety investigations mentioned above. Reports of these investigations shall not be made a part of JAG investigations.

c. Criminal and Security Investigations. The Naval Criminal Investigative Service (NCIS) shall investigate any death occurring on a Navy installation, per SECNAVINST 5520.3B, except when the cause of death is medically attributable to disease or natural causes. When notified, NCIS will investigate the circumstances until criminal causality can reasonably be excluded. The investigations noted above must not compromise nor otherwise impede the NCIS investigation.

1403. Mishap Investigation Requirements

a. Shore regions and activities shall conduct a safety investigation of every mishap, major or minor, and handle the investigation as a search for facts as outlined in reference 14-2. The severity or significance of the mishap determines the extent of the investigation. The region or activity shall establish guidelines delineating roles and responsibilities for reporting and investigating all classes of mishaps. Military or civilian safety and occupational health professionals trained per Section 1405 shall conduct mishap investigations of Class A and B mishaps. The safety office shall ensure proper investigation of all mishaps and review all investigation reports. Management personnel may assist in mishap investigations, however, regions and activities shall not use information they obtain through the safety investigation for administrative or disciplinary action.

b. Safety departments shall notify the Injury Compensation Program Administrator (ICPA), medical, and/or industrial hygienists as needed, of their mishap investigation, which should include a request for specific support. The safety departments are to document the notification and specific results or any support received.

c. The investigator shall complete a written report with firm, factual findings of mishap root causes and recommendations for specific corrective action to be taken to prevent recurrence.

(1) For mishaps involving civilian personnel, the mishap investigator shall release to the ICPA all factual information regarding the mishap. The investigator is specifically forbidden to release any privileged safety information, including the analysis, findings, and recommendations of the investigator or mishap investigation board."

(2) For all mishaps, the safety departments shall forward safety recommendations to appropriate department heads and/or supervisors, follow up with the appropriate department heads and/or supervisor to verify progress in implementing the corrective action, and notify command personnel of the department's progress in implementing recommendations for corrective action.

d. Safety departments shall prepare and maintain a log of current status information on all recommendations for corrective actions in safety and mishap prevention matters.

e. Regions and activities shall electronically report all mishaps meeting the reportable criteria in reference 14-2 directly to COMNAVSAFECEN using the Web-Enabled

Safety System (WESS) or appropriate format from reference 14-2 if Internet connectivity is not feasible.

f. Protection, dissemination, and release of mishap information, and the concept of privileged safety information guidance are provided in reference 14-2.

g. Guidance on the assignment and conduct of Safety Investigation Boards, handling evidence and witness statements, and report submission and endorsements is provided in reference 14-2.

1404. Requirements to Ensure Reporting of All Mishaps and Hazards

At all levels, the immediate supervisor has the greatest influence on mishap and hazard reporting. Regions and activities shall take the following action to ensure that they report all mishaps and applicable hazards:

a. Indoctrinate all subordinates, especially new arrivals, to report all mishaps no matter how small, as well as the "near misses" as hazards where only chance prevented a mishap. Ensure personnel fully appreciate that activities cannot correct hazardous conditions unless personnel conscientiously report them.

b. Ensure supervisors report all mishaps to the region or activity safety office immediately so the safety office can initiate the appropriate action for the investigation.

1405. Mishap Investigation Training

Personnel who conduct Class A, B, C and other mishap investigations shall complete formal training in mishap investigation procedures and techniques. Safety professionals responsible for investigating region or activity level mishaps or Class A and B mishaps shall attend the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) course, Mishap Investigation and Prevention (Ashore), course A-493-0078, or an equivalent course (as determined by the cognizant Echelon 2 headquarters). Safety professionals with formal mishap investigation training may provide formal classroom training to others in the region or activity (e.g., supervisors) that may perform Class C and other mishap investigations.

1406. Commanding Officer Review

Commanders, commanding officers and officers in charge, or their respective deputies, chiefs of staff, or executive officers, shall review lost time mishaps. The region or activity head, or his or her designee, with the safety manager shall decide which mishaps to review. At a minimum, regions and activities shall review any mishap that requires submission of an SIR per reference 14-2. 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 shall 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

1407. Shore Major Mishap Review

The purpose of Shore Major Mishap Review is for periodically reviewing Class A and select Class B mishaps, and taking actions to implement mishap investigation recommendations. This board shall meet at least annually. CNO (N09F) shall chair this board, which shall include representatives of Naval Inspector General (NAVINSGEN), headquarters commands experiencing mishaps under review, and others the chair selects.

1408. Mishap Analyses

Regions and activities shall conduct detailed analyses of their mishap experiences and develop annual fiscal year (FY) or calendar year (CY) mishap reduction goals (see chapter 32, Appendix 32-B for guidance on calculating mishap trends). The Safety Department is to analyze mishap data, including "near miss" data, on an annual basis to identify significant trends and utilize these trends to adjust training requirements and command personnel as well as identify goals, accountability issues, and potential failures of command infrastructure. They shall include these goals in command goals and specific strategies and measurement standards and develop actions for goal attainment (see chapter 5, paragraph 0505 for further guidance).

NOTE:

"Near miss" recording and data, in web enabled safety system (WESS), now uses the term "Hazard Reports".

1409. Records Disposition

a. The records and reports this chapter requires will be retained for five years following the end of the fiscal year to which they relate.

b. Regions and activities shall destroy general correspondence and records they accumulate in connection with the routine administration and operation of mishap investigation and reporting after two years.

c. Records shall not be destroyed if they address corrective actions that are not yet complete.

1410. Injury/Illness Treatment (Civilian Employees Only)

a. Reporting Procedures. Employees shall report immediately to their supervisors any occupational injury or illness. If an employee requests medical care, the supervisor shall offer to refer the employee to the activity medical treatment facility (MTF) occupational health department, if available, for examination and recording of the injury in the employee medical record. Referral to the activity MTF is not mandatory on the employee's part, nor shall it be construed as the initial choice of the attending physician. If the employee elects evaluation at the activity medical service, the supervisor shall furnish OPNAV 5100/9, Medical Referral Form

(appendix 14-A) or equivalent. Activities shall not permit employees to visit the Navy medical treatment facility (MTF) without having obtained the form, except where necessary to avoid delay in treatment to the detriment of an employee. In this case, activities may complete the form after the patient has been removed to the MTF.

b. Injury Report Control. The safety office may use appendix 14-A 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 regions or activity safety offices to track MTF visits.

c. Preparation Procedure. Personnel shall observe the following instructions regarding the preparation and disposition of the Medical Referral, appendix 14-A:

(1) The supervisor shall complete the upper half of the Medical Referral Form in duplicate.

(2) The injured employee shall take both copies of the form to the MTF.

(3) The "Occupational-No" box is checked for personal illness cases only.

(4) Use of case number is optional within the activity.

(5) The MTF shall make every effort to determine whether or not an injury or physical disability is occupational before checking the "Questionable" block.

(6) The supervisor will notify the MTF and the cognizant Safety Manager of the reported occupational injury/illness for administrative purposes.

Chapter 14

References

14-1. DODI 6055.7 of 3 Oct 00, Mishap Investigation, Reporting and RecordKeeping, http://www.dtic.mil/whs/directives/corres/pdf/i60557_100300/i60557p.pdf.

14-2. OPNAVINST 5102.1D/ MCO P5102.1B of 25 May 05, Mishap Investigation, Reporting, and Record Keeping, http://www.safetycenter.navy.mil/instructions/ashore/5102/default.htm

14-3. OPNAVINST 3750.6R of Mar 01, Naval Aviation Safety Program http://neds.daps.dla.mil/3750.htm.

APPENDIX 14-A

Medical Referral Form
FOR OFFICAL USE ONLY (WHEN FILLED IN)

Supervisor's Report	To Medical (Location)	Date of Report	
Employee's Name	Time & Date of Injury	Time Left Job	Time Returned
Social Security Number	Grade, Rate, Job Title	Occupational □ Yes □ No □ Questionable	
Reason for Referral: □ Injury □ Illness □ Return to Work □ Employee's Request □ Other (Specify)			
Remarks:			
Supervisor's Signature:	Shop/Office:	Telephone #	Email:
Medical Report	Time Reported:	Time Released:	
Occupational □ Yes □ No □ Questionable	Degree of Injury □ First Aid □ Medical Treatment □ Other (Explain)		
Recommended Disposition of Employee: □ Return to Perm. Job _____ □ Restrict Activity Until _____ □ Employee to Seek Care from Private Physician □ Referred to Private Physician/Hospital □ Temporary Transfer to Another Job □ Other (Explain)			
Remarks:			
Provider Signature: _____ Phone: _____	□ Evaluation Completed □ Follow-up On or Before _____ (Date)		

OPNAV 5100/9 (08/05)

CHAPTER 15

RESPIRATORY PROTECTION

1501. Discussion

a. This chapter establishes requirements and responsibilities for an ashore respiratory protection program. Reference 15-1 covers respiratory protection for forces afloat.

b. Many occupational activities expose personnel to air contaminants that can be dangerous, if inhaled. The best means of protecting personnel from exposure to potentially hazardous materials is to eliminate the air contaminant at its source. When elimination of the air contaminant is not possible, the preferred protection method is engineering controls. Activity work center personnel shall use respirators where neither elimination of the air contaminant, nor use of engineering controls is wholly effective.

1502. Applicability

a. The provisions of this chapter shall 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) Contractors. They are responsible for providing their own respiratory protection programs and respiratory protective equipment.

(2) 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 15-2.

1503. General Requirements

a. Whenever respiratory protection is required, activities shall establish and maintain a respiratory protection program per this chapter and reference 15-3. The commanding officer or officer in charge shall appoint a trained respiratory protection program manager (RPPM) who shall implement program requirements. Section 1512 contains minimum RPPM training requirements.

b. Activities shall 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 shall use this equipment regardless of stay time.

c. Activities shall fit test, issue, and train personnel to wear respirators and ensure personnel are medically qualified. The Navy does not require medical approval for visitors and personnel not assigned to the work areas where activities provide escape-only respirators for potential emergencies. However, they shall be briefed in the use of the escape respirator and shall be escorted at all times by activity personnel who are trained in the use of the respirator and who can guide and assist them in emergencies.

d. The RPPM shall maintain a listing of employees who require respiratory protection and shall authorize those employees who meet the requirements of 1513.a to wear respiratory protective equipment. The activity shall provide appropriate respiratory protection to these individuals, and additional personal protective equipment (PPE) if warranted by the operation.

e. Per reference 15-3, "The employer shall not permit respirators with tight-fitting facepieces to be worn by employees who have:

(1) Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or

(2) Any condition that interferes with the face-to-facepiece seal or valve function.

(3) If any employee wears corrective glasses or goggles or other eye and face protection, the employer shall ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user."

f. Activity programs shall 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 for which the Occupational Safety and Health Administration (OSHA) requires respiratory protection.

(5) Workers performing operations where OSHA permits the employee to choose to use a respirator (i.e., lead).

(6) Any other worker for whom the use of respiratory protection is deemed appropriate by the RPPM - for humanitarian or morale use (voluntary respirator use).

g. Voluntary Respirator Use. When respirators are not required, voluntary use of respiratory protection is allowed if the respirators are issued and controlled by the RPPM and the following criteria are met. Voluntary respirator use is defined/described in detail in the glossary (see Voluntary Respirator Use).

(1) National Institute for Occupational Safety and Health (NIOSH) approved filtering facepieces (dust masks) may be issued without medical screening and fit testing. Annually provide respirator users with the information contained in appendix D of reference 15-3

and the limitations stated on the respirator approval label. Personnel may not supply their own respirators.

(2) For any other voluntary respirator use, elastomeric facepiece respirators will be issued and all elements of the respiratory protection program must be met. NIOSH or NIOSH/Mine Safety Health Administration (MSHA) approved respirators must be selected appropriately for the perceived hazard.

(3) Issuance of voluntary use respirators shall not be used as a justification for avoiding further evaluation of health hazards.

1504. 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 instruction lists them separately for clarity. Detailed descriptions of respirators are found in chapter 9 of reference 15-4.

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 shall only use this respirator where adequate oxygen (19.5 to 23.5 percent by volume) is available. This category also includes battery-powered air purifying respirators.

NOTE:

Authorization for military gas masks, such as the MCU-2A/P, is only for chemical, biological, and radiological (CBR) warfare, CBR warfare training, and nuclear accidents when used according to DOD 3150.8M of 1 December 1999.

b. Supplied-Air Respirators. These respirators provide breathing air independent of the environment. Personnel shall 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.

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.

(1) The Navy oxygen breathing apparatus (OBA) is a uniquely designed SCBA respirator. Its only authorized use is for damage control, firefighting operations aboard ships, and during firefighting training ashore.

(2) Shipboard personnel undergoing shore firefighting training are not required to obtain medical qualification or respirator fit testing for SCBAs, including the OBA, prior to reporting for training.

(3) Wearing SCBAs during shipboard firefighting or other emergencies, including ashore training for these emergencies, is military-unique. Therefore, fit-testing and medical surveillance are not required prior to wearing SCBAs for these scenarios.

1505. Respirator Cartridges and Gas Mask Canisters

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.

a. Activities shall:

(1) Implement a change-out schedule for chemical canisters/cartridges based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. 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/cartridges according to manufacturer's directions, or based on objective data obtained as indicated in reference 15-4.

(3) Chemical cartridge/canister air-purifying respirators may be used (up to their maximum use concentration) for protection against substances without good warning properties, including isocyanates, if a cartridge change out schedule is developed and implemented.

(4) Identify respirator cartridges, canisters and filters by the information provided on the approval labels as well as the color-coding required by reference 15-5.

NOTE:

Some foreign (European/EU) respirator cartridges use a color-coding system that differs from American (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.

1506. Breathing Air Requirements

a. Breathing air or sources of breathing air for supplied air respirators or SCBAs shall meet at least the minimum Grade D breathing air requirements of references 15-3 and 15-6.

b. Activities shall conduct monitoring of the breathing air quality at least quarterly. Test results shall be provided to the OSH office. Records of such air quality monitoring shall be maintained by the OSH office for five years.

NOTE:

Monitoring does not apply to ambient air breathing apparatus.

c. In addition to quarterly air quality monitoring to ensure Grade D breathing air, activities shall 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 activity shall monitor the air supply at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm. Activities shall 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. Activities purchasing breathing air from outside sources shall comply with reference 15-3.

1507. Respirator Selection Considerations

a. Activities shall only use respirators that are currently approved by NIOSH or NIOSH/MSHA. References 15-7 and 15-8 provide general respirator selection guidance.

NOTE:

Host countries may require respiratory protection that meets standards and certifications they establish for foreign national employees. Where foreign legislation applies, activities shall issue respiratory protection to the employees that meet the host nation criteria.

b. The Defense Supply Center, Philadelphia (DSCP) issues specific national stock numbers (NSNs) for NIOSH or NIOSH/MSHA approved respirators. Specific NSNs are assigned to each manufacturer's approved respirator so that activities are assured they will receive the same respirator each time they order it by its NSN. Activities can order equipment on line from the DSCP website at: http://www.dscp.dla.mil/gi/. Respirators may also be purchased through the General Services Administration website: https://www.gsaadvantage.gov/.

c. As a minimum, the RPPM shall consider the following 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 activity cannot identify, or reasonably estimate the employee exposure, it shall 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.

The RPPM shall select respiratory protection equipment using the assigned protection factors listed in chapter 9 of reference 15-4.

d. Respirators for Entry into IDLH Atmospheres. Should it become necessary to enter an oxygen deficient atmosphere (<19.5 percent oxygen) or an IDLH atmosphere, personnel shall only use the following 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 shall 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.

f. Respiratory Protection for Medical Personnel. Medical personnel who wear respirators shall comply with this chapter.

g. For safe entry procedures into IDLH atmospheres, and for interior structural fire fighting, refer to reference 15-3.

1508. Medical Evaluations

Activities shall 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 per the Medical Surveillance Procedures Manual/Medical Matrix reference 15-9 which meets the requirements of the OSHA Respirator Standard, reference 15-3.

Military personnel, who have been confirmed by their region or activity as "Fit for Full Duty" based on their current periodic military physicals (Manual of the Medical Department (P-117), and their annual Preventive Health Assessment (OPNAVINST 6120.3)) 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 SCBAs, including the OBA, prior to reporting for training.

1509. Respirator Fit Testing

a. Fit Testing. Activities shall fit test each individual required to use a respirator with a tight-fitting facepiece, at the time of initial fitting and annually thereafter. Activities shall perform fit testing according to references 15-3 and 15-10.

b. All tight-fitting positive and negative pressure respirators shall be either qualitatively or quantitatively fit tested by activities initially and annually. To wear full face, negative pressure, air purifying respirators in atmospheres up to their assigned protection factor of 50, personnel must be quantitatively fit tested and the respirator must achieve a fit factor of at least 500, which equates to a safety factor of 10.

c. Record keeping. The RPPM shall 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/fit tester. This information is required to be established and retained per reference 15-3.

1510. Inspection and Cleaning of Respirators

Only personnel who have received training through the RPPM shall perform the cleaning, inspection, and maintenance of respiratory protective equipment per reference 15-3.

1511. Respiratory Protection Training

The activity shall ensure proper respirator use by providing all employees required to use respirators with training per reference 15-3. Activities shall train supervisors, persons issuing respirators, and emergency rescue teams per reference 15-7. Activities shall document that training occurs in a manner that is understandable to the respirator wearer and that respirator wearers can demonstrate knowledge of at least the following aspects of respiratory protection:

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.

j. Know when to change chemical cartridges/canisters according to the established change out schedule.

k. The general requirements of the respiratory standard.

1512. 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 shall pass one of the following training courses before activities appoint them as the RPPM:

(1) The OSHA Training Institute Course 2220 or 2225.

(2) The NIOSH Course 593.

(3) The Navy RPPM course, Respiratory Protection Program Management (A-493-0072).

(4) Any respiratory protection course that has at least 32 hours of training including, but not limited to, the topics listed below:

(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/IDLH atmospheres.

(k) Special problems in program administration (facial hair, lens fogging, and communication).

(j) Standard operating procedures.

(m) Cartridge change out schedules.

c. For current respiratory protection information, consult sources such as the Navy Environmental Health Center (NEHC), OSHA and NIOSH home pages.

d. The Navy requires a course certificate from the OSHA, NIOSH, 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 section 1512b; however, those assisting with respirator program training, fit testing, or other program

implementation, shall receive training appropriate to the responsibilities assigned. For example, the RPPM can provide on-the-job training, or the command 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 15-10 (ANSI Z88.10-2001).

1513. Responsibilities

a. Commanders, Commanding Officers, and Officers in Charge shall establish a comprehensive respiratory protection program and appoint a qualified RPPM in writing. The Navy encourages small activities with few employees utilizing respirators to negotiate with host commands for RPPM service. As a minimum, commanders shall ensure that the respiratory protection program provides:

(1) A centrally located facility staffed to maintain and issue respiratory protection equipment. The program shall provide one or more centrally located facilities at an activity depending on its nature and size. Facility personnel shall:

(a) Ensure that activities issue only respirators approved by NIOSH or jointly by NIOSH/MSHA.

(b) Maintain all respiratory protection equipment in a sanitary and serviceable condition.

(c) Store all respiratory protection equipment in a designated clean area.

(2) Written SOPs governing the selection, care, issue, and use of respirators. Activities shall also develop and post worksite SOPs in the general area. SOPs shall include emergency and rescue guidance, as necessary. SOPs shall include cartridge change out schedules as appropriate.

(3) Respiratory protection training per reference 15-3 and section 1511, for all respirator users and their supervisors and personnel who issue and/or maintain respirators.

(4) Procedures to ensure that all employees have received medical evaluations required by section 1508.

(5) A completed appendix 15-A for each civilian employee requiring a medical examination for respirator use.

(6) Fit testing per section 1509.

(7) Procedures to ensure that all sources of breathing air meet the requirements cited in section 1506.

(8) An annual audit of the program by the RPPM. The BUMED Industrial Hygiene periodic review of the respiratory protection program does not fully meet this requirement but may provide data used in the evaluation.

(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 support activities (command 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) shall:

(1) Ensure the medical qualification requirements of the Respiratory Protection Program agree with section 15-8. 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, a preventive medicine technician, or an independent duty hospital corpsman. Reference 15-9 details the required medical evaluation protocols for respirator users. The health care professional must return the completed appendix 15-A containing the medical written recommendation to the worker and command RPPM. The medical recommendation shall provide the following 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, BUMED shall:

(a) Provide RPPMs with a written evaluation on the effectiveness of their program based on occupational medicine and industrial hygiene reviews. These reviews shall occur, at a minimum, at the frequencies listed in appendix 8-B.

(b) Make occupational health professionals available to the RPPM for consultation on all aspects of the respiratory protection program.

(c) Provide activities with direct assistance and service in conducting their training and fit testing programs.

(d) Provide an evaluation of respiratory hazards.

(3) In support of afloat commands, BUMED shall provide 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 support activities (command safety offices or medical activities).

c. Employees shall obtain the respiratory protection equipment selected by the RPPM, and inspect, use, and maintain such equipment per the instructions and training received. At a minimum, employees shall:

(1) Inspect the respiratory protection equipment before and after each use per reference 15-3 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 per reference 15-3. If a successful user seal check cannot be performed, the employee will not wear the respirator.

(3) Report any malfunction of the respirator to their 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/canisters according to established change out schedule.

Chapter 15

References

15-1. OPNAVINST 5100.19D CH-1 of 30 Aug 01 Navy Occupational Safety and Health (OSH) Program Manual for Forces Afloat. http://neds.daps.dla.mil/Directives/5100.19d_CH-1.pdf.

15-2. NAVSEA 389-0288, Radiological Controls.

15-3. 29 CFR 1910.134 Respiratory Protection (as amended) http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=12716.

15-4. Industrial Hygiene Field Operations Manual, of Oct 03, NEHC Technical Manual, NEHC-TM6290.91-2, , http://www-nehc.med.navy.mil/ih/ihfom.htm.

15-5. American National Standards Institute (ANSI), Z88.7-2001, American National Standard for Color Coding of Air-Purifying Respirator Canister, Cartridges, and Filters (NOTAL), http://www.ansi.org.

15-6. Compressed Gas Association, Inc. Commodity Specification for Air, Pamphlet G-7.1-1997, (NOTAL) http://www.cganet.com.

15-7. American National Standards Institute (ANSI), Z88.2-1992, American National Standard, Practices for Respiratory Protection, (NOTAL), http://www.aiha.org.

15-8. NIOSH Respirator Selection Logic 2004, NIOSH Publication 2005-100. http://www.cdc.gov/niosh/docs/2005-100/default.html.

15-9. NEHC Technical Manual OM 6260 of 1 Feb 01, Occupational Medical Surveillance Procedures Manual and Medical Matrix edition 7 http://www-nehc.med.navy.mil/downloads/Occmed/Medical_matrix_Feb_2001.pdf.

15-10. American National Standards Institute (ANSI), Z88.10-2001 American National Standard for Respirator F;it Testing Methods, (NOTAL), http://www.ansi.org.

Appendix 15A
RESPIRATOR USE QUESTIONNAIRE

FOR OFFICIAL USE ONLY (WHEN FILLED IN)

_____ _____ _____
EMPLOYEE SSN POSITION

_____ _____ _____
SUPERVISOR PHONE CODE DEPARTMENT

CIRCLE THE TYPE OF RESPIRATOR(S) TO BE USED:

AIR-SUPPLIED (tight-fitting)
AIR-SUPPLIED (hooded)
OPEN-CIRCUIT SCBA
CLOSED-CIRCUIT SCBA

AIR-PURIFYING (powered) (tight-fitting)
AIR-PURIFYING (powered) (hooded)
COMBINATION AIRLINE/SCBA
AIR-PURIFYING (non-powered): (Specify)
Filtering facepiece or elastomeric
N,P,R, 95,99,100
Type Chemical Cartridge_____

WORK EFFORT: (CIRCLE ONE)

Light Moderate Heavy Strenuous

EXTENT OF USAGE: (CIRCLE ONE)

1. On a daily basis
2. Occasionally - but more than once a week
3. Rarely - or for emergency situations only

LENGTH OF AVERAGE WORK DAY IN RESPIRATOR:

SPECIAL WORK CONDITIONS: (i.e., confined spaces, high places, temperature/humidity extremes, hazardous materials, other protective clothing worn, climbing, etc.)

_____

_____

_____

MEDICAL WRITTEN EVALUATION SUMMARY
1. No restrictions on the respirators circled above
2. Respirator use with some restrictions
3. No respirator use allowed
4. Alternate respirator recommended

Comments/Restrictions _____

_____

_____

_____

(under 35)(35-45)(over 45)
Routine Follow-up medical evaluation required: 5 yrs 2 yrs 1 yr
Or due to medical findings return: Date
Employee has been given a copy of this recommendation.

Health care professional's Signature _____ _____
Date

Sections 133, 1071-87, 3012, 5031, and 8012, Title 10
USC & Exec. Order 9397 (Privacy Act of 1974) Apply

CHAPTER 16

OCCUPATIONAL SAFETY AND HEALTH STANDARDS

1601. Discussion

a. Heads of Federal agencies must establish procedures for the development of agency occupational safety and health (OSH) standards. Agencies must also comply with the standards issued for the private sector by the Secretary of Labor, under Section 6 of the Occupational Safety and Health Act (OSH Act).

b. The Department of Defense (DOD) and Navy follow the Occupational Safety and Health Administration (OSHA) standards; however, reference 16-1 contains provisions for alternates to the OSHA standards, supplemental standards, other special standards and exceptions for military unique equipment, systems and operations.

c. This chapter provides guidance and direction for the development and application of standards within the Navy Occupational Safety and Health (OSH) program.

1602. OSH Standards

OSH standards consist of the following:

a. OPNAV instructions and Chief of Naval Operations CNO (N09F)-approved instructions issued by commands having specific technical cognizance or assigned technical responsibility in reference 16-2. OSH standards include national consensus and proprietary standards referenced in the instructions. OPNAV instructions based on 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.). The OPNAV instruction may also refer to or adopt the latest edition of an OSHA reference standard. See appendix 16-A for a current listing of approved OSH standards not elsewhere invoked. See reference 16-3 for OSH standards for forces afloat.

b. OSHA standards, including emergency temporary standards OSHA issues under the provisions of the OSH Act. This includes national consensus standards specifically referred to in OSHA standards.

NOTE:

When both the Navy and OSHA have standards applicable to a given situation, regions and activities shall use the more stringent of the two.

c. Navy occupational exposure limits (OEL) for chemical contaminants that include:

(1) 1989 OSHA permissible exposure limits (PELs) found in reference 16-4 at: http://www-nehc.med.navy.mil/ih/ihfom.htm.

(2) Substance specific regulations issued by OSHA under section 6(b) of the Occupational Safety and Health Act of 1970.

(3) Navy developed standards. When there is no OSHA PEL or Navy developed standard, the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV) shall be used as the Navy OEL. When the OEL is based on a limit derived from the OSHA Z-1, Z-2 or Z-3 Tables, reports of data shall include the ACGIH TLV as additional guidance.

d. Alternate OSHA standards that the Deputy Under Secretary of Defense (Environmental Security) (DUSD(ES)) authorizes, subject to Department of Labor (DOL) approval. See appendix 16-A for a current listing of approved alternative standards.

e. 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.

f. Nationally recognized sources of OSH guidance (such as the ACGIH, the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA)) will be used when there is no OPNAV instruction or OSHA standard.

NOTE:

National Institute for Occupational Safety and Health (NIOSH) criteria documents are proposals only and not mandatory unless adopted by one of the sources listed above.

1603. Alternate Standard Approval

OSHA Alternate Standards should only be considered when compliance with an OSHA standard cannot be achieved, and alternate standard will be at least equally protective, and the cognizant headquarters command, CNO (N09F)/COMNAVSAFECEN, and Secretary of the Navy (DASN (S)) agree that an alternate standard should be requested from OSHA via DUSD (ES).

NOTE:

Regions or activities shall not submit OSH standards developed according to section 1602e to DUSD(ES) for approval.

The following procedures apply:

a. The headquarters command shall submit the proposed alternate standard to CNO (N09F), who in turn, shall submit the alternate standard to DUSD(ES) for approval, through the Deputy Assistant Secretary of the Navy (Safety) (DASN(S).

b. Prior to forwarding to DUSD(ES) and CNO (N09F) shall forward alternate standards proposals to the Deputy Assistant Secretary of the Navy (DASN) (CP/EEO). DASN will forward the proposed standard to civilian employee organizations having national consultation rights with the Navy for review and comment.

c. After receipt of comments from employee organizations, or after a 45-day response period has elapsed, CNO (N09F) will forward the alternate standard to DUSD(ES) through DASN(S). The alternate standard shall include a summary statement that delineates the differences between the applicable OSH standard and the proposed alternate standard, a justification for the change and a summary of comments from civilian employee organizations.

1604. Application

Regions and activities shall apply OSH standards in Navy workplaces, worldwide, with the following exceptions:

a. In the case of uniquely military equipment, systems and operations, regions and activities shall apply Navy rules and regulations consisting of specialized standards, specifications and procedures to minimize hazards and prevent mishaps. The Navy shall review and strengthen these special rules and regulations continuously, and include appropriate provisions of the OSH standards consistent with military design configuration and the requirement to develop and maintain combat capability.

b. 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 10 U.S.C. 172 (1970) and Nuclear Safety and Health Standards issued under the authority of 42 U.S.C. Sections 2012, 2021, 2121(b), and 2201(b) (1976)). Provided there is no substantive conflict, the application of these special functional standards does not exempt any workplace from other OSH 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 OSH standards for machine guarding, eye protection, etc.

c. In overseas workplaces, where status of forces agreements (SOFAs) specify different standards, those standards take precedence, subject to the same limiting rationale set forth in paragraph 1604b.

d. Where personnel of different DOD components, or of DOD components and other Federal agencies work in the same installations, host-agency standards shall govern the DOD components and other Federal agencies involved. When other agency standards conflict with OSHA standards, DOD components shall refer the matter to DUSD(ES).

Chapter 16

References

16-1. DODI 6055.1 of 19 Aug 1998, DOD Occupational Safety and Health Program http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf.

16-2. OPNAVINST 5100.8G of July 1986, Navy Safety and Occupational Safety and Health Program http://neds.daps.dla.mil/Directives/5100_8g.pdf.

16-3. OPNAVINST 5100.19D CH-1 of Aug 2001, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat.

16-4. Industrial Hygiene Field Operations Manual, NEHC Technical Manual, NEHC-TM6290.91-2 of Oct 03, http://www-nehc.med.navy.mil/ih/ihfom.htm

Appendix 16-A
Approved SOH Standards from Headquarters Commands Having Technical Cognizance

Document	Governing Area
SPAWARINST 5100.9D	Electronic Safety Ashore
OPNAVINST 5100.27	Navy Laser Hazards Control Program http://neds.daps.dla.mil/Directives/5100_27a.pdf
MIL-HDBK 1025/10	Safety of Electrical Transmission and Distribution Systems
OPNAV P-45-117-6-98 PNAVP-45-117-6-98.pdf	Electrical Safety Field Guide http://www.safetycenter.navy.mil/instructions/osh/O

Approved SOH Alternative Standards

NAVSEA S6740-AA-SAF-010	Alternative standard for certification of gas-free engineering used in maintenance operations.
NAVFAC P-307	Management of Weight Handling Equipment Alternative standard for third party certification cranes used in long shoring. http://ncc.navfac.navy.mil/crane/307JUN03.pdf

CHAPTER 17

ASBESTOS CONTROL

1701. Applicability

a. The provisions of this chapter apply to industrial and construction activities and supplement the Department of Labor (DOL) Standards references 17-1 through 17-3.

b. Shore activities shall conduct shipboard work per this chapter and reference 17-3. Chapter B1 of reference 17-4 describes the asbestos control program for forces afloat.

c. Whether State and local requirements in 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 17-A provides assistance to legal counsel in determining applicability of state and local requirements.

1702. 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).

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. Do not remove installed asbestos containing materials, which are in good condition, for the sole purpose of eliminating asbestos.

Commands shall use only suitable asbestos substitute materials approved through identification and testing. Commands shall not use existing supplies of ACM whenever there are acceptable substitutes.

Navy personnel worldwide shall strictly enforce and adhere to the standards and controls discussed in this chapter.

c. 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 generally 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) Application of ACM Thermal System Insulation (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).

d. Asbestos is now known to be 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.

e. 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.

1703. Permissible Exposure Limit and Excursion Limit

a. Permissible Exposure Limit (PEL). The PEL for asbestos is 0.1 fibers per cubic centimeter (f/cc) of air, calculated as an 8-hour time-weighted average (TWA) exposure. Fibers are particles having a length-to-width ratio of three (or more) to one (3:1), and 5 micrometers or longer.

b. Excursion Limit (EL). The EL is 1.0 f/cc averaged over a 30-minute sampling period. Personnel using the PEL shall also consider the EL.

c. Employee Notification. Affected employees shall receive notice of exposure, in writing per references 17-1, 17-2 and/or 17-3.

1704. Control of Asbestos in the Workplace Environment

Chapter 5 discusses the basic principles for controlling hazards in the occupational environment, including substitution with less hazardous material (HM), engineering controls (e.g., isolation, ventilation), and the use of personal protective equipment (PPE). Prepare written asbestos control procedures, which set forth these engineering and work practice controls and review and update, as necessary. References 17-1, 17-2, and 17-3 require specific work practices and engineering controls based on the type of ACM and type of work. Commands shall train project personnel per reference 17-5 and prohibit administrative controls, such as employee rotations, as a means of keeping the exposure below the PEL.

a. General Workplace Control Practices

(1) Cognizant headquarters activity will approve non-asbestos-containing substitute materials, which shall replace ACM. Replacement or substitution of friable ACM, such as asbestos thermal insulation and sprayed on asbestos, is of primary concern because friable ACM are loosely bound and can easily crumble or be pulverized.

(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 PEL. 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 its usefulness, use enclosures or ventilation to reduce the emission of airborne fibers. Do not apply materials containing asbestos by spray methods, under any circumstances.

(3) Establish regulated areas as required by section (e) of references 17-1, 17-2, and 17-3. Do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics when involved in asbestos-related work 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 cleaning 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 per paragraph references 17-1, 17-2 and 17-3. Color code containers to ensure easy recognition. Double bag and dispose of asbestos waste per the procedures outlined in paragraph 1706.

(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 per reference 17-6.

(9) A “Qualified” or “Competent” person, as defined in references 17-2 or 17-3, shall supervise all asbestos work performed in a regulated area.

b. Lunch areas. Provide and maintain lunch areas per references 17-1, 17-2 and 17-3 as applicable to the work being performed.

c. Ventilation. Use local exhaust ventilation to ensure that atmospheric levels of asbestos do not exceed the PEL. General requirements for the design and use of ventilation to reduce exposures are listed below.

(1) Local exhaust ventilation requirements below 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 shall 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 shall 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 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 17-7 for facilities with permanent asbestos operations.

(b) Design, construct, install and maintain local exhaust ventilation, and dust collection systems per references 17-7 and 17-8. 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 PEL.

(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) The following 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 per references 17-7 and 17-8. 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 during abatement actions, or where the concentration of airborne fibers is likely to exceed the PEL, shall wear, as a minimum, the protective clothing listed below:

(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 shall not wear personal clothing under the coveralls.

(2) Establish decontamination areas adjacent and connected to the regulated area, for Class I work (as defined in the glossary) involving more than 25 linear or 10 square feet of TSI or surfacing ACM or presumed asbestos containing material (PACM). Decontamination areas shall consist of an equipment room, shower area, and clean room in series. Use a remote shower and clean room where it is not feasible to locate the shower

between the equipment room and the clean room, where the work is performed outdoors, or when the work takes place on board a ship. When using remote facilities, employees shall remove contamination from their work suits with a HEPA vacuum and don clean suits in the equipment room. Employees shall then proceed to a remote shower and clean room to complete the decontamination process.

(3) 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 exceed the PEL, or where no negative exposure assessment has been produced. The decontamination area shall 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 shall be of sufficient size that equipment can be cleaned and personnel may remove their protective equipment without spreading contamination beyond the area. Employees shall proceed to a shower and clean room that may be remote from the regulated area.

(4) Activities shall launder asbestos-contaminated clothing to prevent release of airborne asbestos fibers in excess of the PEL. Contracts governing the laundering of asbestos-contaminated clothing shall specifically require that contractors comply with the precautions specified in references 17-1 through 17-3 as applicable. Contracts shall 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 PEL by employee rotation. Do not achieve compliance with the PEL by the use of respirators alone except under the following 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 PEL

3. In work situations where engineering and workplace controls have been implemented, but no industrial hygiene monitoring data exists to verify that such controls have reduced exposure levels below the PEL

4. During emergencies.

(b) Establish a respiratory protection program per 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 section 1709b to determine the level of respiratory protection per references 17-1, 17-2, and 17-3.

(a) Do not use disposable respirators for protection against airborne asbestos fibers. The minimum respirator shall be a half facepiece, air-purifying respirator with high efficiency particulate air filter(s) (P100 filters).

(b) For 8-hour TWA exposures of up to 10 times the PEL, use a half face air- purifying respirator with high efficiency particulate air filter(s) (P100 filters) to reduce the concentration of respirable airborne asbestos fibers below the PEL. Use of this respirator for Class I work must comply with paragraph 1704e(3)(a)1.

(c) For 8-hour TWA exposures greater than 10 but not exceeding 50 times the PEL, use a full facepiece air-purifying respirator with high efficiency particulate air filter(s) (P100 filters) to reduce the concentration of respirable airborne asbestos fibers in the respirator below the PEL. Use of this respirator for Class I work must comply with paragraph 1704e(3)(a)1. Refer to paragraph 1704f(2) for fit testing requirements.

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.

(d) For 8-hour TWA concentrations greater than 50, but not exceeding 100 times the PEL, use a tight fitting powered air purifying respirator equipped with high efficiency particulate air filter(s) or a supplied air respirator operated in a continuous flow mode to reduce the concentration of respirable airborne asbestos fibers in the respirator below the PEL. Use of this respirator for Class I work must comply with paragraph 1704e(3)(a)1.

(e) For 8-hour TWA concentrations of greater than 100, but not exceeding 1000 times the PEL, use a full facepiece supplied air respirator operated in a pressure demand mode to reduce the concentration of respirable airborne asbestos fibers in the respirator below the PEL. Use of this respirator for Class I work must comply with paragraph 1704e(3)(a)1.

(f) If the 8-hour TWA concentration exceeds 1000 times the PEL, or is unknown, use a full facepiece supplied air respirator operated in pressure demand mode equipped with an auxiliary positive pressure, self-contained breathing apparatus (SCBA) to reduce the concentration of respirable airborne asbestos fibers in the respirator below the PEL.

(3) Respirator Requirements

(a) In addition to selecting respirators per references 17-1, 17-2 and 17-3, wear respirators during the following:

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 either an auxiliary self-contained air supply or HEPA egress cartridges. For all Class I work between 0.1 and 1 f/cc as an 8-hour TWA, use a tight-fitting powered air-purifying respirator equipped with HEPA filters. For Class I work below 0.1 f/cc as an 8-hour TWA, use any respirator approved for asbestos.

2. Class II and III asbestos work usually requires a half-mask air purifying respirator, other than a disposable respirator, equipped with high efficiency particulate air filter(s) (P100 filters). Refer to appropriate sections in references 17-2 and 17-3 on roofing work.

3. Class IV workers shall 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) Per 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 per chapter 15. Qualitative fit testing is acceptable for both half mask and full-face respirators worn as protection against asbestos concentrations that are less than 10 times the PEL.

g. Communication of Hazards

(1) Communicate asbestos hazards with warning signs and labels to all potentially exposed personnel as indicated in references 17-1, 17-2 and 17-3.

(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 17-9.

1705. 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 shall undergo a thorough visual inspection. Thoroughly clean any visible dust or debris per reference 17-6. Clearance air sampling is required of all regulated areas for which a negative exposure assessment has not been made. As a minimum, perform air sampling as described below:

a. Sample the air inside the regulated area to determine if airborne fibers 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. Criteria used to determine if the abatement project is considered complete are listed below for both buildings and ships:

(1) For buildings, the project is considered complete if all samples collected are less than 0.01 f/cc.

(2) For ships, the project is considered complete if samples collected are no greater than 0.01 f/cc or background, whichever is greater, as measured prior to starting the non-emergency asbestos abatement but never greater than 0.1 f/cc.

(a) Reference 17-10 and NIOSH 7400 method provides technical guidance for sampling and analysis.

(b) Personnel who are not industrial hygienists (IHs), industrial hygiene technicians, or certified exposure monitors, shall complete a formal course, per appendix 17-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.

1706. Disposal Procedures

In preparation for disposal, adequately wet asbestos wastes prior to double bagging in heavyduty plastic bags (at least 6 mils thick) or other suitable impermeable containers (see section 1712 (Environmental Protection). 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 per paragraph 1704g. 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.

1707. Asbestos Management Program Ashore

The program objective is to provide a long-term solution that will eliminate personnel exposure to airborne asbestos fibers in occupied Navy buildings and workspaces through cost effective management of ACM. The program contains three key elements:

a. Survey and material evaluation

b. Operations and maintenance (O&M) program

c. Design and abatement. Centrally managed Hazard Abatement funds are available for design and abatement of high priority asbestos projects.

The asbestos program manager (APM) shall be appointed in writing by the activity commanding officer to implement the activity's Asbestos Management Program. The APM may be located in the public works department, safety and health department, or the environmental department. Smaller 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 activity representative will be as mutually agreed. The protection of employees and program elements of appendix 17-C are thereby met. Appendix 17-C provides details of the program and division of responsibilities.

1708. Training

Follow training and certification requirements of appendix 17-B. Maintain training records per chapter 6. Make copies of references 17-1, 17-2 or 17-3 and other handout type training materials available to employees upon request at no charge.

1709. 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. Sampling, of all areas where repetitious asbestos work is performed, is at the discretion of the cognizant IH per references 17-1, 17-2, and 17-3. Sample each non-repetitious asbestos removal operation at least once to determine the maximum exposure potential of that operation. Personnel performing personal air sampling to determine exposure to airborne asbestos, who are not IHs, industrial hygiene technicians, or certified exposure monitors, shall complete a formal course in asbestos sampling per appendix 17-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 PEL, and breathing zone air samples, which are representative of the 30-minute short term exposure for comparison to the EL, per appendix A of references 17-1, 17-2 and 17-3. 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 (reference 17-10).

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 Industrial Hygiene Air Sampling Survey form (NEHC 5100/13) at: http://www-nehc.med.navy.mil/ih/ihfom.htm, or computerized equivalent. Record and retain exposure data as indicated in Chapter 8.

1710. Asbestos Medical Surveillance Program (AMSP)

a. General. The AMSP is designed to identify signs and symptoms of 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 17-1, 17-2, and 17-3 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 per reference 17-11.

c. Criteria for Removal of Personnel from the AMSP

(1) Give an employee in the AMSP who changes to a job either without asbestos exposure, or at a level below the current exposure criteria, a termination evaluation to meet requirements per references 17-1, 17-2, and 17-3. The 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 17-12 and 17-13.

(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 17-1, 17-2, and 17-3, 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 (HR) when the employee is removed from the AMSP, and forward the employee's name and social security number to Navy Environmental Health Center (NEHC) stating the employee never met the applicable exposure criteria.

(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 HR with the reason(s) for removal, and forward the employee's name and social security number to NEHC stating the employee should not have been placed in the AMSP.

(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 17-14. Guidelines and protocols for entry in the AMSP based on past exposure are found in references 17-12 and 17-13.

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 shall have a copy of this chapter, including references 17-1, 17-2, and 17-3.

e. Situational Medical Evaluations. Conduct situational evaluations in response to a specific incident for which a hazardous overexposure is suspected. 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 per references 17-1, 17-2, and 17-3 are met. When exposure does not meet the criteria for enrollment in the AMSP, use AMSP HR forms to document situational evaluations for asbestos exposures, and mark the outside of the HR ASBESTOS per reference 17-15. Do not forward AMSP forms to NEHC unless the employee is placed in the AMSP.

f. Content of Medical Evaluation. Reference 17-12 contains the medical protocols for the AMSP employees in compliance per references 17-1, 17-2, and 17-3.

(1) Physical Evaluation. Reference 17-13 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 17-13.

(3) Chest X-ray. The local radiologist shall read the posterior/anterior chest X-ray required per references 17-1, 17-2, and 17-3, and follow procedures in reference 17-13. This must be forwarded for a reading using the International Labor Organization (ILO) 1980 Classification for Pneumoconioses (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 per references 17-1, 17-2, and 17-3. 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 HR and maintain the data in accordance with reference 17-16. Prominently mark the exterior of the HR and x-ray jackets ASBESTOS as described in reference 17-15.

h. Medical Records Including Chest X-rays. Reference 17-17 requires all medical information collected for occupational health purposes, including all AMSP medical data, to be maintained in the HR.

(1) Transfer, Retention and Retirement of Health Records. Forward HRs, per reference 17-15, when the active duty member or civilian employee transfers to another location or retires. Original chest x-rays are a permanent part of the HR and the medical clinic shall maintain them, per references 17-1, 17-2, and 17-3. If the civilian transfers to an agency outside the Navy, the Navy medical clinic shall maintain the chest films and retire them per current directives.

(2) Access to Medical Data. Refer to chapter 8 along with references 17-15 and 17-18 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 NEHC 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.

1711. Work Performed by Private Contractors

For shore activities, each contract for work to be performed by a private contractor in Navy facilities and ships in the United States and abroad shall comply with appropriate OSHA and EPA regulations. Use reference 17-19 to design asbestos actions in Navy facilities. Invoke reference 17-20 in contracts for the control of asbestos operations on board Navy ships undergoing construction and/or repair.

1712. Environmental Protection

a. General

(1) All Federal, State and local requirements, including emission standards and the provisions of this chapter shall be met. For additional information, contact the cognizant IH and the activity environmental coordinator.

(2) Technical assistance for air pollution control is available upon request from the COMNAVFACENGCOM Engineering Field Divisions (EFDs).

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 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 per reference 17-1, 17-2, 17-3 and 17-9. This practice should reduce the possibility of future unearthing and rupturing of disposal containers.

c. Application of National Emission Standards for Asbestos

(1) The National Emission Standards for Asbestos are contained in references 17-9 and 17-21. The standards include:

(a) Demolition and renovation of ACM in facilities and ships. Prior to renovation or demolition of facilities, conduct a thorough re-inspection for ACM by an asbestos inspector qualified per appendix 17-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 shall be met for these processes. Procedures for the handling, transporting, and disposing of asbestos waste are prescribed in the standards (reference 17-1, 17-2, and 17-3). 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 17-9.

(2) The activity shall ensure that written notification to the EPA and/or cognizant State or local agencies is done per reference 17-9 and State and local regulations. Guidance on notification requirements is found in appendix 17-D.

1713. Responsibilities

The following responsibilities are assigned to provide an effective asbestos exposure control program throughout the Navy.

a. Echelon 2 Commands shall:

(1) Ensure that asbestos containing materials are not procured or specified when a suitable substitute exists per paragraph 1702 b.

(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. The Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Centrally manage the AMSP.

(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.

(4) Establish the AMSP Medical Surveillance Program Control Database and provide data analysis and trend analysis to CNO (N09F) at least semiannually.

c. The Commander, Naval Facilities Engineering Command shall:

(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 shall maintain reference 17-20 in accordance with current regulations.

e. Commanding officers of shore activities shall:

(1) Apply control measures, monitoring procedures, O&M plans prescribed in this chapter, to processes using asbestos or ACMs.

(2) Comply with the National Emission Standard for Asbestos per Section 1712.

(3) Budget resources in order to meet these asbestos control requirements.

(4) Appoint an APM, in writing, to implement the requirements of section 1707 and appendix 17-C.

(5) Maintain a current copy of applicable State and local asbestos

requirements.

Chapter 17

References

17-1. Title 29 Code of Federal Regulations (CFR) section 1910.1001, OSHA Asbestos Standard, latest revision, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9995

17-2. Title 29 Code of Federal Regulations (CFR) section 1926.1101, OSHA Asbestos Construction Standard, latest revision, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10862

17-3. Title 29 Code of Federal Regulations (CFR) section 1915.1001, Asbestos Exposure in all Shipyard Employment Work, latest revision, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10287

17-4. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat http://www.safetycenter.navy.mil/instructions/afloat/510019D.htm

17-5. Title 40 Code of Federal Regulations (CFR) 763 Chapter I-EPA Appendix C Subpart E, Asbestos Model Accreditation Plan, latest revision, http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=a03ef02f6a5a36138cb6fa9c3c58a9c8&rgn=div5&view=text&node=40:29.0.1.1.18&idno=40 - 40:29.0.1.1.18.2.1.17.4

17-6. American Society for Testing and Materials (ASTM) Standard Practices for Visual Inspection of Asbestos Abatement Projects (E1368-90) http://www.astm.org/.

17-7. American Conference of Governmental Industrial Hygienists, Inc., Committee on Industrial Ventilation, Industrial Ventilation A Manual of Recommended Practice (NOTAL) http://www.acgih.org/home.htm.

17-8. American National Standards Institute (ANSI) Z9.2-2001, American National Standard for Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems, (NOTAL) http://www.ansi.org/.

17-9. Title 40 Code of Federal Regulations (CFR) Part 61 of July 1997, Subpart M, http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=474f779beade290997e4611971d078f4&rgn=div5&view=text&node=40:8.0.1.1.1&idno=40 - 40:8.0.1.1.1.13

17-10. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision http://www-nehc.med.navy.mil/ih/ihfom.htm.

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17-12. NEHC Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, latest revision http://www-nehc.med.navy.mil/downloads/Occmed/Medical_matrix_Feb_2001.pdf.

17-13. NEHC Technical Manual, Occupational Medicine Field Operations Manual, latest revision http://www-nehc.med.navy.mil/od/Documents/FOM.PDF.

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17-15. NAVMED Publication P-117, Manual of the Medical Department (NOTAL) http://www-nmcp.med.navy.mil/HMTraining/index.asp.

17-16. SECNAV Manual M-5210.1 Department of the Navy Management Manual.

17-17. Title 29 Code of Federal Regulations (CFR) 1910.1020 Subpart Z, Access to Employee Exposure and Medical Records, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10027

17-18. SECNAVINST 5211.5D of 17 July 92, Department of the Navy Privacy Act (PA) Program http://neds.daps.dla.mil/Directives/5211_5d.pdf.

17-19. Naval Facilities Engineering Command Guide Specifications (NFGS) -13281

17-20. NAVSEA STANDARD ITEM NO 009-10, of 2 July 93, Control of Shipboard Asbestos Containing Material (ACM)

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Appendix 17-A

Determining Applicability of State and Local Requirements on Asbestos Removal and Disposal

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 (Exclusive Juris)	Yes	Yes
		Yes (Concurrent Juris)	Yes	Yes
Disposal	Yes	No (Exclusive Juris)	Yes	Yes
		Yes (Concurrent Juris)	Yes	Yes
Contractor (Off Base)				
Removal	Yes	Yes	Yes	Yes
Disposal	Yes	Yes	Yes	Yes

OSHA - Occupational Safety and Health Administration
CAA - Clean Air Act
[1] Material in this appendix was provided by the Navy Office of General Counsel
[2] under E.O.12196

Appendix 17-B

ASBESTOS TRAINING AND CERTIFICATION REQUIREMENTS LISTED BY TYPE OF OPERATION

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	IINITIAL 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 REPAIR (CLASS I AND II ASBESTOS WORK)	ASBESTOS ABATEMENT SUPERVISOR OR COMPETENT PERSON, QUALIFIED PERSON,	ASBESTOS ABATEMENT CONTRACTOR/ SUPERVISOR	5-DAY ASBESTOS ABATEMENT CONTRACTOR/ SUPERVISOR TRAINING COURSE	YES 1 DAY	29 CFR 1915.1001(o)(4)(i) 29 CFR 1926.1101(o)(4)(i) ** 40 CFR 763.92 40 CFR 61 Subpart M

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	IINITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
	ROICC PERSONNEL				
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 1 DAY	29 CFR 1915.1001(k)(5) 29 CFR 1926.1101(k)(5) ** 40 CFR 763.92
DEVELOPMENT OF ASBESTOS MANAGEMENT PLANS & ASBESTOS O&M PLANS	FACILITY INSPECTORS, SAFETY PERSONNEL & IHs	ASBESTOS MANAGEMENT PLANNER	2-DAY ASBESTOS MANAGEMENT PLANNER COURSE	YES 1 DAY	** 40 CFR 763.92

* A LIST OF ACCREDITED TRAINING SOURCES MAY BE OBTAINED FROM EPA-AHERA-NDAAC, C/O VISTA COMPUTER SERVICES SUITE 304, 6430 ROCKLEDGE DRIVE, BETHESDA, MD 20817. **1-800-462-6706**
**** APPLIES TO PUBLIC AND COMMERCIAL BUILDINGS

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	IINITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
			(INSPECTOR ACCREDITATION REQUIRED AS PREREQUISITE)		
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 DAY ASBESTOS ABATEMENT CONTRACTOR/ SUPERVISOR TRAINING COURSE.	YES 1 DAY	29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9) ** 40 CFR 763.92
PERSONNEL WHO ENGAGE IN CLASS II	ABATEMENT	NONE	8-HOUR ASBESTOS	YES	29 CFR 1915.1001(k)(9)

* A LIST OF ACCREDITED TRAINING SOURCES MAY BE OBTAINED FROM EPA-AHERA-NDAAC, C/O VISTA COMPUTER SERVICES SUITE 304, 6430 ROCKLEDGE DRIVE, BETHESDA, MD 20817. **1-800-462-6706**
**** APPLIES TO PUBLIC AND COMMERCIAL BUILDINGS

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	IINITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
WORK ONLY	WORKERS		TRAINING. REQUIREMENTS ARE RELAXED WHEN ONLY ONE GENERIC CATEGORY OF BUILDING MATERIAL IN CLASS II WORK IS DONE.	NOT SPECIFIED	29 CFR 1926.1101(k)(9)
PERSONNEL WHO ENGAGE IN CLASS III OPERATIONS ONLY	MAINTENANCE WORKERS	NONE	16-HOUR OPERATIONS & MAINTENANCE. REQUIREMENTS ARE RELAXED WHEN ONLY ONE GENERIC CATEGORY OF BUILDING MATERIAL IN CLASS III WORK IS DONE.	YES NOT SPECIFIED	29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9)
PERSONNEL WHO	MAINTENANCE	NONE	2-HOUR	YES	29 CFR

* A LIST OF ACCREDITED TRAINING SOURCES MAY BE OBTAINED FROM EPA-AHERA-NDAAC, C/O VISTA COMPUTER SERVICES SUITE 304, 6430 ROCKLEDGE DRIVE, BETHESDA, MD 20817. **1-800-462-6706**
**** APPLIES TO PUBLIC AND COMMERCIAL BUILDINGS

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	IINITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
ENGAGE IN CLASS IV OPERATIONS ONLY AND HOUSEKEEPING WHERE ACM OR PACM IS PRESENT	& CUSTODIAL WORKERS		ASBESTOS AWARENESS TRAINING	2 HOURS	1910.1001 (j)(7) 29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9)
RESPONSIBLE FOR OVERALL ASBESTOS PROGRAM	ACTIVITY ASBESTOS PROGRAM MANAGERS	LETTER OF APPOINTMENT FROM COMMANDING OFFICER	3-DAY ABATEMENT PROJECT DESIGNER COURSE AND 2 DAY ASBESTOS INSPECTOR/ MANAGEMENT PLANNER COURSE, NFESC ASBESTOS PROGRAM MANAGER COURSE (INSPECTOR ACCREDITATIO N REQUIRED AS	YES 1 DAY	RECOMMENDED TRAINING

* A LIST OF ACCREDITED TRAINING SOURCES MAY BE OBTAINED FROM EPA-AHERA-NDAAC, C/O VISTA COMPUTER SERVICES SUITE 304, 6430 ROCKLEDGE DRIVE, BETHESDA, MD 20817. **1-800-462-6706**
**** APPLIES TO PUBLIC AND COMMERCIAL BUILDINGS

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	IINITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
			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 PLUS HANDS-ON TRAINING	NONE	29 CFR 1910.1001(j)(7) 29 CFR 1915.1001 APP. L
GENERAL INDUSTRIES OPERATIONS ABOVE PEL (NOT OTHERWISE CLASSIFIED)	VARIOUS	NONE	2-HOUR AWARENESS AND OPERATION SPECIFIC	YES NOT SPECIFIED	29 CFR 1910.1001(j)(7)

* A LIST OF ACCREDITED TRAINING SOURCES MAY BE OBTAINED FROM EPA-AHERA-NDAAC, C/O VISTA COMPUTER SERVICES SUITE 304, 6430 ROCKLEDGE DRIVE, BETHESDA, MD 20817. **1-800-462-6706**
****** APPLIES TO PUBLIC AND COMMERCIAL BUILDINGS

Appendix 17-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 an activity's 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 designate an asbestos program manager (APM) per paragraph 1707. 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 pro-vides 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 activity's 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 17-1, 17-2 and 17-3. Guidance for developing an O&M program is given in Naval Facilities Engineering Service Center (NFESC) 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. Activity.

d. Method. APM, COMNAVFACENGCOM Engineering Field Divisions (EFD), Public Works Center (NAVFACENGCOMS), other Navy sources, or contract.

e. Funding Source. Activity.

f. Support. EFDs will maintain open-ended reimbursable contracts for developing O&M plans, or assist with tailoring NFESC generic O&M plan to meet activity requirements.

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 inspectors 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." Prepare NAVOSH Deficiency Abatement Program/ Management Information System (DAP/MIS), form NEESA 3900/12, project formats, with cost estimates outlining recommended abatement actions for damaged and significantly damaged materials, per chapter 12 of this manual.

c. Responsibility. Activity.

d. Methods. In-house, NAVFACENGCOMS, other Navy sources, or contract. Forward DAP/MIS project formats to the EFDs, 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 activity.

f. Support. COMNAVFACENGCOM EFDs will maintain open-ended reimbursable contracts for conducting surveys and material assessments.

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.

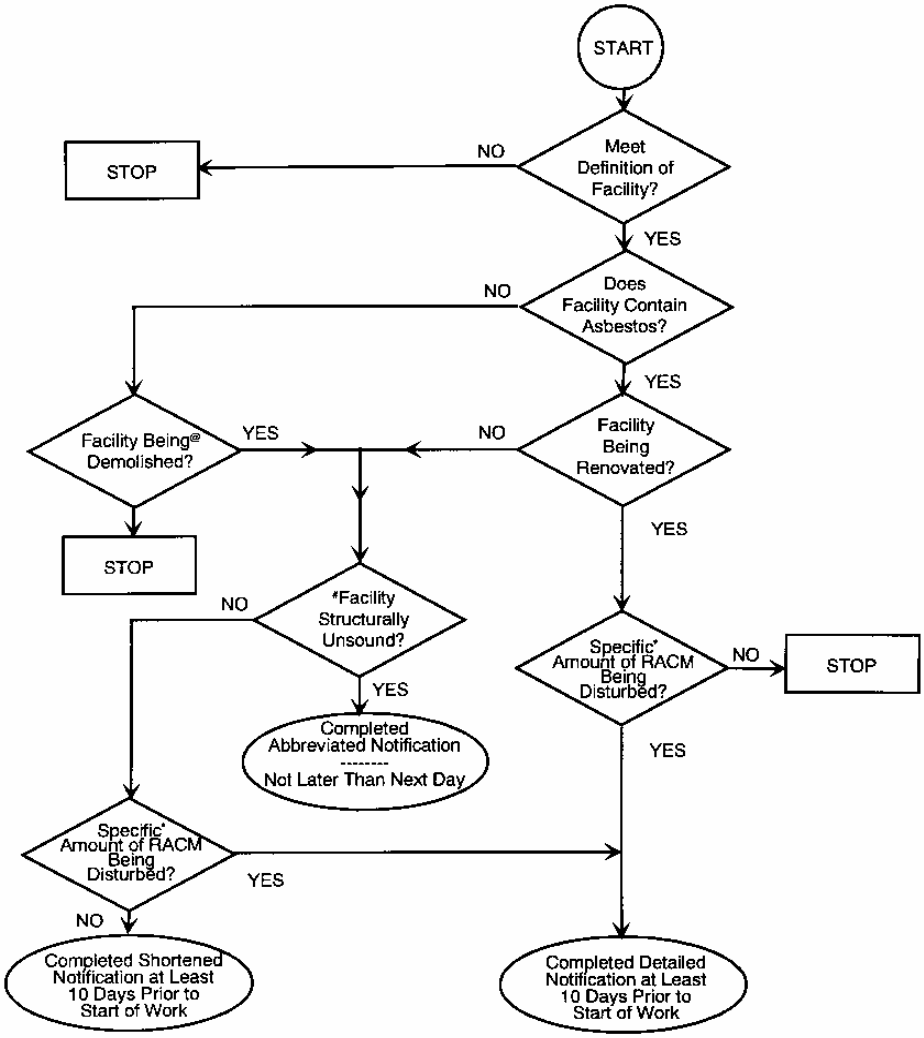
c. Responsibility. Activity.

d. Method. In-house, NAVFACENGCOMS, other Navy sources, or contract.

e. Funding Source. COMNAVFACENGCOM centrally managed hazard abatement account, budget submitting office, and activity.

f. Support. COMNAVFACENGCOM EFDs will maintain open-ended reimbursable contracts for developing hazard abatement projects.

Appendix 17-D
17-Information from NESHAP Asbestos Regulations



* 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

(40CFR61, Nov 1990)

Decision Logic to Determine Notification Requirements

* Specific - At least 260 ft, 160 ft^2, or 35 ft^3 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 CFR61:
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).

SAMPLE NOTIFICATION OF DEMOLITION AND RENOVATION

Operator Project #	Postmark	Date Received	Notification #

I. TYPE OF NOTIFICATION (O - Original R - Revised C - Canceled):		
II. FACILITY INFORMATION (Identify owner, removal contractor, and other operator)		
OWNER NAME:		
Address:		
City:	State:	Zip:
Contact:		Tel:
REMOVAL CONTRACTOR:		
Address:		
City:	State:	Zip:
Contact:		Tel:
OTHER OPERATOR:		
Address:		
City:	State:	Zip:
Contact:		Tel:
III. TYPE OF OPERATION (D - Demo O - Ordered Demo R - Renovation E - Emerg Renovation):		
IV. IS ASBESTOS PRESENT? (Yes/No):		
V. FACILITY DESCRIPTION (Include building name, number, and floor or room number)		
Bldg. Name:		
Address:		
City:	State:	County:
Site Location:		
Building Size	# of Floors:	Age in Years:
Present Use:	Prior Use:	
VI. PROCEDURE, INCLUDING ANALYTICAL METHOD, IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL:		

VII. APPROXIMATE AMOUNT OF ASBESTOS, INCLUDING: 1. Regulated ACM to be removed 2. Category I ACM Not Removed 3. Category II ACM Not Removed	RACM to be removed	Nonfriable Asbestos Material Not to be Removed		Indicate Unit of Measurement Below	
		Cat I	Cat II	UNIT	
Pipes				LnFt:	Ln m:
Surface Area				SqFt:	Sq m:
Vol RACM Off Facility Component				CuFt:	Cum:

VIII. SCHEDULED DATES ASBESTOS REMOVAL (MM/DD/YY) Start:	Complete:
IX. SCHEDULED DATES DEMO/RENOVATION (MM/DD/YY) Start:	Complete:

NOTE: States may require the use of state modified forms in place of the forms provided in this Appendix.

SAMPLE NOTIFICATION OF DEMOLITION AND RENOVATION (Cont'd)

X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED:		
XI. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION AND RENOVATIONS SITE:		
XII. WASTE TRANSPORTER #1		
Name:		
City:	State:	Zip:
Contact Person:		Telephone:
WASTE TRANSPORTER #2		
Name:		
Address:	State:	Zip:
Contact:		Telephone:
XIII. WASTE DISPOSAL SITE		
Name:		
Location:		
City:	State:	Zip:
Telephone:		
XIV. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW:		
Name:	Title:	
Authority:		
Date of Order (MM/DD/YY):	Date Ordered to Begin (MM/DD/YY):	
XV. FOR EMERGENCY RENOVATIONS		
Date and Hour of Emergency (MM/DD/YY):		
Description of the Sudden, Unexpected Event:		
Explanation of how the event caused unsafe conditions or would cause equipment damage or an unreasonable financial burden:		
XVI. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLED, PULVERIZED, OR REDUCED TO POWDERED.		
XVI. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THIS REGULATION (40 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION OR RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS. (Required 1 year after promulgation)		
_____ (Signature of Owner/Operator) (Date)		
XVII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.		
_____ (Signature of Owner/Operator) (Date)		

SAMPLE RECORD OF VISIBLE EMISSION MONITORING

Date of inspection (mo/day/yr)	Time of inspection (a.m./p.m.)	Air cleaning device or fugitive source designation or number	Visible emissions observed (yes/no), corrective action taken	Daily operating hours	Inspector's initials

SAMPLE AIR CLEANING DEVICE INSPECTION CHECKLIST

1. Air cleaning device designation or number _____

2. Date of inspection _____ _____ _____

3. Time of inspection _____ _____ _____

4. Is air cleaning device operating properly? (Yes/No) _____ _____ _____

5. Tears, holes, or abrasions in fabric filter? (Yes/No) _____ _____ _____

6. Dust on clean side of fabric filters? (Yes/No) _____ _____ _____

7. Other signs of malfunctions or potential malfunctions? (Yes/No) _____ _____ _____

8. Describe other malfunctions or signs of potential malfunctions _____

_____

_____

9. Describe corrective actions taken. _____

_____

_____

10. Date and time corrective action taken _____ _____ _____

11. Inspected by

(Print/Type Name)	(Title)	(Signature)	(Date)
(Print/Type Name)	(Title)	(Signature)	(Date)

SAMPLE WASTE SHIPMENT RECORD

Generators	1. Work site name and mailing address	Owner's Name	Owner's telephone no.
	2. Operator's name and address		Operator's telephone no.
	3. Waste disposal site (WDS) name, mailing address, and physical site location		WDS phone no.
	4. Name and address of responsible agency		
	5. Description of materials	6. Containers No. Type	7. Total quantity m^3 (yd^3)
	8. Special handling instructions and additional information		
	9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.		
	Printed/typed name and title	Signature	Month Day Year
Transporter	10. Transporter 1. (Acknowledgement of receipt of materials)		
	Printed/typed name and title Address and telephone no.	Signature	Month Day Year
	11. Transporter 2. (Acknowledgement of receipt of materials		
	Printed/typed name and title Address and telephone no.	Signature	Month Day Year
Disposal Site	12. Discrepancy indication space		
	13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12.		
	Printed/typed name and title	Signature	Month Day Year

Instructions

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.

2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.

3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.

4. Provide the name and address of the local, state, or EPA regional office responsible for administering the asbestos NESHAP Program.

5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is:

   a. Friable asbestos material

   b. Non-friable asbestos material.

6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also, enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below).

   a. DM - Metal drums, barrels

   b. DP - Plastic drums, barrels

   c. BA - 6 mil plastic bags or wrapping

7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).

8. Use this space to indicate special transportation, treatment, storage, or disposal or Bill of Lading information. If an alternate WDS is designated, note it here. Emergency response telephone number or similar information may be included here.

9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

NOTES:

The waste generator must retain a copy of this form.

Transporter Section (Items 10-11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTES:

The transporter must retain a copy of this form.

Disposal Site Section (Items 12-13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received, as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to non-asbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in item 12. The date is the date of signature and receipt of shipment.

NOTES:

1. The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in Item 2.

2. The waste must be delivered to the landfill within 35 days of the date in Item 9.

CHAPTER 18

HEARING CONSERVATION AND NOISE ABATEMENT

1801. Discussion

a. Hearing loss has been, and continues to be, a source of concern within the Navy, both ashore and afloat. Occupational hearing loss resulting from exposure to hazardous noise, the high cost of related compensation claims, and the resulting drop in productivity and efficiency highlight a significant problem that requires considerable attention. Noise control and hearing conservation measures contribute to operational readiness by preserving and optimizing auditory fitness for duty in Navy personnel.

b. Reference 18-1 contains then hearing conservation program for forces afloat.

c. Reference 18-2 describes the Department of Defense (DOD) hearing conservation requirements. Reference 18-3 is a Navy Environmental Health Center technical manual. It provides supplemental guidance concerning medical department procedures in support of the Hearing Conservation Program.

1802. Hearing Conservation Program Introduction.

The goal of the Navy hearing conservation program is to prevent occupational hearing loss and ensure auditory fitness for duty in the military and civilian workforce. The program includes the following:

a. Noise Measure and Analysis. Survey work environments to identify potentially hazardous noise levels and personnel at risk.

b. Engineering Control. Reduction of noise at the source is in the best interest of the Navy and its personnel. Environments that contain or equipment that produces potentially hazardous noise will, whenever it is technologically and economically feasible, be modified to reduce the noise level to acceptable levels as established by this chapter. Section 1810 of this chapter provides specific guidance on noise abatement.

c. Hearing Protective Devices. The use of personal hearing protective devices to limit noise exposure should only be an interim protective measure while implementing engineering controls. Where engineering controls are not feasible, regions and activities shall employ administrative controls and/or the use of hearing protective devices.

d. Audiometry. The cognizant medical treatment facility shall conduct periodic hearing tests that will allow regions or activities, as appropriate, to monitor the effectiveness of the hearing conservation program. Early detection of temporary threshold shifts allows further protective action to be taken before permanent hearing loss occurs. Necessary follow-up evaluation will be conducted to ensure appropriate referral, treatment and early return to duty.

e. Education. Individuals exposed to hazardous noise, their supervisors, and people providing hearing conservation services (i.e., training, monitoring, hearing protection, etc.) will receive training. Training these individuals is vital to the overall success of a hearing

conservation program. An understanding of the permanent nature of noise-induced hearing loss, its negative effects on operational readiness and individual fitness for duty, the command's hearing conservation program, and the individual's responsibilities under the program are all essential for program effectiveness. Also, regions and activities shall encourage all Navy employees to use hearing protective devices when exposed to hazardous noise during off-duty activities, e.g., from lawn mowers, chain saws, firearms, etc.

1803. Navy Occupational Exposure Limit (NOEL)

The following section gives the NOEL for occupational exposure to noise:

a. For an 8-hour time-weighted average (TWA) of 84 decibels on the A-weighted scale (dB(A)) for frequencies of 20 to 16,000 Hertz (Hz)).

b. For periods of less than 16 hours in any 24-hour period, calculate the NOEL from the following equation:

$$T = \frac{16}{2^{[\frac{L-80}{4}]}}$$

Where:
T = time in hours (decimal)
L = effective sound level in dB(A)

NOTE:

When two or more periods of noise exposure of different levels comprise the daily noise exposure, their combined effect must be considered. If the sum of the following expression exceeds unity (i.e., >1), then the mixed exposure exceeds the NOEL.

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \ldots \frac{C_n}{T_n}$$

Where C indicates the total time of exposure at a specified noise level and T represents the time of exposure permitted at that level.

c. For impact or impulse noise 140 dB peak sound pressure level.

d. When TWA exposures are greater than 84 dB(A), regions and activities shall include personnel in the Navy's Hearing Conservation Program.

1804. Noise Measurements and Exposure Assessments

In order to effectively control noise, it is necessary to accurately measure noise according to standard procedures and properly evaluate the measurements against accepted criteria.

a. Noise measurements shall be taken as part of the industrial hygiene survey.

(1) An IH, industrial hygiene technician, exposure monitor, occupational audiologist or other individual suitably trained by an IH is authorized to take noise measurements.

(2) Sound level meters shall conform, as a minimum, to the Type II requirements cited in reference 18-2. Suitably trained personnel shall use an acoustical calibrator, accurate to within plus or minus one decibel, to calibrate the instrument before each survey and to revalidate the calibration at the conclusion of the survey. Suitably trained personnel shall calibrate sound level meters and sound level calibrators electro-acoustically annually.

(a) Suitably trained personnel shall measure continuous or intermittent steady state noise with a sound level meter set for dB(A) scale, slow response.

(b) Suitably trained personnel shall measure impact or impulse noise as dB peak sound pressure level with an impact noise analyzer.

(3) In cases where circumstances such as high worker mobility, significant variations in sound levels, or a significant component of impulse noise make area monitoring generally inappropriate, suitably trained personnel shall use personal dosimeters for measurements. Personal noise dosimeters shall meet the requirements in reference 18-2.

Work environments where ultrasound is produced and hearing protection is not already used shall conform to the ultrasound exposure limits set forth in reference 18-2.

(4) Work environments found to have noise levels greater than 84 dB(A) (continuous or intermittent), or 140 dB peak sound pressure level for impact or impulse noise, shall be analyzed to determine the potential hazard and shall be resurveyed within 30 days of any significant modifications or changes in work routine which could impact/alter the noise intensity/exposure level.

(5) Suitably trained personnel shall conduct all noise measurements taken to determine an individual's exposure with the microphone of the measuring instrument placed at a height that most closely approximates the position/location of the worker's ear during normal working conditions. Work-centers may require repeat measurements during a single day and/or on different days of the week to account for the variations in noise level due to changes in operational schedules and procedures.

(6) The record of noise measurements shall be retained per the requirements of chapter 8 of this manual and include, as a minimum:

(a) The number, type and location of the noise sources.

(b) Number and identification of personnel in the work area and their daily noise exposure and duration.

(c) Type, model, serial number of test equipment and calibration data.

(d) Location, date and time of noise measurements.

(e) Noise levels measured and hazard radius.

(f) The name and signature of the person(s) who conducted the study.

(7) Personnel will record noise survey data on NEHC Forms 5100/17 and 5100/18 available at: http://www-nehc.med.navy.mil/ih/ihfom.htm, or use a computer-generated facsimile containing all the data fields of these forms.

b. TWA noise exposure assessments shall be determined for all personnel routinely working in hazardous noise areas and performing hazardous noise operations. These assessments are complex tasks that shall be performed by an IH or other person that an IH or audiologist judges to be competent. A complete analysis may require the use of octave band analyzers, recorders, and other specialized acoustical instrumentation such as personal noise dosimeters. The exposure assessment will identify which work areas, processes, and equipment produce hazardous levels of noise, determine the type of hearing protection necessary, and identify personnel at risk so they can be included in the hearing conservation program.

(1) Paragraph 1803 outlines the criteria used to determine the degree of compliance with applicable standards.

(2) Designate hazardous noise areas based on the following criteria:

(a) Any work area where the A-weighted sound level (continuous or intermittent) is or is reasonably expected to be greater than 84 dB(A).

(b) Any work area where the peak sound pressure level (impulse or impact noise) exceeds or is reasonably expected to exceed 140 dB peak.

(3) In the absence of a qualified professional's assessment and documentation to the contrary, regions and activities shall consider personnel at risk if routinely exposed to sound levels greater than 84 dB(A), or for impact or impulse noise, 140 dB peak sound pressure level. These individuals shall be identified on a roster or equivalent database for inclusion in the hearing conservation program. Although this chapter requires hearing conservation measures when noise levels are greater than 84 dB(A), the implementation of all available measures may not be necessary in every case. For example, regions and activities shall require visitors to a hazardous noise area to wear protection, but would not require visitors to have their hearing tested or be included on a roster of noise-exposed personnel. There may also be unique situations where sound levels rise unpredictably to greater than 84 dB(A) or above for short durations so that the wearing of hearing protective devices may be judged impractical or unnecessary. Regions and activities shall document decisions to waive the use of hearing protective devices; such professional judgments shall be rendered by an IH or other qualified professionals, using approved instrumentation and considering all relevant factors.

(4) Determinations to exclude individuals who are already included in a hearing conservation program will be made only by professionals qualified to provide or evaluate noise exposure assessments. In no case will regions or activities exclude individuals already included in a program based upon exposure assessment alone without concurrence from an audiologist or physician trained in occupational hearing loss. Such concurrence is necessary to avoid exclusion of personnel who are noise susceptible or at exceptional risk due to pre-existing hearing loss. Personnel who use hearing aids shall not use them in place of approved hearing protectors. Hearing aids may not be used in conjunction with hearing protective devices except as approved by an audiologist or otolaryngologist on a case-by-case basis.

(5) Region or activity follow-up of exposure assessments shall include, as a minimum, the following elements:

(a) Identification of those responsible for designating work areas or equipment as noise hazardous.

(b) Identification of individuals exposed to hazardous levels of noise. This roster shall be updated at least semi-annually.

(c) Identification of the medical facility responsible for audiometric monitoring.

(d) Identification of those responsible for training personnel in the elements of the hearing conservation program.

(6) Regions and activities shall notify each employee exposed to an 8-hour TWA of greater than 84 decibels of the results of the exposure assessment. See paragraph 0803.a for requirements on documentation in each employee's medical record.

1805. Labeling of Hazardous Noise Areas and Equipment

Regions and activities shall label designated hazardous noise areas and equipment that produce sound levels greater than 84 dB(A) or 140 dB peak sound pressure level. NAVMED 6260/2, Hazardous Noise Warning Decal, 8"x10.5" - NSN: 0105-LF-004-7200, and the NAVMED 6260/ 2A, Hazardous Noise Labels (displayed on hand tools), 1"x1.5"- NSN: 0105-LF-004-7800, are the approved decals and labels for marking hazardous noise areas or equipment. Equipment and/or power tools may be individually and permanently marked via a stencil (painted) or engraved with the words "Produces Hazardous Noise" or via the NAVMED 6260/2A, Hazardous Noise Warning Decal. To minimize foreign object damage, flight line tools may be stenciled as noise hazardous in lieu of the approved label.

a. Regions and activities shall not post an entire building as a hazardous noise environment unless nearly all areas within the building are designated hazardous noise areas.

b. Military combatant equipment is excluded from this labeling requirement. Personnel operating and maintaining combat equipment, however, must be made fully aware of hazardous noise exposure conditions.

c. Regions and activities shall have the option of using additional means to alert employees to noise hazard operations. These may include posting barriers or using flashing lights to indicate hazardous noise conditions exist.

1806. Hearing Testing and Medical Evaluation

Regions and activities shall enter all Navy personnel, military and civilian, except those specifically excluded under paragraph 1804b, who are required to work in designated hazardous noise areas or with equipment which produces or is reasonably expected to produce exposure levels at or above an 8-hour TWA of greater than 84 dB(A) or with impulse exposures exceeding 140 dB peak sound pressure levels, into a hearing conservation program. Hearing conservation measures and medical evaluations of hearing tests shall be per the detailed procedures set forth in reference 18-3.

a. (Baseline) Hearing Tests

(1) All military personnel shall receive a reference-hearing test, recorded on a DD 2215, upon entry into naval service. Hearing tests performed at Military Entrance Processing Stations shall not be used as reference audiograms. All civilian personnel being considered for employment in an occupational specialty or area that involves routine exposure to hazardous noise shall receive a reference hearing test. All reference hearing tests shall be preceded by at least 14 hours without exposure to hazardous noise. This requirement may not be met by wearing the appropriate hearing protective device. Reference hearing tests will not be conducted if there is evidence of a transient medical condition that would affect hearing thresholds.

(2) Navy employees presently in service who do not have a reference audiogram filed in their health record shall not be assigned to duty in a designated hazardous noise area involving exposure to hazardous noise until a reference-hearing test has been performed.

b. Monitoring Hearing Tests

(1) All personnel routinely exposed to noise in excess of the NOEL, and others determined to be at risk, shall also be included in the hearing conservation program, have a reference (DD 2215) hearing test in their record and receive periodic monitoring hearing tests. “Routinely exposed” is described in reference 18-3. Hearing tests shall be conducted at least annually thereafter for as long as the employee remains in a noise hazardous environment. Monitoring hearing tests shall also be conducted when there are individual complaints of hearing difficulties, e.g., difficulties in understanding conversational speech or a sensation of ringing or fullness in the ear(s). Follow-up evaluation shall be provided to assure appropriate referral, treatment and early return to duty.

(2) The monitoring audiogram shall be compared with the reference audiogram to determine if a significant threshold shift (STS) has occurred relative to the reference audiogram.

c. Exclusion From Future Noise Exposure. Regions/Activities shall consider individuals who exhibit a progressive series of permanent threshold shifts to be at high risk for

further hearing deterioration. Accordingly, such personnel must be given special consideration under the hearing conservation program.

(1) Individuals monitored under the hearing conservation program who have their reference audiogram redefined due to worsening hearing on three separate occasions, or have hearing loss in both ears in which the sum of thresholds at the frequencies of 3000, 4000 and 6000 Hz exceeds a total of 270 dB, must obtain clearance from an audiologist, otologist or occupational medicine physician before returning to duties involving hazardous noise. A Fitness For Duty evaluation must be performed on these individuals.

(2) If such clearance is inappropriate, the audiologist or medical officer in charge of the hearing conservation program will make specific recommendations to the individual's command. These may include the advisability of restriction from noise hazardous work, appropriate placement of the worker and/or the need for stricter enforcement of hearing protection policies.

d. Disposition Following Monitoring Hearing Tests. The amount of threshold shift considered to be significant is defined as a change in hearing threshold relative to the current Reference Audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz, in either ear. A change of 15 dB or greater in either ear at any test frequency from 1000 to 4000 Hz will be considered an early warning of potential future STS, requiring verbal counseling and assurance of appropriate hearing protection for the individual, but will not require follow-up testing. The 10 dB average STS may be positive (poorer hearing) or negative (better hearing) Additionally, STS's are considered OSHA recordable when an audiologist, otologist, or occupational medicine physician confirms the shift is toward deteriorated hearing, is permanent, is consistent with an occupational origin, and exceeds an average of 25 dB or more above audiometric zero, in the same ear at 2000, 3000, and 4000 Hz. The individual and their supervisor shall be notified when either an STS or an OSHA recordable STS occurs. The activities are to report only those STS's that are OSHA recordable on their OSHA 300 Log. (See Chapter 14 paragraph 1409 for additional details on reporting STS.).

Example 1. An individual may be employed by the Navy with 0 dB hearing loss at 2000, 3000, and 4000 Hz on their Baseline Audiogram. The same individual five years later demonstrates hearing thresholds of 5 dB at 2000, 15 dB at 3000 and 25 dB at 4000 Hz, average change of 15 dB hearing at these frequencies. This would be a Navy STS that is required to be reported to the individual and the activity that employs this individual, but would not be an "OSHA recordable" hearing loss that would need to be included on the OSHA 300 Log, i.e. the hearing loss does not exceed 25 dB at the required frequencies. The individual in this example would have to lose an average of 25 dB at 2000, 3000, and 4000 Hz before they would be included on the OSHA 300 Log.

Example 2. An individual started employment with the Navy with a pre-existing hearing loss such as 15 dB at 2000, 20 dB at 3000, and 25 dB at 4000 Hz. Five years later their hearing is now 20 dB at 2000, 30 dB at 3000, and 40 dB at 4000 Hz, an average change of 10 dB with average hearing threshold levels now of 30 dB. This would be considered a Navy STS **AND** an "OSHA recordable" STS and would need to be recorded on the activities OSHA 300 Log using WESS.

e. Termination Hearing Test. Military personnel shall receive a hearing test upon termination of Navy service. Civilian personnel, who have been routinely exposed to hazardous noise or have previously demonstrated a significant threshold shift, shall receive a hearing test upon termination of employment. Additionally, all personnel dropped from the hearing-testing program due to removal from hazardous noise duties will have a termination test to document auditory status at the time of reassignment.

1807. Personal Hearing Protective Devices

a. Hearing protective devices shall be worn by all personnel when they enter or work in an area where the operations generate:

(1) Sound levels greater than 84 dB(A).

(2) 140 dB peak sound pressure level or greater.

b. A combination of insert type and circumaural types of personal hearing protectors (double protection) shall be worn when sound levels exceed 104 dB(A), or 165 dB, unless an occupational audiologists, IH, or occupational medicine physician has determined that single protection is adequate for the anticipated duration of exposure.

c. All personnel exposed to gunfire in a training situation or to artillery or missile firing, under any circumstances, shall wear hearing protective devices.

d. The determination of which single hearing protective device, or a combination of devices is suitable for use in each situation, is the responsibility of the IH, audiologist, occupational medicine physicians or other competent personnel, under their supervision. Appendix 18-A contains information on hearing protection devices and selection criteria. Every effort shall be made to issue personal hearing protective devices suited to the location and duration of usage. Personal hearing protective devices used singly or in combination, should reduce effective sound levels to less than 84 dB(A) or 140 dB peak. Appendix 18-A lists recommended hearing protective devices available through the Navy supply system. The Navy Environmental Health Center (NEHC) website (currently at http://www-nehc.med.navy.mil/) identifies additional hearing protectors that have been tested by DOD activities, and are approved for open purchase. Regions/Activities desiring to use hearing protective devices not specified in appendix 18-A or cited by NEHC shall submit a sample of the device with a request for evaluation to the Chief, Bureau of Medicine and Surgery (BUMED). BUMED will review manufacturers' test data and conduct additional evaluation as necessary to determine suitability for use.

e. In cases where hearing protection devices alone do not provide sufficient attenuation to reduce the employee's effective exposure at or below an 8-hour TWA of 84 dB(A), administrative control of exposure time will be necessary. Appendix 18-B contains a table of noise exposure limits.

f. Personnel may use custom earplugs only if they cannot be properly fitted with approved hearing protectors or if special circumstances require a custom hearing device. Flight line, flight deck operations and personnel exposed to hazardous aircraft noise have the option to use custom hearing protection to effectively reduce excessive noise exposure and maintain

communication ability**.** Regions/Activities shall provide preformed or custom molded musician's earplugs to service band members. Only audiologists, otolaryngologists or trained medical technicians may take impressions of the ear necessary to make custom earplugs.

g. The use of portable musical devices such as radio headphones, CD players, Walkman cassette/CD players, etc. is prohibited in industrial areas and in work areas where high noise hazards have been identified. Region/activity policy regarding the use of these devices during on-base recreational activities must be consistent with the Navy Traffic Safety Program, OPNAVINST 5100.12.

1808. Training

a. Personnel identified for inclusion in the hearing conservation program must receive initial and refresher training per appendix 6-A. Initial training will be provided before assignment to duty in a designated noise hazardous area involving exposure to hazardous noise. Refresher training can be given by local medical personnel at the time of the annual audiogram. The cognizant medical activity shall document the training in the medical record with appropriate notification to the OSH office. The region or activity OSH office shall maintain records of such training per chapter 6.

b. All Navy personnel included in the hearing conservation program shall receive appropriate instruction in:

(1) The elements of and rationale for a hearing conservation program.

(2) Proper wearing and maintenance of hearing protection devices.

(3) The command program and individual responsibilities.

(4) Off-duty practices which will aid in protecting their hearing.

(5) Individuals responsibility in protecting their own hearing.

(6) How hearing loss affects employability, retention, job performance and career progression.

c. Regions or activities shall provide instruction to all personnel upon reassignment to a new job that is noise hazardous.

1809. Recordkeeping

a. Regions or activities shall record results of hearing tests performed for hearing conservation purposes, as well as exposure documentation, and these records shall become a permanent part of an employee's health record. The medical department shall retain the original reference audiogram as a permanent part of an employee's health record along with all disposition results and referral notations. The medical department shall record all hearing test results on DD 2215, *Reference Audiogram*, or DD 2216, *Hearing Conservation Data*, as appropriate. The medical department shall place the original in the health record and upload a digitized copy to the Defense Occupational Environment and Health Readiness System-Data

Repository (DOEHRS-DR). Those few medical departments that do not have DOEHRS equipment should contact NAVENVIRHLTHCEN for guidance. NAVENVIRHLTHCEN will no longer accept hard copy forms.

b. The medical department shall retain all noise measurement data, as well as audiometric records and information in an employee's health record per the provisions of Chapter 8, and record the results of noise exposure assessments in the work location block on the DD 2215s and 2216s.

1810. Noise Abatement Program Introduction.

The primary means of protecting Navy personnel from hazardous noise shall be through the application of engineering controls. Administrative controls (i.e., the adjustment of work schedules to limit exposure) are also effective but often result in some loss in productivity. Personal protective equipment (PPE) (ear plugs, muffs, etc.) shall be the permanent solution only when regions or activities determine engineering or administrative controls infeasible. Chapter 5 discusses general hazard (including noise) control techniques in more detail; therefore, this chapter will address only specific concepts.

1811. Preventive Measures

It is less costly to eliminate potential noise problems in the design or procurement stage for new processes, equipment, and facilities than it is to make retrofits or modifications after the fact. References 18-3 through 18-8 provide guidance to meet this objective.

1812. Abatement of Existing Noise Hazards

a. Abatement Methods. The region or activity shall undertake the abatement of hazardous noise levels, to the extent possible or practicable, by one or more of the following methods:

(1) By engineering design to eliminate or reduce the noise levels of machinery, equipment and other operating devices/facilities to acceptable levels.

(2) By damping the noise by means of lamination, mufflers, mountings, couplings, supports, insulation or application of acoustic materials.

(3) By acoustical enclosure of the noise producer.

(4) By isolation of the noise producer to a point where the noise will affect fewer personnel.

(5) By substitution of a less hazardous process.

(6) By administrative controls which limit exposure (i.e., control of work schedules).

b. Engineering control feasibility studies. Regions or activities shall initiate studies for those areas where continuous noise levels exceed 100 dB(A) and personnel are exposed for

4 hours or more even though protected by hearing protective devices. Only when regions or activities determine that the methods outlined above are infeasible shall they consider the utilization of personal hearing protective devices a permanent means of control. Regions or activities shall support such determinations by appropriate documentation signed by the cognizant IH and the cognizant engineer and maintain records of such determinations. See chapter 1 for a discussion of exceptions for military unique equipment and operations.

1813. Responsibilities

The Navy assigns the following responsibilities to provide sound and effective occupational noise control and hearing conservation throughout the Navy.

a. The Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Centrally manage the hearing conservation program and periodically update the program to maintain currency and effectiveness.

(2) Provide audiometric support to all military and civilian personnel.

(3) Provide subject matter expertise and technical review, and provide/document refresher hearing conservation training in conjunction with the annual audiogram.

(4) Provide appropriate professional and technical hearing conservation guidance and assistance to the Naval Education and Training Command (NETC) and/or Naval Personnel Development Command (NPDC).

(5) Develop guidelines and issue certification for:

(a) Personnel conducting sound level measurements.

(b) Personnel performing hearing conservation audiometry.

(c) Audiometric test chambers.

(d) Audiometers.

(6) Establish and maintain a hearing conservation database to measure program effectiveness and use prevalence of hearing loss to provide input to noise control engineering decisions.

(7) Support a research and development effort in the medical aspects of hearing conservation.

(8) Provide assistance in the identification and quantification of noise hazard sources.

b. Headquarters Commanders shall:

(1) In coordination with BUMED, provide technical assistance and engineering guidance to subordinate commands per section 1810.

(2) Consider, design, and engineer noise control features into all (both existing and future) ships and aircraft, weapons and weapon systems, equipment, materials, supplies and facilities.

(3) Provide appropriate technical and engineering control methodology guidance and assistance to NETC/NPDC.

c. Regional Commanders and/or Commanding Officers for shore activities shall:

(1) Label all Navy areas, worksites, and equipment under their cognizance, identified as noise hazardous and where necessary, ensure suitably trained personnel conduct surveys and assessments.

(2) Institute a hearing conservation program where a potential noise hazard has been identified per section 1804 and maintain a roster of personnel placed in the program.

(3) In cooperation with the cognizant medical treatment facility, annually evaluate hearing conservation program effectiveness as specified in 18-2.

(4) Eliminate or reduce hazardous noise levels through the use of engineering controls. Guidance to determine who has the responsibility (i.e., region or activity) is provided in paragraph 1202.

(5) Regions and activities provide personal hearing protective devices, and ensure proper usage by personnel where administrative or engineering controls are infeasible or ineffective.

(6) Provide instruction per this chapter to all military and civilian personnel, whose duties entail exposure to potentially hazardous noise.

(7) Emphasize leadership by example regarding the wearing of hearing protective devices. Regions and activities shall enforce policy, including the initiation of disciplinary measures for repeated failure to comply with the requirements of the hearing conservation program.

(8) Regional Commanders and/or Commanding Officers for shore activities shall utilize a “Buy Quiet” policy when feasible/applicable when procuring tools and equipment.

Chapter 18

References

18-1. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety & Health (OSH) Program Manual for Forces Afloat http://neds.daps.dla.mil/Directives/5100.19d_CH-1.pdf.

18-2. DODI 6055.12 of 5 Mar 04, Hearing Conservation Program http://www.dtic.mil/whs/directives/corres/pdf/i605512_030504/i605512p.pdf.

18-3. NEHC Technical Manual, NEHC-TM OEM 6260.51.99-2 of Sept 04, Navy Medical Department Hearing Conservation Program Procedures, http://www-nehc.med.navy.mil/downloads/occmed/TechManualHCPfinal9_22allcomments.pdf.

18-4. NAVFAC P-970 of 15 Jun 78, Environmental Protection Planning in the Noise Environment.

18-5. UFC 3-600-01 of 17 Apr 03, Fire Protection for Facilities (NOTAL).

18-6. Army TM-5-805-4 of May 95, Noise and Vibration Control http://www.usace.army.mil/inet/usace-docs/armytm/tm5-820-1/.

18-7. NIOSH Pub. No. 79-117, Industrial Noise Control, latest edition http://www.cdc.gov/niosh/79-117pd.html.

18-8. 18-8. MIL-STD-1472F, of 31 Mar 98, Human Engineering Design Criteria for Military Systems, Equipment and Facilities, latest edition, (NOTAL) http://hfetag.dtic.mil/docs-hfs/mil-std-1472f.pdf.

Appendix 18-A
Hearing Protective Devices

Manufacturer's Nomenclature/NSN	Type of Protector	Federal Nomenclature
Ear Defender V-51R	Insert Earplug	Plug, Ear, Noise Protection
6515-00-442-4765	(sized) 24's	(X-Small) (White)
6515-00-467-0085	(sized) 24's	(Small) (Green)
6515-00-467-0089	(sized) 24's	(Medium) (Int'l Orange)
6515-00-442-4807	(sized) 24's	(Large) (Blue)
6515-00-442-4813	(sized) 24's	(X-Large) (Red)
Comfit, Triple Flange	Insert Earplug	Plug, Ear, Noise Protection
6515-00-467-0092	(sized) 24's	(Large) (Blue)
6515-00-442-4818	(sized) 24's	(Regular) (Orange)
6515-00-442-4821	(sized) 24's	(Small) (Green)
Silaflex (Blister Pack)	Non-Hardening	Plug, Ear, Noise Protection
6515-00-133-5416	Silicone	Cylindrical, Disposable 200's
EAR or Deci-Damp	Foam Plastic	Plug, Ear, Noise Protection
6515-00-137-6345	Insert	Universal Size, Yellow 200 pr
Straightaway Muffs	High Performance	Aural Protector
4240-00-759-3290	Circumaural Muffs	Sound 372-9 AN/w
4240-00-674-5379	For 9 AN/2	Replacement Filter, Dome
4240-00-979-4040	For 9 AN/2	Replacement Seal, Dome
Ear Plug Cases		
6515-01-212-9452		Case, Earplug 12's
6515-01-100-1674	Non-reflective	Case, Earplug 20's
Sound-Ban	Headband, Earcaps	Plug, Ear, Hearing
6515-00-392-0726		Protection, Universal Size
Circumaural Muff	Type I Overhead	Aural Protector, Sound
4240-99-691-5617	Headband	
Circumaural Muff	Type II	Aural Protector, Sound
4240-00-022-2946	Napeband (for use with hard hat)	

POSITIVE AND NEGATIVE FEATURES OF HEARING PROTECTION DEVICES

Type	Positive	Negative	Duration
Insert V-1R Triple Flange	After adaptation can be used for long periods. Relatively inexpensive.	Individual fittings by medical personnel required. Frequent fitting causes irritation.	Long-term (3 - 4 hours)
Disposable Silaflex, EAR or Deci-Damp	Comfortable. Individual fitting not required. Relatively inexpensive	Molded by hand. Easily Soiled. Difficult to clean.	Infrequent use. Transitory noise exposure.
Circumaural Muffs Type I and II 372-9 and AN/2	May be worn over plugs. Most efficient universal device.	Expensive. Heavy. Difficult to carry. Hair or eyeglasses may reduce effective ness.	Long or short term

One single type of hearing protective device will not meet the needs of all personnel in a hearing conservation program. Regions and activities shall select the appropriate type of hearing protection device based upon a consideration of the factors listed above in addition to the degree of attenuation required in a particular situation. The most convenient method of making this determination is the Noise Reduction Rating (NRR) developed by the Environmental Protection Agency (EPA). The NRR is usually shown on the hearing protector package. The NRR is then related to an individual worker's noise environment in order to assess the adequacy of the attenuation of a given hearing protector.

Since there are a wide variety of noise measuring instruments in use, personnel conducting sound level measurements shall use one of the following methods. In each case, they should take a sufficient number of measurements to achieve a representative noise sample.

a. When using a dosimeter that is capable of C-weighted measurements:

(1) Obtain the C-weighted dose for the entire work shift, and convert to TWA sound level (see dosimeter instruction manual for conversion table).

(2) Subtract the NRR from the C-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

b. When using a dosimeter that is not capable of C-weighted measurements, the following method may be used:

(1) Convert the A-weighted dose to TWA (see dosimeter instruction manual).

(2) Subtract 7 dB from the NRR value.

(3) Subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

c. When using a sound level meter set to the A-weighting network:

(1) Obtain the A-weighted TWA.

(2) Subtract 7 dB from the NRR and subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

d. When using a sound level meter set on the C-weighting network:

(1) Obtain a representative sample of the C-weighted sound levels in the environment.

(2) Subtract the NRR from the C-weighted average sound level to obtain the estimated A-weighted TWA under the ear protector.

This manual considers the effectiveness of any combination of insert plugs with circumaural muffs (double protection) to be at least 30 dB. If a region or activity determines the result of subtracting the estimated reduction value of a particular device or combination of devices from the measured workplace sound level is at or below 84 dB(A), the protection is adequate. However, should the value exceed 84 dB(A) or 140 dB peak, regions and activities shall institute administrative controls to reduce personnel exposure to acceptable levels.

Appendix 18-B
Administrative Control of Noise Exposure with Hearing Protective Devices (Stay Time)

Limiting time (hr:min per 24 hour day)

Sound Level (dB(*)	Hearing Protector Noise Reduction (dB) 10	20	30	40
90	16	--	--	--
94	8	--	--	--
98	4	--	--	--
102	2	11:18	--	--
106	1	5:39	--	--
110	0:30	2:49	16	--
114	0:15	1:25	8	--
118	__	0:42	4	--
122	__	0:21	2	11:18
126	__	__	1	5:39
130	__	__	0:30	2:49
134	__	__	0:15	1:25
138	__	__	__	0:42

NOTE: Values other than those given above may be calculated using the formula:

$$T = \frac{16}{2^{[\frac{L-80}{4}]}}$$

Where: T = time in hours (decimal)
L = effective sound level in dB(A)

* Sound levels may be measured in either dB (A) or dB (C). However, as noted in appendix 18-A, if dB (A) is used, the NRR must be reduced by 7 dB.

Intermediate values may be interpolated by adding or subtracting the decibel difference to the appropriate column.

CHAPTER 19

SIGHT CONSERVATION

1901. Discussion

All Navy regions and activities with personnel having exposure to eye hazardous operations shall implement a sight conservation program per the guidance established in this chapter and chapter 20. The region/activity sight conservation program shall include, but not be limited to, the following 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. An employee training, promotion and emphasis program.

e. Effective program enforcement.

1902. Basic Program Requirements

Emergency Eyewash Facilities. The responsibility for managing eyewashes rests with the owner of the work process that requires eyewashes (e.g., region, activity, etc.). Regions or activities shall provide emergency eyewash facilities meeting the requirements of reference 19-1 in all areas where the employees' eyes may be exposed to corrosive materials. All such emergency facilities shall be located where they are easily accessible to those in need. Work centers shall activate plumbed eyewash units weekly for a period long enough to verify operation and flush the line. During annual inspection, verification of the weekly eyewash activation is recommended. Quarterly verification, typically by the safety office is recommended. Activation may be required more frequently if the region's/activity's safety and/or occupational health staff determine it is necessary to ensure proper functioning and performance of the eyewash station. Inspection and maintenance tags should be placed on self-contained eyewash units to document most current inspection/maintenance.

Regions or activities shall service pressurized and non-pressurized self-contained eyewash units quarterly, as a minimum, or per the manufacturer's recommendations, whichever is more frequent. Periodic maintenance shall include cleaning of the unit, replacement of water (depending on manufacturer's recommendation), and checking for proper operation. Where an additive is used in a self-contained eyewash unit, regions or activities shall use additives specified by the manufacturer, and change fluid at an interval recommended by the manufacturer of the additive. Work centers shall maintain written, dated and signed maintenance records for a period of one year.

Regions 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. Regions and activities shall 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 region/activity OSH staff.

1903. Occupational Eye Care Services and Equipment

The region/activity OSH office shall 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). Regional and/or activity commanding officers shall establish procedures for obtaining prescription safety eyewear though contracts, reimbursement, cognizant medical activity, or other methods. Such procedures shall comply with provisions of Labor Management Relations covered under 5 USC Chapter 71, other provisions of law providing for collective bargaining agreements and procedures, and any agreements entered into under such provisions.

Vision screening (e.g., visual acuity, visual fields, color vision) is required to evaluate whether employees (or employee applicants) meet essential job elements. Functional requirements or medical surveillance/certification requirements are covered under the Occupational and Environmental Services in 0805.

When Navy medicine provides these services, all medical forms and evaluations must be documented according to the Bureau of Medicine and Surgery Manual of Medical Department, NAVMED P117.

1904. Temporary Protective Eyewear

Where protective corrective eyewear is necessary, regions/activities shall provide planos or goggles to visitors, instructors and others who must enter or pass through eye hazardous areas. In addition, they shall be provided to employees awaiting delivery of corrective-protective eyewear.

Chapter 19

References

19-1. American National Standards Institute (ANSI) Standard Z358.1-2004, Emergency Eyewash and Shower Equipment, (NOTAL) http://www.ansi.org/.

CHAPTER 20

PERSONAL PROTECTIVE EQUIPMENT

2001. Discussion and Policy

a. The best means of protecting personnel from hazard exposure in the workplace is to eliminate the hazard. When this is not possible, engineering controls shall be the method of choice to eliminate or minimize hazard exposure in the workplace. When neither of these methods can be employed, activities shall implement a personal protective equipment (PPE) program to reduce or eliminate personnel exposure to hazards.

b. Navy policy is 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 shall provide necessary protective equipment where there is a reasonable probability that the use of the equipment will prevent or reduce the severity of injuries or illnesses. PPE procurement and enforcement of proper use and maintenance is the responsibility of the activity.

c. Activities must recognize that personal protective devices do nothing to reduce or eliminate the hazard itself. They merely establish a last line of defense, and any equipment breakdown, failure or misuse immediately exposes 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, maintenance, employee training (including equipment limitations) and mandatory enforcement of equipment use are key elements of an effective PPE program.

2002. Basic Program Requirements

Each activity shall ensure that an assessment of all workplaces is conducted to determine if hazards are present that necessitate the use of PPE. If such hazards are present, or likely to be present, activities shall accomplish the following actions:

a. Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment.

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 workplace evaluated, the person performing the evaluation and the date(s) of the hazard assessment. Activities shall retain this document as proof of hazard assessment.

NOTE:

Reference 20-1 contains an example of procedures that would comply with the requirement for a hazard assessment.

2003. Equipment Specifications and Requirements

All personal protective clothing and equipment shall 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 shall 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) specifications.

c. Recognized approval authority, such as Underwriter's Laboratories (UL), Factory Mutual (FM), or American Society of Testing and Materials (ASTM).

2004. Eye and Face Protection

Employees shall wear approved eye and/or eye and face protection when there is a reasonable probability that wearing such equipment will prevent injury. They shall use eye protection at all times in a designated eye hazard area. Flying particles and chips; splashes from liquids such as acids, caustics and solvents; and operations that generate hot slag or molten metal, welding glare, etc., can cause eye and/or face injury. The activity shall provide the required approved protective equipment and enforce usage as recommended by their hazard assessment. Reference 20-2 provides the requirements for design, construction, testing and use of devices for eye and face protection. Chapter 19 of this manual contains additional information on the sight conservation program.

2005. Hearing Protection

See chapter 18 for hearing protection requirements.

2006. Respiratory Protection

See chapter 15 for respiratory protection requirements.

2007. Head Protection

Helmets and hats for the protection of Navy employees from the impact of falling and flying objects and from limited electric shock and burn shall meet the specifications of reference 20-3. Employees shall wear head protection at all times in a designated hardhat area.

2008. Foot Protection

a. Foot Hazardous Operations. Foot and toe hazardous operations are those that have a high incidence of, or potential for, foot or toe injuries. Examples of trades or ratings generally associated with foot or toe hazardous operations are construction, materials handling, maintenance, transportation, ship repair and operation, aircraft overhaul and repair and explosives manufacturing and handling. Employees shall wear foot and toe protection at all times in a designated foot hazard area.

b. Foot Protective Devices

(1) Safety shoes, with a built-in protective toe box, primarily provide protection from heavy falling objects. These shoes shall conform to the requirements of reference 20-4, and be appropriately labeled per reference 20-4. General-purpose safety shoes (Chukka style) 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 shall wear the following special-purpose safety footwear, furnished for special hazards:

(a) Semi-conductive 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. These brown shoes shall conform to Specification CID-A-A-50359 (Shoe, Conductive Series). This shoe was formerly procured under MIL-B-3794.

(b) Molder's "Congress" style safety shoes or boots for protection while handling molten metal. The design allows quick removal of the shoes, if necessary, to minimize injury if molten materials fall inside. (MIL-S-82245, Shoe, Molders).

(c) Electrical hazard safety shoes, with a built-in protective toe box, to guard against electrical shock hazards when performing electrical work on live circuits not exceeding 600 volts. Employees should note, however, that these shoes only provide partial protection and should not ignore additional protective measures normally employed in these environments, (i.e., all personnel working on energized circuits shall insulate themselves from the ground (MIL-S-43860 Shoes, Electrical Hazards Protective).

(3) Safety boots are general-purpose footwear items offering the same toe protection as the above safety shoes except in a boot designed for added support. The Navy does not approve these boots for use in areas where hazardous chemicals are used. (MIL-B-87067, Boot, Safety Series).

c. Appropriation and Distribution. The following procedures apply to the issue of protective footwear for military and civilian employees.

(1) Activities shall 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 shall provide replacement standard stock safety shoes as organizational clothing (similar to coveralls or foul weather gear).

(2) The primary method for providing safety shoes to civilians is: issue of standard stock items or reimbursement to 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 (Defense Capital Working Fund (DCWF), research development, test, and evaluation (RDT&E), operation and maintenance, Navy (O&M, N). Activities purchasing safety shoes under either local reimbursement or local contracting

procedures shall ensure that they are appropriately labeled, and meet the requirements of reference 20-4. Activities shall 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 2008b. Activities must document cases where medical considerations require specialized safety shoes (orthopedic safety shoes) with a written statement from a physician who treats foot disorders.

(a) Activities shall provide Navy U.S. civilian employees overseas (including foreign nationals) with safety shoes, as required, from standard stocks, unless 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 shall 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.

2009. Hand Protection

a. Activities shall select, provide and require appropriate hand protection whenever employees' hands are exposed to, or are likely to be exposed to, such hazards as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasion; punctures; chemical irritants; thermal burns; and harmful temperature extremes.

b. Activities shall base selection of hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use and the hazards and potential hazards identified by the Safety Office.

2010. Electrical Protective Devices

Navy activities shall provide appropriate rubber protective equipment for electrical workers who perform work on energized or potentially energized electrical systems. Equipment shall conform to references:

American Society for Testing and Materials (ASTM) D 120-87, Specifications for Rubber Insulating Gloves.

ASTM D 178-88, Specification for Rubber Insulating Matting.

ASTM D 1048-88, Specification for Rubber Insulating Blankets.

ASTM D 1049-88, Specification for Rubber Insulating Covers.

ASTM D 1050-90, Specification for Rubber Insulating Line Hose.

ASTM D 1051-87, Specification for Rubber Insulating Sleeves.

2011. Safety Clothing. Special clothing may consist of flameproof coveralls, disposable coveralls, impervious chemical spill coveralls, personal floatation devices (PFDs), welding leathers, and chemical aprons.

a. Activities shall 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 identified by the Safety Office.

b. Navy activities shall 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, and harmful temperature extremes.

c. Whenever personnel are required to wear life jackets in open sea operations, the life jackets must be inherently buoyant. Jacket-type life preservers may be used in lieu of inherently buoyant PFDs, by personnel in exposed pier locations, when working over the side, working on floating camels or barges, and during tug and small boat operations

2012. Personal Fall Protection Equipment.

Fall protective equipment is discussed in Chapter 13.

2013. Training

a. Activities shall provide training to each employee who is required to use PPE to include at least the following:

(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) Ability to recognize that defective or damaged PPE shall not be used.

b. Each affected employee shall demonstrate an understanding of the training specified in paragraph 2011a, and the ability to use PPE properly before being allowed to perform work requiring the use of PPE.

c. When 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 2011b above, the supervisor shall 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.

d. Activities shall maintain documentation verifying that each affected employee has received and understands the required training. Documentation shall be in accordance with paragraph 0605 of chapter 6.

2014. Responsibilities

Commanders, Commanding Officers, and Officers in Charge shall include and enforce the following provisions concerning PPE:

a. Ensure the evaluation of workplaces, including applicable hazardous material data and industrial hygiene survey reports, to determine PPE requirements. Qualified safety and occupational health personnel shall perform these evaluations. Commands shall use the results of these evaluations to designate appropriate work conditions and work areas as requiring PPE. The command shall establish effective means of communicating these PPE requirements to employees.

b. Ensure that PPE conforms to OSHA standards and Navy Safety policy.

c. Arrange for appropriate medical evaluations to determine worker capability to perform assigned tasks using the prescribed PPE.

d. Train personnel in the selection, use, inspection and care of PPE required for their work situations and maintain records of such training.

e. Ensure protective equipment worn by personnel fits properly.

f. Ensure designated personnel perform periodic equipment inspection, cleaning, disinfection and maintenance.

g. Provide proper equipment storage to protect against environmental conditions that might degrade the effectiveness of the equipment or result in contamination during storage.

h. Ensure compliance with the prescribed use of PPE.

i. Identify non-use, misuse or malfunction of PPE that results, or may result, in injury or occupational illness to Navy personnel.

Chapter 20

References

20-1. Title 29 Code of Federal Regulations (CFR) 1910 Subpart I, Appendix B, Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment, latest

revision, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10120.

20-2. American National Standards Institute (ANSI) Z87.1-1989 (R-1998), American National Standard Practice for Occupational and Educational Eye and Face Protection, (NOTAL) http://www.ansi.org/.

20-3. American National Standards Institute (ANSI) Z89.1-1997, American National Standard for Industrial Head Protection, (NOTAL) http://www.ansi.org/.

20-4. American National Standards Institute (ANSI) Z41-1999, American National Standard for Personal Protection-Protective Footwear, (NOTAL) http://www.ansi.org/.

CHAPTER 21

LEAD

2101. Applicability

a. The provisions of this chapter apply to industrial and construction work and supplement references 21-1 and 21-2.

(1) Construction work covered by reference 21-2, includes any repair or renovation or other activities that disturb in place lead-containing materials (LCM) (e.g., 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 maintenance activities not associated with construction work are covered by the general industry standard for lead, reference 21-1. Maintenance 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.

2102. Discussion

a. The goal of this chapter is to prevent lead intoxication and related injuries during the use, handling, removal and melting of materials containing lead at Navy activities.

b. Lead, as used in this chapter, means metallic lead, all inorganic lead compounds and organic lead soaps. All other organic lead compounds are excluded. Lead's abundance, low melting point, high molecular weight, high density and malleability make it a useful structural material. When added to resins, grease, or rubber, lead compounds act as antioxidants. 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

While not an absolute indicator, red, forest green, chrome yellow, "school bus yellow", and "safety yellow" paints typically contain lead components, such as lead oxides and lead chromate. Lead is also found in polyurethane and water base paints.

c. Significant lead exposures can occur during:

(1) Lead and babbitt melting and casting.

(2) Ballast handling.

(3) Spraying, sanding, grinding, burning, welding and abrasive blasting of lead containing materials and paint.

(4) Soldering with torches.

(5) High voltage cable repair.

(6) Abrasive blasting with smelting slag.

(7) Lead-acid battery reclaiming.

(8) Machining lead.

(9) Improper handling of contaminated personnel clothing, etc.

(10) Bullet trap clean-out/general cleaning at firing ranges.

d. Lead has long been a recognized health hazard. Lead can damage the nervous system, kidneys and reproductive systems. Chronic lead exposure can initially damage the blood forming organs. Higher levels can result in reproductive dysfunction in both men and women, and it can cause peripheral nerve and central nervous system changes. Lead inhibits heme synthesis (red blood cell production) and at high levels leads to anemia. Overexposure to lead in men may result in decrease in sex drive, impotence and sterility. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and still birth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead can pass through the placenta and lead levels in the mother's blood are comparable to concentrations of lead in the umbilical cord at birth. The fetus and newborn may be at least as susceptible to neurological damage as young children.

e. In recognition of the serious health hazards associated with, and the numerous sources of, potential lead exposure, the Navy has established strict controls to limit both occupational and environmental exposures. Navy regions and activities shall apply standards and controls discussed in this chapter to all personnel ashore. Reference 21-3 discusses the lead control program for forces afloat. Work which falls under the OSHA construction standards, i.e., construction, demolition, renovation, or repair of structures, follow the requirements in reference 21-2.

2103. Permissible Exposure Limit (PEL) and Action Level Triggering Requirements

a. PEL. The PEL for an 8-hour time-weighted average (TWA) exposure to airborne lead is 50 micrograms per cubic meter ($\mu g/m^3$) of air. For employee exposure of more than 8 hours in a workday, the PEL shall be determined by the following formula.

$$PEL(\frac{\mu g}{m^3}) = \frac{400}{No.\ Hours\ Worked\ Per\ Day}$$

Regions/activities shall implement engineering and administrative controls to the extent feasible to reduce the exposure to below the PEL when an employee's exposure exceeds the PEL for more than 30 days per year. Wherever the engineering and work practice controls that regions/activities institute are not sufficient to reduce employee exposure to or below the permissible exposure limit, the employer shall nonetheless use engineering controls to reduce exposure to the lowest feasible level and shall supplement them by use of respiratory protection. Where an employee is exposed to lead above the PEL for 30 days or less per year, regions/activities shall use engineering controls to reduce exposures to at least to 200 $\mu g/m^3$. Thereafter, use any combination of engineering, work practice, and respiratory protection controls to reduce employee exposure to or below 50 $\mu g/m^3$.

b. Action Level (AL). The AL for an 8-hour TWA exposure to airborne lead is 30 $\mu g/m^3$ (without regard to respirator use). Exposure to airborne lead at or above the AL, for more than 30 days per year, shall trigger biological monitoring and medical surveillance.

2104. Control of Lead in the Workplace Environment

Chapter 5 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.

a. General Workplace Control Practices.

(1) The Navy shall not use paints containing more than 0.06 percent lead by dry weight unless the cognizant headquarters command specifically approves higher lead content paint.

(2) Before proceeding with work involving paint, the region/activity must determine if the paint contains sufficient lead to warrant applying lead controls for the work to be performed. This may be accomplished via testing of the paint using a valid laboratory method, or through established and accurate records which provide the needed information (e.g., paint application records coupled with lead content data from material safety data sheets, product labels, prior testing results, or other valid documentation). The cognizant safety professional or industrial hygienist (IH) shall determine the lead monitoring and controls required for the work. This determination shall 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, regions/activities shall minimize the heating of lead and leaded materials through the use of thermostatically controlled heating or the removal of lead containing surface coatings or contaminants prior to heating.

(4) Regions/activities shall establish procedures to maintain work surfaces as free of lead dust as is practical and shall clean up lead dust with high efficiency particulate air (HEPA) filtered vacuum cleaners. They may only use wet sweeping and brushing when vacuuming or other equally effective methods have been tried and found to be ineffective or infeasible. Regions/activities shall not use compressed air to clean work surfaces or work floors.

(5) Regions/activities that have lead containing waste, scrap, debris, containers, equipment, and clothing consigned for disposal shall collect it, seal it in impermeable containers, and label waste per paragraph 2105.

(6) To minimize exposure potential, regions/activities shall isolate hot work on lead and abrasive lead removal operations to the extent feasible, from other operations.

b. Ventilation. Local exhaust ventilation is frequently required to ensure that atmospheric levels of lead particulate do not exceed the PEL. The list below contains general requirements for the design and use of ventilation to reduce exposures. The cognizant industrial hygienist shall provide specific guidance for each lead operation.

(1) The cognizant industrial hygienist shall provide recommendations regarding specific equipment design parameters and system servicing procedures for each operation.

(2) Regions/activities shall design, construct and maintain local exhaust ventilation and dust collection systems per references 21-4 through 21-7.

(3) Regions/activities shall test 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, etc. are installed to continuously monitor the effectiveness of ventilation systems, regions/activities shall instruct employees who use the system on the meaning and importance of the measurements and to immediately contact their OSH 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.

(4) Regions/activities using ventilation systems to control occupational exposures or emissions shall not directly exhaust into any workspace or to the atmosphere. They shall not re-circulate air from operations generating lead. The region/activity environmental manager shall approve the air pollution control system after consulting with the cognizant air pollution regulatory agency.

(5) The industrial hygienist shall review the ventilation design for ease of maintenance and accessibility, as well as design errors, and shall pay special attention to hoods, duct work, clean out hatches, exhaust fans and air pollution control devices. Regions/activities shall 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 shall 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 exceed the PEL or where the possibility of skin or eye irritation exists, shall remove clothing worn to and from work and wear the protective clothing provided by the Navy. Employees shall use waterproof clothing when handling wet lead. Protective clothing includes:

(a) Full body, one-piece coveralls shall be used.

(b) Personnel shall use durable gloves and head covering. Hoods shall extend beyond the collar of the coverall, completely protecting the neck area.

(c) Regions/activities shall provide slip-resistant shoe covers or lightweight rubber boots and may also use disposable shoe covers.

(d) Regions/activities shall provide face shields, vented goggles, or other appropriate protective equipment for use whenever the possibility of eye hazard exists.

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 shall 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) Regions/activities shall provide clean protective clothing at least weekly. Clean protective clothing shall be provided daily when the 8-hour TWA airborne concentration exceeds 200 $\mu g/m^3$.

(3) Regions/activities shall 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 shall maintain change rooms under positive pressure with respect to adjacent lead work areas. They shall 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.

(4) Employees exposed to airborne lead concentrations above the PEL (without regard to respirator use) shall shower at the end of the work shift prior to entering the clean change room. Regions/activities shall provide clean change rooms. Regions/activities shall provide clean change rooms incorporating showers within or adjacent to them for employees who work in areas where their airborne exposure to lead is above the PEL. Change rooms shall have two separate clothing lockers for each employee to prevent contamination of street clothes and to ensure that employees do not leave wearing any clothing or equipment worn during their work shift. Supervisors shall ensure that employees shower at the end of their work shift.

(5) Employees shall not take lead contaminated clothing home to be laundered. Regions/activities shall launder lead-contaminated clothing in a manner to prevent release of lead dust in excess of the AL. Contracts governing laundering of lead-contaminated clothing shall specifically require that contractors comply with the precautions specified in reference 21-1.

(6) Regions/activities shall transport lead-contaminated clothing in sealed containers to which are affixed the standard "caution label" (see paragraph 2104e). Regions/activities shall notify persons who clean or launder protective clothing or equipment in writing of the potentially harmful effects of exposure to lead.

d. Respiratory Protection

Limits of Respirator Usage

(a) Regions/activities shall use engineering control measures per paragraph 2104 and shall not achieve compliance with PELs solely by the use of respirators except under the following conditions:

1. During the time period necessary to implement engineering control measures.

2. 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.

3. During emergencies.

(b) Where respirators are required to control exposure to lead, regions/activities shall select respirators per appendix 21-A, and comply with the respirator program per chapter 15 of this manual and reference 21-8.

(c) Regions/activities shall supply a powered air purifying respirator with a HEPA filter in lieu of a half or full-face piece respirator, if the employee chooses to use this respirator and it provides adequate protection.

(d) Regions/Activities shall provide a respirator to employees who work with lead, upon request, and shall enter the employee into the respiratory protection program.

e. Warning Signs and Caution Labels

(1) Regions/Activities shall provide and display warning signs at each location where airborne lead concentrations may exceed the PEL. Regions/Activities shall conspicuously post signs so personnel may read them and take necessary precautions before entering the area. They shall clean and illuminate signs required by this paragraph as necessary so that the legend is readily visible. Signs, in compliance with reference 21-1, may contain a listing of required protective equipment and shall state, as a minimum, the following:

WARNING

LEAD WORK AREA

POISON

NO SMOKING, EATING OR DRINKING

(2) Regions/Activities shall affix caution labels to containers of contaminated clothing, equipment, raw materials, waste, debris, or other products containing lead if, in any foreseeable way, these products could produce levels of airborne lead which might constitute a threat to health. These caution labels shall state:

CAUTION

CLOTHING CONTAMINATED WITH LEAD

DO NOT REMOVE DUST BY BLOWING OR SHAKING

DISPOSE OF LEAD CONTAMINATED

WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL,

STATE OR FEDERAL REGULATIONS

f. Lunch Rooms and Personal Hygiene

(1) Regions/Activities shall provide lunchroom facilities for employees who work in areas where their airborne lead exposure is above the PEL (without regard to the use of respirators).

(2) When regions/activities locate lunch facilities adjacent to the lead work area, such facilities shall have a positive pressure, filtered air supply and be readily accessible to employees.

(3) Employees shall remove protective clothing and equipment before entering lunchroom facilities.

(4) Regions/Activities shall prohibit eating, drinking, chewing or the use of tobacco products, the application of makeup and storage of food and tobacco products in lead work areas.

(5) Lead workers shall wash their hands and face prior to eating, drinking, using tobacco products or applying cosmetics.

2105. Environmental Protection Procedures

a. Navy regions and activities must take care to ensure that measures taken to meet local and national environmental standards are compatible with the requirements of this chapter.

b. Regions/Activities shall require, prior to disposing of hazardous lead waste, bagging in heavy duty plastic bags or other impermeable containers and labeling with caution labels described in paragraph 2104e(2). Personnel shall label lead waste containers such as bags, trash cans, dumpsters, etc., "LEAD WASTE ONLY" and exercise care to prevent bags and other containers from rupturing when being moved to a dumpster or other suitable vehicle for transport to a hazardous waste disposal site.

c. Regions/Activities shall dispose of lead containing materials per applicable Federal, State and local environmental requirements. The cognizant environmental manager shall determine environmental requirements relating to lead emissions/disposal.

d. Technical assistance for air pollution control is available upon request from the Naval Facilities Engineering Command (COMNAVFACENGCOM) Engineering Field Divisions (EFDs).

2106. Training

All Navy personnel who work in areas where the potential exists for lead exposure at or above the action level, or for whom the possibility of skin or eye irritation exists shall receive initial training prior to or at time of assignment and at least annually thereafter. The training, per reference 21-1, shall include, as a minimum, the following:

a. The specific nature of the operations during which exposure is possible.

b. The purpose, proper selection, fit testing, use, and limitations of respirators.

c. The adverse health effects of lead with particular attention to the reproductive effects upon both males and females.

d. The purpose and description of the medical surveillance program, including the use of chelating agents and medical removal protection benefits.

e. The engineering controls and work practices to be applied and used in the employee's job, including PPE and personal hygiene measures.

f. The contents of the command's compliance plan.

NOTE:

All employees in a workplace in which there is a potential for exposure to airborne lead at any level shall be informed of the contents of appendices A and B of reference 21-1, and to any related documents, all of which are available at no charge from the Department of Labor (DOL). In addition, employees shall receive, upon request, any other handout type materials in use or related to the training program.

2107. Industrial Hygiene Surveillance

An exposure-monitoring plan shall 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. BUMED IHs will conduct exposure assessments as outlined in chapter 8 of this manual.

2108. Employee Notification

Within 5 working days after the receipt of monitoring results, the command shall notify each employee in writing of his/her exposure monitoring results. Whenever the results indicate that the employee was exposed above the PEL, without regard to respirator use, the written statement shall

include that fact and a description of the corrective action(s) taken to reduce the individual's exposure. See para 0803.a for requirements on documentation in each employee's medical record.

2109. 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.

Regions/Activities shall include personnel in this program when industrial hygiene surveillance 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 21-9 for medical protocols and guidance. Regions/Activities shall 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 shall receive a pre-placement evaluation as described in reference 21-9 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 regions and activities shall 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 shall perform analysis every 2 months when the blood lead level exceeds 30 μg/100g of whole blood.

(3) Follow-up Medical Surveillance

(a) Individual Reassignment/Medical Removal. An employee shall be reassigned to non-lead work:

1. If an employee's blood lead concentration equals or exceeds 60 μg/100g.

2. If the average of his/her last three blood lead measurements equals or exceeds 50 μg/100g; however, Individuals need not be removed if their last blood test indicates a blood lead level at or below 40 μg/100 g.

3. Or, if the employee has signs or symptoms of lead toxicity.

For additional guidance concerning removal procedures, return to former job status, and removal protection requirements, refer to reference 21-1. Regions/Activities shall also reassign pregnant

women exposed to lead at or above 50 $\mu g/m^3$ or with a blood lead level of 30 μg/100g blood to a job without lead exposure, with medical removal benefits.

(b) Follow-up Blood Lead Monitoring. Regions/Activities shall perform follow-up lead monitoring within 2 weeks of the receipt of an initial or routine monitoring result with a blood lead concentration at or above 30 μg/100g of whole blood, and periodically thereafter according to the following criteria.

1. During medical removal (to non-lead work activity), regions and activities shall monitor the employee's blood lead concentration monthly until the employee's last two consecutive test results are at or below 40 μg/100g, at which time the employee may be returned to his/her regular work activity.

2. When an employee's blood lead concentration is between 30 and 40 μg/100g, the region/activity shall monitor it every 2 months until the last two consecutive blood lead test results are less than 30 μg/100g.

(c) Follow-up Evaluations

1. Medical Follow-up. Regions/Activities shall conduct a medical evaluation identical to the pre-placement evaluation, with the exception of chest x-rays, annually for each person found to have a blood lead concentration at or above 30 μg/100g at any time during the prior year.

2. Reassignment Termination of Employment Follow-up. Regions/Activities shall 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.

3. Physicians Written Opinion. Reference 21-1 requires a written opinion and reference 21-9 provides a sample written opinion.

4. Industrial Hygiene Follow-up Investigation. The cognizant industrial hygienist shall be notified of, and perform an investigation to determine the cause of, each blood lead concentration at or above 30 μg/100g which has been verified by follow-up blood lead monitoring.

(d) Other Appropriate Medical Evaluations. The cognizant medical activity shall 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 healthy 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.

c. Administrative Procedures

(1) Employee Notification. A region or activity shall notify the employee of the following, in writing, within 5 working days after receipt of results, when his/her blood lead level is at or above 30 μg/100g whole blood:

(a) His/her blood lead concentration level, as reported

(b) That the regulations require temporary medical removal with Medical Remove Protection benefits when, and if, the employee's blood lead level exceeds the current numerical criterion for medical removal under reference 21-1.

(2) Employee Counseling. The physician shall counsel personnel regarding any abnormalities detected during any screening test. The physician shall make an entry into the employee's medical record that describes the counseling given. The employee shall countersign this entry.

d. Medical Records

(1) Each employee record shall include the following identifying information:

(a) Name

(b) Social security number

(c) Date of birth

(d) Dates of examinations

(e) 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, and all forms and correspondence related to the employee's medical history shall become a permanent part of the health record. The cognizant activity shall retain such records for the period of employment plus 20 years, or 40 years, whichever is longer.

(3) Medical facilities shall 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) Regions/Activities shall 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 shall provide to the initial and consulting (second) physician the following:

(a) Copy of reference 21-1 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 shall 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 shall have access to the records, as paragraph 2109d(2) defines, within 15 days of the request.

2110. Work Performed by Private Contractors

a. Reference 21-10 should be used on construction projects impacting material containing lead and/or paint with lead. Reference 21-11 should be used where lead-based paint/paint with lead must be removed, controlled or lead-based paint hazards abated as defined by Public Law 102-550 Title X – Residential Lead-Based Paint Hazard Reduction Act of 1992.

b. Contract administrators shall insure that each contract, for work performed by an independent contractor in the United States or overseas which may involve the release of lead dust, shall 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 21-1, 21-2, 21-3, and 21-12 to protect his/her employees, as well as Navy personnel.

(3) The contractor shall control lead dust outside of the work boundary to less than 30 $\mu g/m^3$ at all times, and shall perform sufficient monitoring to confirm that this level of control is maintained. In addition, the controlled work area(s) shall meet these criteria prior to release for unrestricted access. Contractors shall provide copies of their monitoring results to the cognizant industrial hygienist.

2111. Responsibilities

a. The Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Centrally manage the lead medical surveillance program ashore and afloat.

(2) Provide professional industrial hygiene technical support and training assistance to commands for the purpose of evaluating the potential for lead exposure.

b. Commanders of Echelon 2 and other headquarters commands shall:

(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 21-2 to any operations within their respective claimancies and provide policy and guidance to affected commands regions, 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 21-2.

c. COMNAVFACENGCOM shall:

(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. Commanding Officers of shore activities shall:

(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 21

References

21-1. Title 29 Code of Federal Regulations (CFR) 1910.1025, Lead (as amended) http://www.access.gpo.gov/nara/cfr/waisidx_01/29cfr1910_01.html.

21-2. Title 29 CFR 1926.62, Lead in Construction http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10641.

21-3. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health Program Manual for Forces Afloat http://www.safetycenter.navy.mil/instructions/afloat/510019D.htm.

21-4. Title 29 CFR 1910.94,Ventilation http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9734.

21-5. American Conference of Governmental Industrial Hygienists Pub. No. 2092, Industrial Ventilation: A Manual of Recommended Practice, 25th Edition (NOTAL) http://www.acgih.org/store/ProductDetail.cfm?id=480.

21-6. American National Standards Institute (ANSI) Z9.2-2001, American National Standard for Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems (NOTAL) http://www.ansi.org/.

21-7. UFC 3-410-04N of 25 Oct 04, Design: Industrial Ventilation http://www.ccb.org/docs/UFC/3_410_04.pdf.

21-8. Industrial Hygiene Field Operations Manual, NEHC Technical Manual, NEHC-TM IH 6290.91-2, http://www-nehc.med.navy.mil/ih/ihfom.htm.

21-9. NEHC Technical Manual, NECH-TM OM 6260 of Feb 01, Occupational Medical Surveillance Procedures Manual and Medical Matrix http://www-nehc.med.navy.mil/downloads/Occmed/Medical_matrix_Feb_2001.pdf.

21.10. UFGS-13282N of Aug 03, Lead in Construction.

21-11. UFGS-13283N of Feb 02, Removal/Control and Disposal of Paint with Lead

21-12. Title 29 CFR 1910.134, Respiratory Protection http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=12716.

Appendix 21-A

Required Respirator

Airborne Concentration of Lead or Condition of Use	Required Respirator[1]
Not in excess of 0.5 mg/m^3	Half mask, air purifying respirator (10xPEL) equipped with high efficiency filters [2,3]
Not in excess of 2.5 mg/m^3 (50xPEL)	Full face piece, air purifying respirator with high efficiency filters[3]
Not in excess of 50 mg/m^3 (1000xPEL)	1. Any powered, air purifying respirator with high efficiency filters[3] or 2. Half mask, supplied air respirator operated in positive pressure mode
Not in excess of 100 mg/m^3 (2000xPEL)	Supplied-air respirators with full face piece, hood, helmet, or suit operated in positive pressure mode
Greater than 100 mg/m^3, unknown concentration or fire fighting.	Full face piece, self-contained breathing apparatus operated in positive pressure mode

[1]Respirators specified for high concentrations can be used at lower concentrations of lead.
[2]Full facepiece is required if lead aerosols cause eye or skin irritation at the use concentrations.
[3]A high efficiency particulate air (HEPA) filter means 99.97 percent efficient against 0.3 micron size particles. Use 42 CFR 84 approved p100 filters to retain consistency with previous NIOSH HEPA filter color-coding.

CHAPTER 22

NON-IONIZING RADIATION

2201. 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.

2202. 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 potential exposures in their work places 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.

2203. Applicability

All Navy activities employing sources of non-ionizing radiation which may affect the safety and health of personnel shall 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.

2204. Laser Radiation

Lasers are designed to operate at various wavelengths in the ultraviolet, visible and infrared portions of the electromagnetic spectrum, and are used in various military, industrial, medical and scientific applications. While mechanisms for biological damage from lasers are similar to effects produced from absorption of energy from conventional light sources, lasers are of special concern because of their potential to project hazardous levels of energy over great distances. Exposure to lasers can result in permanent and disabling eye injury.

2205. Laser Radiation Policy

Chief, Bureau of Medicine and Surgery (BUMED) is the administrative lead agent for laser safety within the DON. Responsibilities for setting forth DON policy and guidance in the identification and control of laser radiation hazards are set forth in reference 22-1.

2206. Laser Permissible Exposure Limits (PELs)

a. Laser PELs, also referred to as threshold limit values (TLVs) and maximum permissible exposure (MPE) limits, are published in references 22-2 and 22-3 respectively. For laser exposures that are within the PEL, no adverse biological effects are expected to occur even under repeated or long-term exposure conditions. Only trained and technically qualified personnel shall apply these exposure limits in determining laser safe viewing conditions, since an improperly conducted laser hazard evaluation may pose serious risks to a person's eyes.

b. Laser exposure limits are set to protect tissue from damage and are not the equivalent of comfortable viewing levels. Operators of lasers need to be aware of secondary laser safety concerns. For example, intrabeam viewing of visible wavelength lasers, even at or below the permitted safe level, will still be perceived as an intense light source capable of producing disabling glare or visual after-images. These temporary visual effects can interfere with performing critical tasks such as operating vehicles or aircraft. Similarly, intrabeam viewing of lasers at or below the permitted exposure limits can still damage or “saturate” night vision viewing devices because of the high amplification of incident light levels provided by the devices. Wearing of laser protective eyewear can also lead to other safety concerns, such as the potential for blocking or filtering out the color of some warning or alarm indicator lights.

2207. Laser Classification, Labeling, Technical Assistance and Exposure Incidents

a. The Navy has adopted a system for categorizing the hazards of lasers, which provides a practical means for determining safety requirements appropriate for different types of lasers. These categories range from a Class I laser that is safe to view under all conditions, to the Class IV laser which can cause eye damage under most viewing conditions. Appendix 22-A provides information on laser classification, types of laser warning signs and labels, technical assistance and exposure incidents.

b. For most lasers used in medical, laboratory, research and industrial applications, use of the classification system precludes the necessity for performing any laser measurements or calculations. Reference 22-4 requires manufacturers to classify and label their laser systems. Laser measurements or laser safety calculations will usually be required only for lasers operating on outdoor ranges or in open areas when it is necessary to define a laser nominal hazard zone (NHZ).

2208. Military Exempt Lasers

Lasers or laser systems designated for combat, combat training or classified in the interest of national security may be exempted from compliance with some or all of the provisions of reference 22-4. To obtain military exemption status, the contractor must have written authorization from the military contracting activity, and the laser product must be certified to conform with requirements in reference 22-5 and have been approved by the Navy Laser Safety

Review Board (LSRB). Commands shall maintain a current inventory of all military exempt lasers for submission to the administrative lead agent as requested. Commands wishing to dispose of lasers shall obtain approval from BUMED following guidance in references 22-1 and paragraph 2205.

2209. Laser Safety Review Board (LSRB)

Military laser systems are reviewed by the LSRB during their development to ensure that adequate safety criteria have been incorporated. LSRB review is required at appropriate stages of development and prior to introduction of prototype or production units into the fleet for testing or initial use. An important function of the Navy Laser Safety Program is a determination of the nominal ocular hazard distance (NOHD) or safe viewing range, for each operational laser system used in the Navy. LSRB review also applies to Class IIIb and Class IV commercial lasers and laser systems that are not intended solely for laboratory or medical use. Reference 22-6 contains general guidance for materials necessary and procedures followed by the LSRB review.

2210. Laser Safety Hazard Control Program

Commands operating Class III or IV commercial or military exempt lasers shall establish a laser safety program and designate a laser system safety officer (LSSO) per reference 22-6. The laser safety program shall include an inventory of all commercial Class IIIb, Class IV and all classes of military exempt lasers that are assigned to the command lasers for submission to the administrative lead agent as requested.

NOTE:

Some commercially available laser pointers are categorized as Class IIIa lasers with output levels that are not considered safe for all viewing conditions. A formal laser safety program is not required for Class IIIa laser pointers; however, the user needs to recognize that care must be exercised to control its accessibility (kept out of the hands of children or others who are unaware of the hazardous nature of lasers), and to avoid directing the pointer at those in the audience. Class II laser pointers do not pose a hazard during normal viewing, and their use is not restricted.

2211. Medical Surveillance Procedures

Enrollment in a laser radiation medical surveillance program is limited to those personnel who are clearly at risk from exposure to laser radiation. The nature of such risks is associated with accidental injuries resulting from excessive exposure to laser levels and not as a result of chronic exposures. The command LSSO determines which personnel should be enrolled in the surveillance program using the following guidance:

a. Laser workers requiring medical surveillance are those individuals who routinely work with Class IIIb or Class IV lasers under conditions where there is a likely potential for accidental exposures to excessive levels. These workers require a pre-placement and termination laser eye examination per reference 22-7.

b. The following personnel generally require medical surveillance:

(1) Research and development (R&D) and laboratory personnel who routinely work with unenclosed Class III and Class IV laser beams

(2) Maintenance personnel who routinely repair or align Class III or Class IV laser systems

(3) Operators (personnel behind the laser) and down-range personnel who routinely work with Class III or Class IV engineering laser transits, geodimeters and alignment laser devices

(4) Operators who routinely work with Class IIIb and Class IV industrial lasers where access to an unenclosed beam path is possible.

c. Other laser workers or personnel where the potential for accidental exposure is deemed very unlikely generally do not require medical surveillance. For example:

(1) Personnel who work with Class I or Class II lasers, or with laser systems containing Class III or Class IV lasers when there is little or no potential for exposure to the open laser beam

(2) Visitors or other personnel involved infrequently in laser testing, demonstrations or training when the LSSO has ensured such personnel will be protected from exposure to levels of laser radiation greater than the PEL

(3) Supervisory, clerical and custodial personnel working in laser areas where laser safety procedures preclude their exposure to levels of laser radiation above the PEL

(4) Operators of fielded military laser systems when operations are conducted on established laser ranges, or as part of training operations where prescribed laser safety procedures are enforced

(5) Personnel involved in "force on force" laser training exercises where appropriate protection is established, either in the form of administrative controls or procedures, or where laser protective eyewear is provided.

2212. Laser Safety Training

a. Commands shall provide LSSO laser safety training through the completion of a Laser System Safety Officer Course approved by BUMED and the Lead Navy Technical Laboratory at the Naval Surface Warfare Center, Dahlgren Division. There are four categories of LSSOs, administrative laser safety officer (ALSO), technical laser safety officer (TLSO), laser safety specialist (LSS), and range laser safety specialist (RLSS). Re-testing at the LSSO's highest certification level is required to maintain certification for all categories of LSSO every 4 years. If the LSSO fails the re-certification examination, the LSSO will have to be re-certified by attending the appropriate course. Commanding officers should determine which category of LSSO is appropriate for their command considering their mission, types of lasers being used,

and size of the laser safety program. Laser safety-training requirements at medical treatment facilities for the medical LSSO and designated medical personnel are contained in reference 22-8.

(1) An ALSO is qualified to:

(a) Establish and manage a unit level laser safety program.

(b) Approve, disapprove, or submit for safety approval to higher authority all local laser uses, both portable and fixed.

(c) Instruct employees and supervisors on the safe use of lasers.

(d) Supervise laser operations and maintenance.

(e) Manage laser incident investigations as appropriate. Technical assistance of a LSS or a RLSS is required.

(f) Maintain a laser medical surveillance program.

(g) Maintain an inventory of military-exempt and class IIIb and class IV lasers.

(h) Post laser warning signs and devices.

(i) Ensure that laser operators have the appropriate knowledge to safely operate their specific lasers (supervisor safety briefs, factory training school, instructional materials, etc.)

(j) Provide safety briefs/pre-mission briefs to laser range users.

(k) Prior to use of a laser range, ensure/confirm that warning signs have been posted, the area is clear of specular reflectors, personnel have required LEP, and all other safety conditions for range laser use outlined in the range regulations or range standard operating procedures (S0Ps) are met.

(l) Perform laser eye protection inspections.

(2) A TLSO is qualified to:

(a) Understand the calculations and measurements of laser safety parameters such as nominal ocular hazard distances (NOHDs) and required optical densities for laser eyewear.

(b) Train ALSOs using the administrative lead agent (ALA) approved course curriculum (Qualifications of TLSOs as instructions requires ALA/lead Navy technical laboratory (LNTL) approval).

(c) Understand classification of lasers and laser systems.

(d) Perform the duties of a laboratory, installation, base, research facility, or RLSO that includes establishing and managing a base or installation laser range safety program; approving/disapproving the use of laser systems and laser operations on their range that fall within the guidelines of the range certification; and performing annual range safety compliance inspections; and ensuring laser ranges under their cognizance are certified/re-certified by RLSS at least every three years or when changes to the range fall outside the current certification.

(e) Ensure range regulations/SOPs are provided to commands requesting unsafe of the laser range.

(f) Review training plan (to include laser type(s) and proposed employment tactics) of each command requesting access to the laser range certification.

(g) Perform the same duties as an ALSO.

(3) A LSS is qualified to:

(a) Perform the calculations and measurements of laser safety parameters such as NOHDs and required optical densities for laser eyewear.

(b) Train ALSOs, TLSOs, RLSOs, and LSSs using the ALA-approved course curriculum. (Qualification of instructors requires ALA/LNTL approval).

(c) Classify lasers and laser systems.

(d) Conduct technical aspects of laser incident investigations.

(e) Perform the same tasks as a TLSO.

(4) A RLSS is qualified to:

(a) Conduct laser radiation hazard surveys and evaluations for commanding officer certification.

(b) Perform the calculations and measurements required to certify a laser range.

(c) Train ALSOs and RLSSs using the ALA-approved course curriculum. (Qualification of instructors requires ALA/LNTL approval.)

(d) Conduct technical aspects of laser range incident investigations.

(e) Perform the same tasks as a TLSO.

b. Laser range safety officers, laser maintenance personnel and industrial laser supervisors shall complete a formal command laser safety training course as outlined in reference 22-6.

c. Commands shall provide formal classroom training on the potential hazards associated with accidental exposure to laser radiation to all personnel in areas operating Class IIIb (and Class IIIa with danger logo) or Class IV lasers. In particular, the vulnerability of the eyes to being damaged by lasers shall be emphasized. Commands shall conduct annual refresher training per reference 22-6.

d. For employee training, the following laser safety training videotapes are available from the Norfolk Regional Electronic Media Center: *Laser Hazards and Control*, 804245DN, *Hazards and Control of Military Lasers*, 804246DN, and *Laser Safety in Medical Treatment Facilities,* 803198DN. (See section 0604b). Additional information is available in reference 22-9 on laser operations, hazard distances for Navy laser systems and use of laser protective eyewear.

2213. 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 22-2. Obtain assistance in the evaluation of broadband optical sources, where personnel are considered to be at ocular risk, from an industrial hygienist or radiation health officer.

2214. 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.

2215. Radiofrequency Ashore and Afloat

Naval Sea Systems Command (COMNAVSEASYSCOM) is the lead agency for coordinating electromagnetic safety programs for Naval ships. Space and Naval Warfare Systems Command (COMSPAWARSYSCOM) is the lead agency for coordinating electromagnetic safety programs for shore facilities. Reference 22-10 contains RF hazard (RADHAZ) guidance regarding hazards of RF exposure to personnel, fuels and ordnance.

2216. RF Permissible Exposure Limits (PELs) and Maximum Permissible Exposures (MPEs)

a. Reference 22-10 will be amended to reflect the current RF PELs listed in reference 22-11 for the frequency range of 3 kilohertz to 300 Gigahertz and the current RF MPEs in reference 22-14 for the frequency range of 0 to 3 kilohertz. Those persons conducting RF hazard analysis and evaluations should consult the more extensive technical guidance contained in references 22-11, 22-12, 22-13, and 22-14.

b. Exposure limits are specified for locations that are defined as either controlled or uncontrolled 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 work places 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 uncontrolled environments where access is not restricted or controlled, lower permissible exposure levels have been adopted as a consensus to maintain lower exposure levels outside of well-defined areas. The limits for uncontrolled environments should not be interpreted as being imposed to lesson 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 that enter a controlled environment.

d. For shipboard situations, consider the weather decks, enclosed and open masts and electronic work spaces as controlled environments. For shore stations, consider accessible areas beyond a station's perimeter fence line as uncontrolled environments. Within a station's boundaries, differentiation between controlled and uncontrolled 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.

2217. RF Measurement and Evaluation

a. Facilities shall 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 may obtain assistance in measuring RF emission levels from the activities listed in appendix 22-B.

b. A comprehensive RF hazard evaluation for major platforms, such as warships or communication stations, 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 activities listed in appendix 22-C may perform these evaluations, which are primarily an engineering type survey.

c. In addition to appendix 22-B, safety or health professionals may make RF measurements or calculations for situations that primarily consist of determining RF exposure levels for a particular area occupied by personnel.

2218. Safety Certification

a. Activities identified in paragraph 2218(c) shall obtain a survey certification from the technical activities listed in appendix 22-B 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. To maintain certification, the site shall forward information on new RF sources that are installed to the technical activity listed in appendix 22-B to obtain a theoretical or calculated safety evaluation. The activity with the original site certification shall maintain this provisional certification.

c. All shore facilities having RF emitters must obtain baseline certification. For most facilities, certifications/re-certifications will require an instrumented site survey or desktop analysis. Some activities with only a few low power RF systems may require neither. The certifying agency will determine certification survey/re-certification requirements of the facility. Re-certifications will be scheduled as follows:

(1) Three-Year Resurvey Re-certification. Major NAVNETSPAOPSCOM transmitter facilities are included within this group.

(2) Five-Year Resurvey Re-certification. Sites with large numbers or frequent additions/changes of RF emitters or a site located in populated areas where public exposure to RF emissions may be an environmental concern.

(3) Ten-Year Resurvey Re-certification. Sites having a moderate and stable number of RF microwave emitters.

2219. Warning Signs, Labels and Devices

a. The RF hazard warning signs, labels, devices, exposure incident procedures and technical assistance are shown in appendix 22-B. 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. Activities shall post RF hazard warning signs at all access points to areas in which levels exceed the exposure limits for controlled environments.

c. Activities should post RF hazard warning signs in appropriate areas in which the RF levels exceed the exposure limits for uncontrolled environments as determined by cognizant engineering or safety or health professionals.

d. In areas where access to levels greater than 10 times the exposure limits for controlled environments may exist, warning signs alone do not provide sufficient protection. Activities shall provide other warning devices and controls, such as flashing lights, audible signals, barriers or interlocks, as determined by the certification authority, depending upon the potential for exposure.

e. See appendix 22-B for reporting of RF incidents.

2220. Research, Development and Acquisition

a. Activities performing research, development, testing and evaluation (RDT&E) and acquisition of RF systems, including non-developmental items and commercial off-the-shelf items, shall identify RF control requirements by incorporating adequate protection measures or identifying appropriate operational restrictions to maintain personnel exposures within the exposure limit. System safety studies under reference 22-13 shall use the exposure limits given in reference 22-11 to define restrictions necessary to limit personnel exposures.

b. Activities shall 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.

2221. RF Safety Training

Activities shall 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. Activities shall conduct training before assignment to such work areas, and shall 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. Activities may incorporate RF safety training in periodic safety training programs to satisfy command-training objectives.

2222. Protective Clothing

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.

2223. 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 work places, 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 22-14 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.

2224. Video Display Terminals

a. Video display terminals (VDTs) are electronic devices that typically involve individuals remaining in close proximity to them for long periods of time. Various forms of electromagnetic energy are associated with VDTs, including static electric fields near the screen, 60 Hz electric and magnetic fields, higher frequency fields around 10 kHz from the beam sweep circuits and low intensity X-rays near some internal components.

b. Some computer manufacturers have chosen to advertise VDTs with low magnetic field emissions for marketing reasons. Other manufacturers have produced various products that are advertised as reducing electromagnetic emissions from VDTs. Extensive measurements have shown that the fields emitted from VDTs are already well below exposure guidelines. There is no requirement or need to periodically measure emissions from VDTs, or to procure add-on screens for shielding electromagnetic emissions from VDTs.

c. VDTs are sensitive to electrical interference, and the displays have been reported to be affected by 60 Hz magnetic fields as low as 10 to 15 milligauss. Such interference poses no health concerns other than annoyance. Correction usually involves relocation of the VDT away from the source of interference or in some cases, adding shielding to nearby power distribution components.

2225. Responsibilities

a. Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) shall:

(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) Ensure a capability exists to conduct laser hazard surveys of military laser systems, laser installations and firing ranges.

(3) Sponsor reference 22-10 in providing operating procedures and guidance for electromagnetic hazards to personnel, ordnance and fuel and for RF hazard certification for ships and craft.

b. Commander, Space and Naval Warfare Systems Command (COMSPAWARSYSCOM) shall:

(1) Serve as the technical lead agency for RF radiation safety and hazard analysis as a component of the Navy's Electromagnetic Environmental Effects (E3) Program for shore facilities.

(2) Provide information to COMNAVSEASYSCOM for updating information on the hazards of electromagnetic radiation to personnel and fuels in reference 22-10.

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

(1) Serve as administrative lead agency for laser safety and laser safety hazard analysis in the Navy.

(2) Will maintain a list of all DON laser systems that have been exempted from Title 21 Code of Federal Regulations and their status.

(3) Provide the secretariat to the LSRB and ensure laser safety design standards, safety documentation and training and laser protective devices are developed for military laser systems.

(4) Ensure laser safety design standards, safety documentation, training standards, and laser eye protection are developed for military laser systems.

(5) Serve as the lead agency for guidance on personnel exposure limits for lasers, RF and other electromagnetic sources.

(6) Provide technical assistance to Navy commands addressing electromagnetic exposures or human health effects issues with local governments or state agencies.

(7) Maintain the Navy repository of laser and RF investigative reports involving personnel injuries from lasers and RF overexposures.

(8) Provide assistance through the Navy Environmental Health Center for laser and RF hazard evaluations at industrial and medical activities.

(9) Sponsor appropriate biological research for addressing the effects of electromagnetic energy on humans.

d. Other Echelon 2 and headquarters commands shall ensure:

(1) Safety requirements are included in procurement activities for the design, operation, maintenance, repair, technical orders, handbooks, manuals and other publications related to lasers and RF systems per references 22-6 and 22-11.

(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.

e. Commanders, commanding officers, and officers in charge shall:

(1) Establish a laser safety program per reference 22-6 to protect personnel.

(2) Ensure personnel are trained to be familiar with potential laser or RF exposure hazards and appropriate protective measures.

(3) Allow laser operation only at installations and ranges that have been certified and approved by an appropriate LSSO as safe for each specific laser and tactic to be used.

(4) Obtain safety certification for non-ionizing radiation sources. Update these certifications when new items are added. Also obtain provisional certification whenever new lasers or RF systems are installed, existing RF radiating antennas are modified or relocated or new construction occurs in the vicinity of an RF radiating antenna, when such changes may affect restrictions or boundaries imposed for limiting personnel exposures to RF fields.

(5) Ensure laser or RF surveys are conducted by technically competent personnel. Technical activities are listed in appendix 22-A, for laser and 22-B for RF safety.

(6) Investigate, document and report results of laser or RF over-exposure incidents per chapter 14 of this document. Refer also to appendix 22-A for laser incidents, 22-B for RF incidents, and references 22-6 and 22-7.

(7) Ensure that the use and disposal of military exempt lasers are per reference 22-1.

(8) Prepare and retain on-site an annual inventory of all Class IIIb, Class IV, and all classes of military exempt lasers per references 22-1 and 22-6.

Chapter 22

References

22-1. SECNAVINST 5100.14D of 18 Oct 05, Military Exempt Lasers http://neds.daps.dla.mil/Directives/5100_14d.pdf.

22-2. American Council of Government Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices (NOTAL) www.acgih.org/.

22-3. American National Standards Institute (ANSI) Z136.1-2000, American National Standard for the Safe Use of Lasers, (NOTAL) www.ansi.org/.

22-4. 21 CFR 1040 of 1 Apr 2000 Performance Standards for Light-Emitting Products http://www.access.gpo.gov/nara/cfr/waisidx_01/21cfr1040_01.html.

22-5. MIL-STD 1425A, Safety Design Requirements for Military Lasers and Assorted Support Equipment.

22-6 OPNAVINST 5100.27A/MCO 5104.1B, of 22 Sep 02, Navy Laser Hazards Control Program http://neds.daps.dla.mil/Directives/5100_27a.pdf.

22-7. BUMEDINST 6470.23, of 18 Aug 99, Medical Management of Non-Ionizing Radiation Casualties.

22-8. BUMEDINST 6470.19, of 24 Aug 90, Laser Safety for Medical Facilities.

22-9. E0410-BA-GYD-010, Technical Manual, Laser Safety.

22-10. NAVSEA OP 3565/NAVAIR 16-1-529/NAVELEX 0967-LP-624-6010, Volume I, Technical Manual, Electromagnetic Radiation Hazards (Hazards to Personnel, Fuel and Other Flammable Material and Volume II, Technical Manual, Electromagnetic Radiation Hazards (Hazards to Ordnance).

22-11. DOD Instruction 6055.11, of 21 Feb 95, Protection of DOD Personnel from Exposure to Radiofrequency Radiation and Military Exempt Lasers http://www.dtic.mil/whs/directives/corres/pdf/i605511wch1_022195/i605511p.pdf.

22-12. Institute of Electrical and Electronics Engineers, IEEE Std.C95.1, 1999 Edition (Incorporating IEEE Std C95.1-1991 and IEEE Std C95.1a-1998, IEEE Standard for Safety Levels with Respect to Human Exposure to Radiofrequency Electromagnetic Fields 3kHz to 3GHz, (NOTAL) http://www.ieee.org/portal/index.jsp.

22-13. Institute of Electrical and Electronics Engineers, IEEE Standard Recommended Practice for Measurement of Potentially Hazardous Electromagnetic Fields, RF and Microwave, IEEE C95.3-1991 (NOTAL) http://www.ieee.org/portal/index.jsp.

22-14. Institute of Electrical and Electronics Engineers, IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0-3 kHz, IEEE C95.6-2000 (NOTAL) http://www.ieee.org/portal/index.jsp.

Appendix 22-A

Laser Classification, Labeling, Warning Signs, Technical Assistance and Exposure Incidents

CLASS I LASERS
Lasers which by inherent design normally cannot emit radiation levels in excess of the permissible exposure limits. Not hazardous under almost all operational or viewing condition. No controls required.

CLASS II LASERS
Low-powered lasers and laser systems that emit less than 1mW visible continuous wave (CW) radiation. Not considered hazardous for momentary exposure. These lasers carry a CAUTION label.

CLASS III LASERS
Lasers which do not present a diffuse reflection hazard.

Class IIIa
Low-powered laser systems that emit 1 to 5 mW visible CW radiation. Lasers or laser systems of less than 2.5 mW/cm^2 are not considered to be hazardous for momentary (0.25 seconds) unintentional exposures unless the beam is viewed with magnifying optics. These lasers carry a CAUTION label. Lasers that exceed 2.5 mW/cm^2 carry a DANGER label and should not be directly viewed even momentarily.

Class IIIb
Medium-powered lasers or laser systems considered to be hazardous when the direct or specularly reflected beam is viewed without protection. Special care is required to prevent intrabeam viewing and to control specular reflections from mirror-like surfaces. These lasers carry a DANGER label and require the use of protective eyewear.

CLASS IV LASERS
High-powered lasers or laser systems that can be hazardous to the eye from intrabeam viewing, specular reflections or diffuse reflections. They may also be hazardous to the skin or ignite flammable materials. These lasers carry a DANGER label. Strict controls are required, including use of protective eyewear and door interlocks.

Example of a Class II Laser Warning Label

Example of label for Class II and Class IIIa LASER

Example of a Class IV Laser Warning Label

Example of label for Class IIIb and Class IV LASER DEVICES.

Laser safety-warning signs for posting at laser facilities and at laser ranges are stocked at the Naval Inventory Control Point, Naval Publication and Forms Branch, 700 Robbins Ave., Philadelphia, PA 19111-5098. For Information concerning these forms contact: commercial (215)(697-2626), or DSN (442-2626). Order on MILSTRIP via Defense Automated Addressing Systems. The following signs are available:

Sign Contents:	"DANGER, LASER, KNOCK BEFORE ENTERING"
Type:	Laminated 10 inches high by 14 inches wide
Form No.:	0118-LF-114-8900

Sign Contents:	"DANGER, LASER RANGE IN USE, DO NOT ENTER"
Type:	Laminated 18 inches high by 24 inches wide
Form No.:	0118-LF-020-1100

Laser Exposure Incidents

a. If eye damage from laser exposure is suspected or observed, and in all cases of exposure to levels in excess of five times the laser exposure limits of this chapter, the cognizant activity shall ensure the individual receives a medical examination by an ophthalmologist or optometrist as soon as possible. While laser injuries associated with military operations have been rare, limited experience indicates that the extent of eye damage from an accidental laser

exposure may not be readily or initially apparent to either the individual or to local medical personnel. Since early medical intervention may lessen the severity of the damage or subsequent retinal scarring from the laser injury, efforts should be made to have the individual promptly seen by an ophthalmologist or at the ophthalmology department of a hospital **on a walk-in emergency basis**.

b. Commands shall investigate and document all suspected laser incidents or mishaps involving personnel exposure to excessive laser energy in accordance with chapter 14 of this manual. The command exercising operational control of the laser has the primary lead for conducting the laser exposure investigation and for ensuring the appropriate report is filed.

c. Commands are required to report exposure incidents (as outlined in subparagraph g) and investigate exposure levels for the following situations:

(1) Personnel injury has been sustained or physical symptoms are experienced by the individual(s), which are believed to be associated with laser exposure.

(2) Inadvertent exposure occurred to members of the general public or to other non-involved personnel as a result of naval operations, which have exceeded the PEL.

(3) Exposure circumstances or the severity of the incident or mishap are such that inquires from news media are anticipated, or are deemed to be of interest to the chain-of-command.

d. Commands shall refer personnel reporting physical symptoms or suspected of having been exposed to levels in excess of the PEL for a medical evaluation or follow-up.

e. Commands shall make initial notification for the occurrence of a laser incident by telephone, fax, message or e-mail to the appropriate technical assistance point listed in this appendix with copy to the Bureau of Medicine and Surgery (M3F7). Discussions following this initial notification can determine whether a more extensive investigation will be necessary and whether a site visit should be scheduled to assist in making laser measurements or an exposure evaluation. Central to the command's investigation will be a determination of the degree of laser exposure incurred since such incidents often involve emotional concerns or health worries, which cannot be easily addressed when measurement data is not available. Performing laser measurement assessments are often beyond the technical capabilities of the local command or the nearby medical facility.

f. In cases where it is necessary to reconstruct events or reestablish equipment configuration for conducting a laser exposure assessment, the accuracy of the recreation is crucial to the validity of the subsequent measurements. The command's investigating officer should apply particular attention to obtaining written statements from those involved giving detailed descriptions of the sequence of events, exposure times and equipment set-ups, as well as obtaining appropriate charts, diagrams or photographs indicating the locations of exposed personnel.

g. The command shall submit a final report on the laser incident to the Commander, Naval Safety Center, and to the Bureau of Medicine and Surgery (M3F7), with copies to appropriate headquarters and systems commands within 30 days of the incident. The

command shall also include in the report to BUMED pertinent medical records, retinal photographs and identification data for personnel who were exposed.

Laser Technical Assistance

Interested parties may obtain technical assistance and advice regarding laser safety as follows:

a. For laser operations at medical activities, contact the Navy Environmental Health Center, (NEHC), 620 John Paul Jones Circle, Suite1100, Portsmouth, VA 23708-2103, DSN 377-0700, commercial (757) 953-0700, fax (757) 953-0685.

b. For all laser operations, other than medical, military exemption of lasers, and certification surveys of laser firing ranges, contact the following activities: (Funding for services shall be provided by the requesting command).

Laser System Evaluation and Range Surveys:

Naval Surface Warfare Center Dahlgren Division, G-72, 17320 Dahlgren RD Dahlgren, VA 22448, DSN 249-1060/1149/2442, commercial (540) 653-1060/1149/2442, fax (540) 653-8453 http://www.navylasersafety.com/.

Laser Range Surveys:

Naval Surface Warfare Center Corona Division (Code SE-41), 2300 Fifth St, Norco, CA 92860 mailing address P.O. Box 5000 Corona, CA 92878-5000, DSN 933-4090, commercial (909) 273-4090 or fax (909) 273-5089.

c. For laser bio-effects and medical research issues, or assistance in evaluating laser-induced injuries, contact the Naval Health Research Center-Detachment Energy Bioeffects Laboratory, Brooks City Base 8315 Navy Road, Brooks AFB, TX 78235-5365, DSN 240-4699/6552, commercial (210) 536-4699/6552, fax (210) 536-6439.

d. For guidance on laser exposure limits and health issues, contact the Non-Ionizing Radiation Health Branch, Bureau of Medicine and Surgery (M3F7), 2300 E Street NW, Washington DC 20372-5300, DSN 762-3448/3444, commercial (202) 762-3448/3444, fax (202) 762-0931.

Appendix 22-B

RFR Hazard Warning Sign, Labels, Exposure Incidents and Technical Assistance

Sign Title:	Radiofrequency Hazard Warning - Keep Moving
Form No.:	101/5
Type:	5-inch Label
NSN:	7690-01-377-5893
Superseded NSN:	0967-LF-183-8010

Sign Title:	Radiofrequency Hazard Warning - Keep Moving
Form No.:	101/12
Type:	12-inch Label
NSN:	7690-01-377-5894
Superseded NSN:	0967-LP-183-8010

Sign Title:	Radiofrequency Hazard Warning - Beyond This Point
Form No.:	102/5
Type:	5-inch Label
NSN:	7690-01-377-5895
Superseded NSN:	0967-LP-153-8010

Sign Title:	Radiofrequency Hazard Warning - Beyond This Point
Form No.:	102/12
Type:	12-inch Label
NSN:	7690-01-377-5082
Superseded NSN:	0967-LP-153-8010

Sign Title:	Radiofrequency Hazard Warning - Burn Hazard
Form No.:	103/5
Type:	5-inch Label
NSN:	7690-01-377-5896
Superseded NSN:	0967-LP-315-2010

Sign Title:	Radiofrequency Hazard Warning - Burn Hazard
Form No.:	103/12
Type:	12-inch Label
NSN:	7690-01-377-5898
Superseded NSN:	0967-LP-315-2010

Sign Title:	Radiofrequency Hazard Warning - Fuel Operations
Form No.:	104/5
Type:	5-inch Label
NSN:	7690-01-377-5899
Superseded NSN:	0967-LP-315-1010

Sign Title:	Radiofrequency Hazard Warning - Fuel Operations
Form No.	104/12
Type:	12-inch Label
NSN:	7690-01-377-5900
Superseded NSN:	0967-LP-315-1010

Sign Title:	Radiofrequency Hazard Warning - Blank
Form No.:	105/5
Type:	5-inch Label
NSN:	7690-01-377-5374
Superseded NSN:	0967-LP-350-1010 and 0967-LP-096-3010

Reporting of RF Exposure Incidents

a. Commands shall investigate and document all suspected RF incidents or mishaps involving personnel exposure to excessive RF levels, in accordance with reference 22-6 of this manual. The command exercising operational control of the RF source has the primary lead for conducting the RF exposure investigation and for ensuring the appropriate report is filed.

b. Commands are required to report exposure incidents and investigate exposure levels for the following situations:

(1) Personnel injury has been sustained or physical symptoms are experienced by the individual(s) that are believed to be associated with RF exposure.

(2) Personnel exposure has been determined to have exceeded the appropriate PEL in terms of power density by a factor of five or more. (For exposure determinations, provisions for time averaging and spatial averaging can be used in conjunction with transmitter duty factors and antenna rotation or scanning rates to establish maximum likely exposure levels.)

(3) Inadvertent exposure occurred to members of the general public or to other non-involved personnel as a result of naval operations that have exceeded the appropriate PEL.

(4) Exposure circumstances or the severity of the incident or mishap are such that inquires from news media are anticipated, or are deemed to be of interest to the chain of command.

c. Commands shall refer personnel reporting physical symptoms, or suspected of having been exposed to levels in excess of five times the PEL, for a medical evaluation or follow-up. Since medical evaluations following RF exposure have been infrequently required and physical signs of injury are usually not manifested, medical personnel should be advised to refer to reference 22-7 for information on RF biological effects.

d. Commands shall make initial notification for the occurrence of an RF incident by telephone, fax, message or e-mail to the appropriate technical assistance point listed in this appendix with copy to the Bureau of Medicine and Surgery (M3F7). Discussions following this

initial notification can determine whether a more extensive investigation will be necessary and whether a site visit should be scheduled to assist in making RF measurements or an exposure evaluation. Central to the command's investigation will be a determination of the degree of RF exposure incurred since such incidents often involve emotional or health concerns which cannot be easily addressed when measurement data is not available. Performing RF measurement assessments are often beyond the technical capabilities of the local command or the nearby medical facility.

e. In cases where it is necessary to reconstruct events or reestablish equipment configuration for conducting an RF exposure assessment, the accuracy of the recreation is crucial to the validity of the subsequent RF measurements. The command's investigating officer should apply particular attention to obtaining written statements from those involved giving detailed descriptions of the sequence of events, exposure times and equipment set-ups, as well as obtaining appropriate charts, diagrams or photographs indicating the locations of exposed personnel.

f. The command shall submit a final report on the RF incident to the Commander, Naval Safety Center and to the Bureau of Medicine and Surgery (M3F7), with copies to appropriate headquarters and systems commands. The command will also include in the report to BUMED pertinent medical records and identification data for personnel who were exposed. BUMED is tasked with maintaining a permanent repository for RF exposure incidents.

Technical Assistance

a. For RF health hazards, personnel exposures and exposure incidents from industrial and medical RF emitting sources, contact the Navy Environmental Health Center (NEHC), 620 John Paul Jones Circle, Suite 1100, Portsmouth, VA 23708-2103, DSN 377-0700, commercial (757) 953-0700, fax (757) 757-953-0685.

b. For measurement surveys for shipboard RF emitting systems, contact Systems Electromagnetic Effects Branch (Code J-52), Naval Surface Warfare Center Dahlgren Division, 17320 Dahlgren Road, Dahlgren, VA 22448-5100, DSN 249-8594, commercial (540) 653-3487, or (401)- 832-5552, fax (540) 653-7494.

c. For site certification and measurement surveys for shore-based RF emitting systems, contact Space and Naval Warfare Systems Center (SPAWARSYSCEN) Charleston (Attn: Code 323), P.O. Box 190022, North Charleston, SC 29419-9022, DSN 588-4228, or commercial (843) 218-4228. For shore facilities within PACNAVFACENGCOM geographical region, contact Space and Naval Warfare Systems Activity Pacific (SPAWARSYSACT PAC) (Attn: Code 2915), 675 Lehua Avenue, Pearl City, HI 96782-3356, DSN 315-474-7330, commercial (808) 474-7330, fax (808) 474-5511

d. For RF bio-effects and medical research issues, or assistance in evaluating personnel overexposure incidents, contact the Naval Health Research Center-Detachment Directed Energy Bioeffects Laboratory, Brooks City Base, 8315 Navy Road, Brooks City Base TX 78235-5365, DSN 240-4699/6532, commercial (210) 536-4699/6532, fax (210) 536-6439.

e. For guidance on RF exposure limits and health issues, contact the Non-Ionizing Radiation Health Branch, Bureau of Medicine and Surgery (M3F7), 2300 E Street NW, Washington DC 20372-5300, DSN 762-3448/3444, commercial (202) 762-3448/3444, fax (202) 762-0931.

CHAPTER 23

ERGONOMICS PROGRAM

2301. Background and 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 fitting the workplace to the worker.

b. This program seeks to prevent injuries and illnesses by applying ergonomic principles to identify, evaluate, and control ergonomic risk factors for work-related musculoskeletal disorders (WMSDs). 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 (RSI); Cumulative Trauma Disorders (CTDs) and Overuse Syndrome. WMSDs result from the cumulative effect of repeated traumas associated with specific workplace risk factors. 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, or 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 posture refers to positions of the body (limbs, joints, back) that deviate significantly from the neutral position while performing job tasks. For example, overhead work, extended reaching, twisting, and squatting or kneeling. Static postures refer to holding a fixed position or posture. Examples include gripping tools that cannot be set down or standing in one place for prolonged periods.

(4) Vibration - Localized vibration, such as vibration of 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 or using the hand as a hammer.

When present for sufficient duration, frequency, magnitude, or in combination, these risk factors may cause WMSDs. In addition, personal risk factors, such as, physical conditioning, existing

health problems, gender, age, work technique, hobbies and organizational factors (e.g. job autonomy, quotas, deadlines) may contribute to but do not cause the development of WMSDs. Additionally, environmental conditions such as working in temperature extremes may contribute to the development of WMSDs.

2302. Management Commitment

A successful ergonomic program cannot be implemented without commitment by the commanding officer, or officer in charge, to resource and support worker and staff efforts to control ergonomic risk factors and reduce associated injury. Aggressive, visible, and coordinated management actions are necessary to prevent WMSDs, control costs related to these injuries, and improve mission readiness.

2303. Employee Involvement

Employee involvement and feedback are essential to identify ergonomic hazards and develop an effective means for their abatement. A command ergonomic program shall include worker involvement to assist in ergonomic hazard identification.

a. If the command has a safety and health committee, the committee shall review and analyze ergonomic problem areas and recommend corrective actions.

b. The command may form worker-based teams to identify ergonomic problems, analyze risk factors, and develop solutions. Civilian best business practices reports and military studies have proven worker-based teams to be extremely effective in controlling ergonomic risk factors and reducing injury.

2304. Process Review and Measurement

a. Each activity shall include a self-assessment of its ergonomic program as part of the Process Review and Measurement System (PR&MS), or equivalent management system, see para 0505.

b. Each activity shall conduct an analysis of WMSD reportable and recordable injury and illness data from reference 23-1,or an equivalent database, or log at least annually. Refer to paragraph 1410 of this instruction for guidance on completing this form.

c. WMSD analyses should include specific departments, codes, or operations experiencing WMSDs to determine where there is greater risk for injury. An accurate trend analysis for WMSDs should also include, but is not limited to, the following:

(1) Body part involved.

(2) Specific type of injury/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 ergonomic risk factors.

(6) Cost of treatment (if known).

d. An activity should consider observations made during safety inspections and other factors, such as absenteeism, high personnel turnovers, fitness and age of workers in the identification of ergonomic risk factors. The command 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.

e. Additional measures and metrics to assess and monitor the ergonomic program may be developed by each activity as necessary to adequately conduct more detailed analyses.

2305. <u>Job Task Analysis</u>

a. Activities shall identify ergonomic risk factors as part of, or in conjunction with, workplace inspections required by chapter 9 and industrial hygiene surveys provided per paragraph 0803. Risk factors to consider include awkward and static posture, excessive force or repetition, contact stress, segmental or whole body vibration, and high hand forces.

b. The activity shall review the identified risk factors using appendix 23-A or 23-B 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 shall be documented in writing and kept on file for at least five years.

c. Activities shall use appendix 23-A or 23-B for the following 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 activity.

(6) As the initial analysis conducted by a worker-based team.

(7) New analysis of jobs, tasks, operations, or workstations modified due to ergonomic concerns.

NOTE:

The Job Requirements and Physical Demands survey (JRPD) is an additional ergonomic tool that may be used by safety and occupational health personnel to identify jobs with ergonomic risk factors, employee discomfort, and assess ergonomic stressors. The JRPD may be used as a follow-up tool to appendix 23-A or independently to quantify ergonomic risks and prioritize projects. JRPD information may be provided through the resource list in appendix 23-C.

d. Ergonomic assessments shall be assigned Risk Assessment Codes (RAC) consistent with chapters 9 and 12.

2306. Command Assistance

The principles and application of ergonomics is a multidisciplinary applied science encompassing medical, engineering, industrial hygiene, and safety fields. It is recognized that activity personnel may not have the experience necessary to identify, analyze and resolve all ergonomic situations. When the safety manager or other internally available staff identifies ergonomic issues beyond the scope of their capabilities, commands should seek assistance from the resource list in appendix 23-C.

2307. Hazard Prevention and Control

a. The preferred priorities for corrective actions of ergonomic risk factors include: ergonomic risk elimination, engineering controls, substitution of materials/tools/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. Activities shall 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 shall 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 ergonomic risk factors. These controls may entail redesign of workstations, work methods, and tools to reduce or eliminate the risk factors. References 23-2 through 23-12 contain detailed guidance on principles and techniques for implementing engineering controls.

d. Workstation Design. Workstations should be adjustable to accommodate the person/persons performing a specific task or job, not just the average worker. Generally, design limits are based upon a range from the 5th percentile female to the 95th percentile male values for critical body dimensions. The workspace should be large enough to allow the full range of required movements. Anthropometrics data and design recommendations for military equipment and facilities can be found in reference 23-3.

e. Illumination. This reference also includes design criteria for task illumination, vibration levels, noise levels and ventilation. 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 23-4. Existing illumination problems should be corrected using guidance from references 23-4 and 23-5 or other professional references that meet or exceed the references of this chapter.

f. Design of Work Methods. Analyses of work processes, that require consideration of worker posture and repetition rate, should be supplemented by addressing the force or exertion required of workers. Redesign of work methods should also consider any changes in the time required to perform tasks. WMSD reduction benefits may not be realized if ergonomic related steps are added to the process, but sufficient time is not allowed to perform such tasks.

g. Tool Design and Handles. Properly designed tools and handles increase worker productivity by extending and amplifying manipulative abilities and protecting the workers against concentrated forces. Activities shall pay proper attention to the selection and design of tools and workstation layouts to minimize ergonomic stressors and back injuries. Activities and employees shall select or design tools and handles to minimize or eliminate the following 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 references 23-9 and 23-10).

(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, activities should select 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 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 ergonomic 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 should 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 employees to jobs with dissimilar physical requirements.

(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 23-2, 23-8 or 23-12 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, establish a policy to include the assistance of other personnel in the lift.

(5) Label the actual weight of any object that a worker needs to lift or carry.

(6) Ensure that material in storage is stacked off the floor and placed at no less than knuckle height.

i. Planned Facility Modifications and Equipment Purchases. When activities develop plans for new or modified facilities, processes, jobs, tasks, materials and equipment, they shall analyze such plans for opportunities to eliminate or reduce ergonomic hazards. For example, when purchasing office furniture to equip new facilities or replace existing equipment, activities should consider selecting equipment that allows easy adjustment of chair height, keyboard position and video display screen position. Reference 23-3 provides further information on physical body dimensions to assist with selecting the best tool or workstation layout to fit the worker.

j. Centrally-Managed Navy Safety and Occupational Health (SOH) Funds. Some projects developed to address ergonomic hazards that exceed the funding capability of local organizations may qualify for centrally-managed Navy Safety and Occupational Health (SOH) funds. Applications for these funds should be submitted per the procedures of chapter 12, section 1204, Hazard Abatement Program.

2308. Ergonomic Training

a. A key to maintaining an effective ergonomics program is the proper training of managers, supervisors, professional staff, ergonomic teams and employees. General ergonomics training shall be provided to all employees as applicable to the employee's role in the workplace. Periodic refresher training should be provided at command discretion. Recommended training topics for various personnel are provided in appendix 23-D.

b. Safety and occupational health professional staff responsible for conducting the ergonomics program shall complete the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) Ergonomics Program course (A-493-0085) or its equivalent. Appendix 23-D provides further information on equivalent training.

2309. Medical Program

a. Occupational Medicine Services. Cognizant medical commands shall support line activity initiatives to reduce WMSDs by providing occupational medicine services as described in section 0807. Occupational medicine professionals shall collaborate with commands, for the purpose of participating in command ergonomics teams, conducting work place visits to obtain knowledge of operations, work practices and transitional-duty jobs to provide ergonomics assessments, and facilitate recovery of individuals with WMSDs.

b. Physical Standards Pre-placement and Periodic Examinations. For positions that involve significant risk for WMSDs, the command, human relations office and cognizant medical command shall review the presence and adequacy of existing physical requirements of the job and make recommendations for improvement to the command.

NOTE:

As warranted, consistent with the provisions of 5CFR339.301 "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) In 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 Ergonomic Hazards. Each cognizant medical command shall collaborate with and assist the employing command 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 encourages cognizant medical commands to offer medical care, advice, counseling and physical therapy services to rehabilitate employees with WMSDs. Where such services are not available from the cognizant medical command, activities may contract for physical therapy services, provided the cognizant medical command has an opportunity to review the procurement specification prior to solicitation and provide professional medical oversight of the contract.

e. Monitoring for Trends. Health care professionals shall periodically, e.g., monthly; review occupationally related acute care visits to monitor WMSD trends.

2310. Responsibilities

a. Echelon 2 Commands shall:

(1) Provide guidance and assistance as necessary to subordinate commands on program development and implementation.

(2) Coordinate program implementation among similar activity types; disseminate information on process improvements to eliminate duplication of effort.

b. Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) shall take appropriate actions to increase the availability of ergonomically-designed furnishings, equipment and tools through the supply system. Conversely, commands shall take efforts to purge the supply system of ergonomically incorrect equipment such as back belts.

c. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) shall:

(1) Perform comprehensive ergonomic 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 ergonomic risk factors for WMSDs.

(3) Develop and implement a Navy-wide program to minimize ergonomic stress through facility design, equipment selection and maintenance of facilities, equipment and tools.

d. Naval Occupational Safety and Health, and Environmental Training Center (NAVOSHENTRACEN) realigned under the Navy Safety Center (NAVSAFECEN) shall insure appropriate training is provided consistent with this chapter.

e. Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Develop technical and administrative guidance for the medical aspects of the ergonomics program.

(2) Provide medical support by developing therapy and treatment programs, including provision of physical therapists who 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 shall conduct a mishap analysis reviewing available data for a 5-year period, to identify WMSDs by activity and command, including number or rate of WMSD, injury/illness type, and body part.

g. Commanding Officers of Medical Commands, Activities, and Treatment Facilities shall:

(1) Monitor WMSD trends using appropriate records.

(2) Verify low risk of transitional duty assignments.

(3) Provide health education for personnel with a past history or current symptoms of WMSD and education on preventive measures for high-risk individuals.

(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 shall:

(1) Annually, analyze injury and illness records and other pertinent information to determine the need for ergonomic improvements and corrective actions within the activity.

(2) Identify and budget resources to administer an effective ergonomics program consistent with the guidance in this chapter.

(3) Consider shift-work related stressors when determining scheduling policies. Appendix 23-E provides guidance for shift work that does not involve military watch standing or military operational environments.

(4) Where rehabilitative services are not available from the cognizant medical command, activities may contract for such services, provided the cognizant medical command has an opportunity to review the procurement specification prior to solicitation and provide professional medical oversight of the contract.

Chapter 23

References

23-1. OPNAVINST 5102.1D/MCO P5102.1B, ” of 25 May 05, “Navy and Marine Corps Mishaps and Safety Investigation, Reporting and Recordkeeping, http://www.safetycenter.navy.mil/instructions/ashore/5102/default.htm.

23-2. Department of Defense, of 23 August 99, Military Standard, Human Engineering Design Criteria for Military Systems, Equipment and Facilities, MIL-STD-1472F (NOTAL) http://hfetag.dtic.mil/docs-hfs/mil-std-1472f.pdf.

23-3. Department of Defense, DOD-HDBK 743A, 13 Feb 91, Anthropometry of US Military Personnel http://assist.daps.dla.mil/docimages/0000/40/29/54083.PD0.

23-4. Illuminating Engineering Society, IES Lighting Handbook, 9th ed., New York, 00 (NOTAL) http://www.iesna.org.

23-5. American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IES) RP-7-01, Recommendations on Industrial Lighting (NOTAL) www.ansi.org

23-6. HFS100-1988 by Human Factors Society: American National Standard for Human Factors Engineering of Visual Display Terminal Workstations (NOTAL) www.ansi.org.

23-7. NIOSH Publication No. 97-117, of March 97, Elements of Ergonomics Programs – A Primer Based on Workplace Evaluations of Musculoskeletal Disorders (NOTAL) http://www.cdc.gov/niosh/97-117pd.html.

23-8. NIOSH Publication No. 94-110, of January 94, Applications Manual for the Revised NOISH Lifting Equation, National Institute for Occupational Safety and Healthhttp://www.cdc.gov/niosh/94-110.html.

23-9. AIHA An Ergonomics Guide to Hand Tools, publication #203-ER-95 published by the American Industrial Hygiene Association (NOTAL) http://www.aiha.org.

23-10. NIOSH A Strategy for Industrial Power Hand Tool Ergonomic Research - Design, Selection, Installation, and Use in Automotive Manufacturing, publication #95-114, published by NIOSH http://www.cdc.gov/niosh/pdfs/95-114.pdf.

23-11. DODI 6055.1, of 19 Aug 98, DOD Safety and Occupational Health (SOH) Program http://www.dtic.mil/whs/directives/corres/html/60551.htm.

23-12. American Conference of Governmental Industrial Hygienists TLVs and BEIs Guidebook (NOTAL) http://www.acgih.org/home.htm.

Appendix 23-A

Physical Risk Factor Ergonomic Checklist

The Physical Risk Factor Ergonomic Checklist can be used as a screening tool to identify ergonomic stressors in the workplace. 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.

If the task rates a "caution", then it should be periodically revaluated since changes in the work environment may create new ergonomic stressors. Ensure significant contributing physical or personal risk factors are not present.

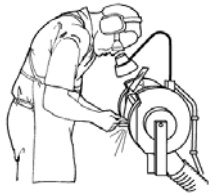
The checklist can be used for typical work activities which are a regular and foreseeable part of the job, occurring more than one day per week, and more frequently than one week per year.

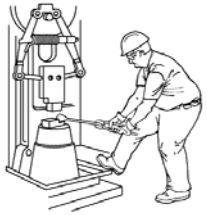
OPNAV 5100/20(2-05)

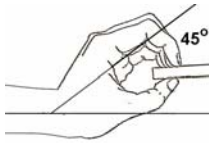
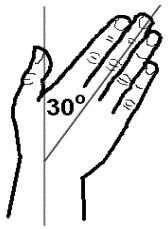
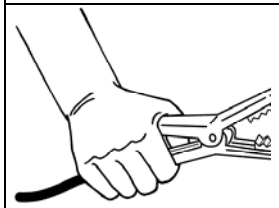
Evaluator:		Date:	
Department Name:	Location:	POC Name:	Phone Number:
Job Position Evaluated:		Number of employees performing job:	
Follow-up Date:		Email address:	

Recommendations / Follow-up / Job Description:

AWKWARD POSTURE

	Caution	Hazard	Comments
1. Working with the hand(s) above the head, or the elbow(s) above the shoulders	☐ more than 2 hours total per day	☐ more than 4 hours total per day	
2. Repeatedly raising the hand(s) above the head, or the elbow(s) above the shoulder(s) more than once per minute	☐ n/a	☐ more than 4 hours total per day	
 3. Working with the neck bent (without support and without the ability to vary posture)	☐ more than 30 degrees for more than 2 hours total per day	☐ - more than 30 degrees for more than 4 hours total per day, or - -more than 45 degrees more than 2 hours total per day	

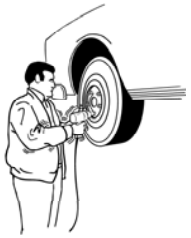
	4. Working with the back bent forward (without support and without the ability to vary posture)	☐ more than 30 degrees for more than 2 hours total per day	☐ - more than 30 degrees for more than 4 hours total per day, or - -more than 45 degrees more than 2 hours total per day	
	5. Squatting	☐ more than 2 hours total per day	☐ more than 4 hours total per day	
	6. Kneeling	☐ more than 2 hours total per day	☐ more than 4 hours total per day	

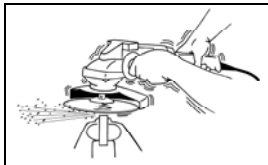
HIGH HAND FORCE			
	Caution	**Hazard**	**Comments**
7. Pinching an unsupported object(s) weighing 2 or more pounds per hand, or pinching with a force of 4 or more pounds per hand	☐ more than 2 hours per day (comparable to pinching half a ream of paper or the force required to open two wooden clothespins)	☐ - more than 4 hours per day with no other risk factors, or - more than 3 hours day with highly repetitive motion, or - more than 3 hours per day with significant wrist deviation in flexion (> 30°), extension (> 45°), ulnar deviation (> 30°)	 Extension  Deviation Flexion
 8. Gripping an unsupported objects(s) weighing 10 or more pounds per hand, or gripping with a force of 10 or more pounds per hand	☐ more than 2 hours total per day (comparable to clamping light duty automotive jumper cables onto a battery)	☐ - more than 4 hours per day with no other risk factors, or - more than 3 hours day with highly repetitive motion, or - more than 3 hours per day with significant wrist deviation in flexion	

		(> 30°), extension (> 45°), flexion, or ulnar deviation (> 30°)	

HIGHLY REPETITIVE MOTION			
	Caution	**Hazard**	**Comments**
9. Repeating the same motion with the neck, shoulders, elbows, wrists, or hands (excluding keying activities) with little or no variation every few seconds	☐ more than 2 hours total per day	☐ - more than 6 hours per day with no other risk factors, or - more than 2 hours per day with wrists bent in flexion (> 30°), extension (> 45°), or ulnar deviation (> 30°) **AND** high, forceful exertions of the hand(s)	
10. Performing intensive keying Reference: Appendix 23-B Computer Workstation Checklist	☐ more than 4 hours total per day	☐ Either: - more than 7 hours per day with no other risk factors, or - more than 4 hours per day with wrists bent in flexion (> 30°), extension (> 45°), or ulnar deviation (> 30°)	

REPEATED IMPACT			
	Caution	**Hazard**	**Comments**
11. Using the hand (heel/base of palm) or knee as a hammer	☐ more than 10 times per hour more than 2 hours total per day	☐ more than once per minute more than 2 hours total per day	
HEAVY, FREQUENT OR AWKWARD LIFTING			
	Caution	**Hazard**	**Comments**
12. Lifting object (Heavy)	☐ Weighing more than 75 pounds once per day or more than 55 pounds or more than 10 times per day	☐ For exposures that exceed caution level perform lift analysis using the NIOSH Lifting Equation or the current Lifting Index in the ACGIH TLV guide	

13. Lifting objects (Frequent)	☐ Weighing more than 10 pounds if done more than twice per minute Or more than 2 hours total per day	☐ For exposures that exceed caution level perform lift analysis using the NIOSH Lifting Equation or the current Lifting Index in the ACGIH TLV guide	
14. Lifting (Awkward posture)	☐ Objects weighing more than 25 pounds above the shoulders, below the knees or at arms length Or more than 25 times per day	☐ For exposures that exceed caution level perform lift analysis using the NIOSH Lifting Equation or the current Lifting Index in the ACGIH TLV guide	
MODERATE TO HIGH HAND- ARM VIBRATION			
 15. Using impact or percussive type tools such as impact wrenches, carpet strippers, chain saws, percussive tools (jack hammers, scalers, riveting or chipping hammers) or other tools that typically have high vibration levels	☐ more than 30 minutes total per day	☐ For exposures that exceed caution level more than 30 minutes total per day - perform analysis using the Hand - Arm Vibration Analysis Tool Guide in the ACGIH TLV guide	

 16. Using grinders, sanders, jigsaws or other hand tools that typically have moderate vibration levels	☐ more than 2 hours total per day	☐ For exposures that exceed caution level more than 2 hours total per day - perform analysis using the Hand - Arm Vibration Analysis Guide in the ACGIH TLV guide	

Drawings / Comments:

Appendix 23-B

Computer Workstation Checklist

The 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 following 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.

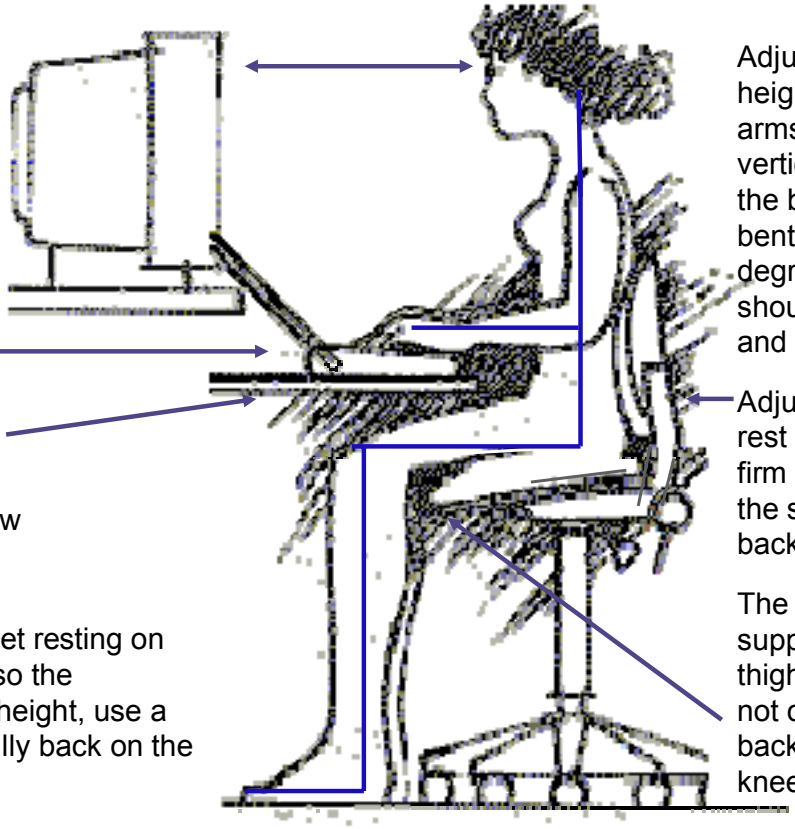
Neutral Posture for Computer Use

Position the monitor directly in front of you and about an arm's length away. The top row of characters on the screen should be no higher than seated eye height

Use a document holder close to the monitor

Mouse should be next to the keyboard, both at a height equivalent to your seated elbow height

Knees comfortably bent with feet resting on the floor. If the chair is raised so the keyboard height equals elbow height, use a foot rest to encourage sitting fully back on the chair



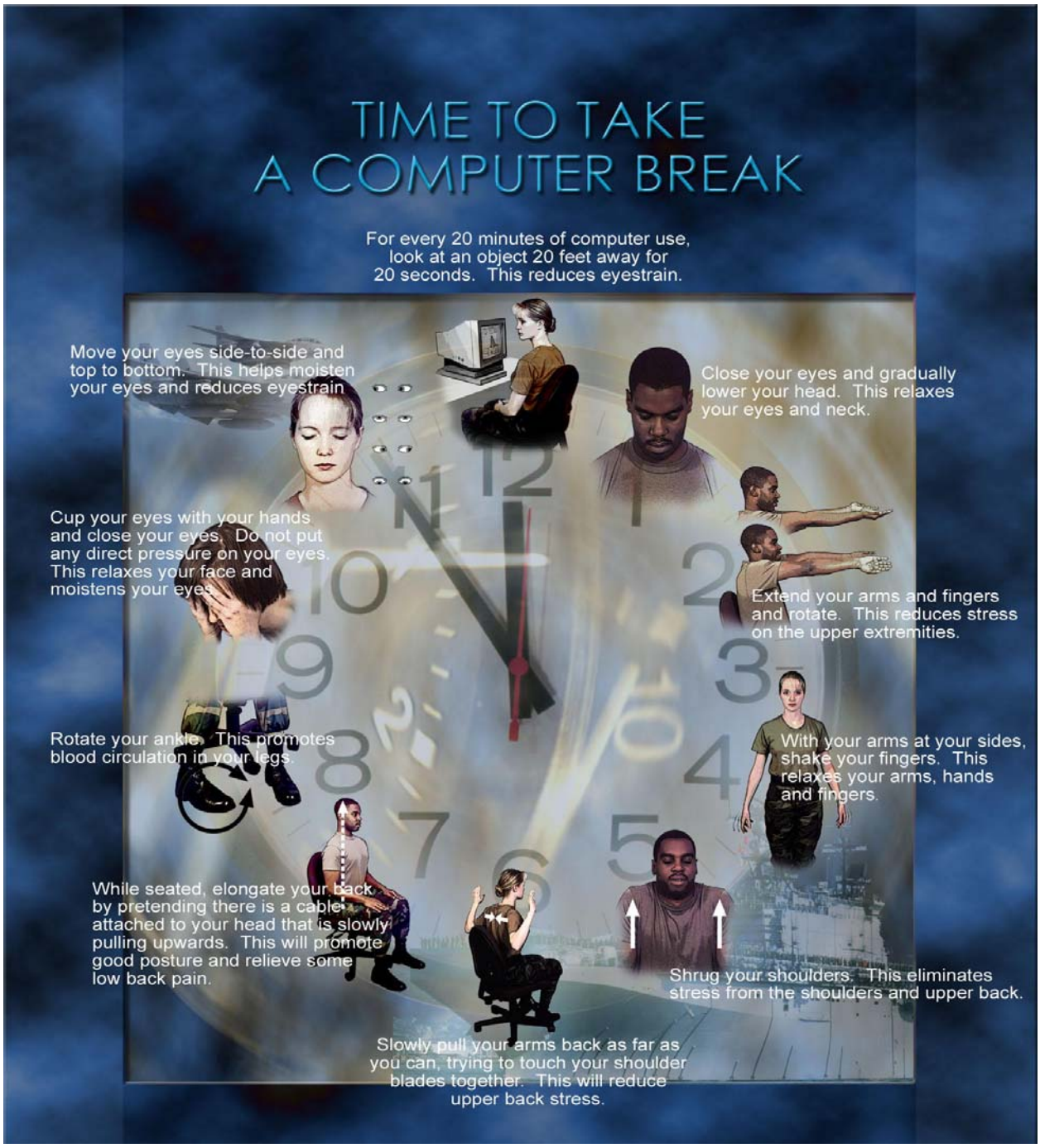
Adjust the seat height so upper arms hang vertically, close to the body, elbows bent about 90 degrees, shoulders relaxed and wrists straight

Adjust the back rest to provide firm support to the small of the back

The seat pan supports the thighs but does not contact the back of the knees

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/safety/site/ergo/ergonom.htm

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.



Computer Workstation Checklist **OPNAV 5100/21 (2-05)**

Evaluator:		Date:	
Employee Name:	Title:	Location:	Email:
Time in current position:		Phone Number:	

Percent of day (or hours per day) spent performing the following tasks:	Computer – Keying:	Mouse, Track ball:
Hours worked per week? Is workstation shared? Y / N	Telephone:	Writing: Other tasks:
Pain or discomfort, documented injuries, risk factors, etc:		

*If the answer is **NO** to any of the following questions, there is a potential problem.*

Y	N	**Minimum and maximum recommendations accommodate 90% of the population.** **Special considerations may be necessary for the extremes and users with special medical conditions.** **Work Chair**	**Possible Solutions** Circle if recommended
		Seat Height	
		Do the user's feet rest comfortably on the floor or a footrest with thighs parallel to the floor and hips at a height equal to or slightly above knee height? *Action*: If the workstation height is adjustable - adjust the chair so the user's feet rest comfortably on the floor/footrest. If the workstation is not adjustable raise the user to the keyboard height (refer to keyboard section) and use a footrest to encourage sitting back in the chair.	Footrest
		Seat Pan	
		Does the seat pan support the thighs? The user should be able to fit two fingers between the backs of the knees and the edge of the seat. The seat pan should not be significantly shorter or longer than the length of the thighs. *Action:* Adjust seat pan and/or adjust backrest. (Fixed seat pan maximum length 16.9")	Foot rest Lumbar support Different chair
		Does the seat cushion have a rounded front edge?	Different chair
		Is the seat pan wider than the hip breadth of the user to allow space for movement and clothing? (Minimum 18")	Different chair
		Backrest	
		Does the backrest provide adequate lumbar support and buttocks clearance without interfering with the user's movement? The most pronounced part of the backrest should coincide with the middle of the user's lumbar area (small of the back) between 5.9" to 9.8" from the seat pan. *Action*: Adjust backrest.	Lumbar support
		Is backrest wide and high enough to support the torso? (Minimum 14.2"	Different chair

		W x 12.2” H)	
		Armrests	
		Do the armrests adjust to a height that is comfortable for the user and avoids hunched shoulders (armrests are too high) or slouching (armrests are too low) while allowing the user to get close enough to perform the task while sitting back in the chair? The user should not plant his/her elbows on the armrests while typing. Armrests should be soft and pliable. A*ction:* Adjust armrests or remove armrests if they are not adjustable and interfere with the task.	
		Do the armrests adjust to a width that comfortably fits the user’s hips and allow the user to easily exit/enter a chair and perform his/her task? (Minimum separation 18”) *Action*: Adjust armrests or remove if necessary.	
		Miscellaneous	
		Does the chair have a stable base supported by five legs with casters and swivel 360 degrees?	Different chair
		Does the chair roll easily (casters appropriate for the floor surface)?	Chair mat Different casters

Y	N	**Minimum and maximum recommendations accommodate 90% of the population.** **Special considerations may be necessary for the extremes and users with special medical conditions**. **Work Surface**	**Possible Solutions** Circle if recommended
		Is there adequate clearance beneath the workstation for the user to get close enough to the task, maintain freedom of movement, and not come into contact with obstructions such as table legs, filing cabinets, etc? (Height clearance for legs minimum 25”, depth clearance for knees minimum 17”) *Action*: Rearrange workstation, remove clutter/obstructions.	Different work surface Raise or lower work surface
		Are the computer monitor and keyboard in alignment with (directly in front of) the user? *Action:* Rearrange workstation.	
		Is the work surface with the keyboard positioned at seated elbow height? Seated elbow height is measured with the feet resting comfortably on the floor (or a footrest) and the back positioned against the backrest. The upper arms are close to the sides with elbows at a 90° angle. The seated elbow height is the distance from the floor to the bony protrusion on the elbow. *Action:* Adjust work surface, keyboard tray, or chair. If feasible, reposition a portion of the work surface used exclusively for computer tasks.	Height adjustable keyboard tray Leg lifters for desk Different work surface
		Is the mouse or other input device located at the same height as the keyboard (at elbow height) within close reach? When keying or using the mouse, the upper arms should be close to the body, elbows approximately 90 degrees with forearms parallel to the floor and wrists straight.	Mouse bridge or platform Keyboard tray. Alternative or wireless pointing

			device
		Are frequently used support equipment / materials (telephone, documents, references) within 14” to 18” with occasionally used items within 22” to 26”? Two-handed reach distances are shorter than single-handed reaches and reaches for items over 10 lbs. should be performed standing. *Action:* rearrange workstation.	
		Monitor	
		Is the monitor located about arm’s length away from the user (min. 15.7”)? Monitor distance depends on the user’s eyesight and possible corrective vision use, and monitor depth. *Action:* Rearrange workstation.	Suggest employee see personal eye care specialist Larger work surface
		Is the monitor height (measured from the top row of characters on the screen) at a height equal to or 20° below the user’s seated eye height (measured from the corner of the eye when a person is looking straight ahead)? The monitor should be located so the user does not have to bend the neck back or forward to see clearly. *Action:* Elevate or lower monitor. If necessary, elevate chair and provide footrest.	Monitor risers / arm
		Are the monitor images clear and stable, free of dust or glare (reflections)? *Action:* Turn off overhead lights, reposition blinds, or shield monitor to the side / top to assess glare. Rearrange workstation so that monitor is perpendicular to light source. Change lighting / blinds during the day to reduce glare.	Add task lighting, reduce overhead lighting (removing bulbs), glare screen
		Accessories	
		Is the employee comfortable while receiving phone calls during the day, which require him/her to type or write while speaking?	Telephone headset
		Does the employee type in a neutral posture without using the wrist rest? A wrist rest should be used for resting; the arms should float above the keyboard in a neutral posture (straight wrists) when typing. The keyboard should be flattened or at a negative tilt as close to the user as possible.	
		If the worker references documents while typing, are they located in a holder next to, in front of, or at an equal distance to the monitor and not resting flat on the desk? Document position depends on eyesight, document and screen font, and task parameters.	Rearrange workstation Document holder
		Is the worker able to get up from the computer on a regular basis (typing for less than 6 hours a day)?	Sit/stand workstation
		Is the input device (mouse) appropriate for the task and is the user operating it with minimal force? Thumb operated trackballs are typically not recommended for extended daily use.	Alternative input device Input device sized to the user

Workstation Sketch, Notes, Follow-up, Comments:

Appendix 23-C

Ergonomics Resources

Naval Facilities Engineering Command ergonomic support

Ergonomic Program Manager
SOUTHWESTNAVFACENGCOM
1220 Pacific Hwy
San Diego, CA 92132-5190
Ph: 619-532-2536, DSN: 522-2536

Web site: www.navfac.navy.mil/safety

The ergonomic page of this website provides the assistance of certified ergonomists for situations that are beyond the professional capability of local resources.

Bureau of Medicine and Surgery (BUMED) ergonomic support

Navy Environmental Health Center
620 John Paul Jones Circle
Suite 1100
Portsmouth, VA 23708-2103
Phone: (757) 953-0700
After Hours: (757) 621-1967
DSN: 377-0700

Contact: Industrial Hygiene or Occupational Medicine directorates

Web site: http://www-nehc.med.navy.mil/occmed/occlinks.htm - ergonomic links

Commander Naval Safety Center (COMNAVSAFECEN) ergonomic resource

http://www.safetycenter.navy.mil/osh/ergonomics/default.htm

This web site contains ergonomic best practice examples, public domain documents, government documents, technical information, and links to other ergonomic sites. This site will also have information for the Job Requirements and Physical Demands Survey (JRPD), which is an ergonomic tool to enable Safety and Occupational Health professionals to identify ergonomic risk factors and prioritize problem areas.

Naval Occupational Safety and Health, and Environmental Training Center

0980 Breezy Point Crescent
Norfolk VA 23511-3998
Phone: 757 445- 8778
Web site: http://www.safetycenter..navy.mil/training/

Appendix 23-D

Recommended Ergonomic Training

General awareness training for all employees - Activities shall provide general ergonomic awareness training to all employees, managers and supervisors. As a minimum this training shall include:

(1) Definition of Ergonomics.

(2) Why ergonomics is important.

(3) Recognize workplace risk factors for musculoskeletal disorders and understand the general methods for controlling them.

(4) Contributing factors to WMSDs.

(5) The signs and symptoms of musculoskeletal disorders that may result for exposure to such risk factors and e familiar with the policy and procedures for early reporting.

(6) Where to find more information and obtain assistance.

(7) Periodic refresher training.

Manager. Managers should receive sufficient training on ergonomic issues to effectively carry out their responsibilities for the health and safety of their employees.

(1) Proper maintenance of facilities, equipment and tools as a technique to minimize ergonomic stress.

(2) The elements of an effective case management process.

(3) Safe and unsafe ergonomic behaviors of employees.

(4) Forming worker based teams and the benefits of a team approach to ergonomics.

(5) Ergonomic policy of the Navy, Department of Defense, and the Occupational Safety and Health Administration (OSHA).

Supervisors. Supervisors with employees subject to identified ergonomic risk factors should receive the following training:

(1) Recognition of WMSD signs and symptoms.

(2) WMSD reporting.

(3) Ergonomic risk factors, such as, awkward postures, static positions, external forces, repetitive motion and lifting hazards.

(4) Methods to reduce or eliminate ergonomic risk factors.

(5) How to select ergonomic equipment in the workplace.

(6) How to obtain ergonomic assistance.

Collateral duty personnel. Activities without full time professional OSH managers may assign collateral duty personnel to administer an ergonomics program. At a minimum their training should include:

(1) How to manage an ergonomics program.

(2) How to identify ergonomic hazards.

(3) Measures to reduce or eliminate ergonomic hazards.

(4) How to evaluate the effectiveness of ergonomics programs and controls.

Engineers, Equipment Specialists, Architects, and Designers. Engineering staffs responsible for planning, designing, or writing specifications for equipment, tools, jobs, tasks and processes should receive formal training on methods of eliminating or reducing ergonomic risk factors.

(1) Workstation and facilities design to reduce or eliminate ergonomic risk factors.

(2) Tool and equipment selection.

(3) How to evaluate designs to recognize potential ergonomic problem areas.

Occupational Safety and Health. OSH professional staff responsible for conducting the ergonomics program and other personnel involved in ergonomic assessments, control of ergonomic hazards and program management shall take the Navy Ergonomics Program (A-493-0085) course offered by NAVOSHENVTRACEN or equivalent. Equivalents are:

(1) Occupational Safety and Health Administration (OSHA) Course #2250 – Principles of Ergonomics Applied to Work-Related Musculoskeletal and Nerve Disorders.

(2) Course from an accredited university with a minimum of 35 hours of classroom time and a passing grade.

The training requirements will be waived for personnel holding current ergonomics certifications from:

Oxford Research Institute (www.oxfordresearch.org/)

(1) Certified Industrial Ergonomist (CIE).

(2) Certified Associate Ergonomist (CAE).

(3) Certified Human Factors Engineering Professional (CHFEP).

Board of Certification in Professional Ergonomics (http://www.bcpe.org/)

(1) The Certified Professional Ergonomist (CPE).

(2) Certified Human Factors Professional (CHFP).

(3) Certified Ergonomics Associate (CEA).

(4) Associate Ergonomics Professional (AEP).

(5) Associate Human Factors Professional (AHFP).

Health Care Providers. Health Care Providers need to be able to recognize WMSDs, evaluate the work place for potential ergonomic risk factors, and develop return to work strategies.

Appendix 23-E

Ergonomic Considerations for Shift Workers

A. 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 and transmeridian jet travel is that normal time cues are shifted faster than the human circadian rhythm can adjust. For example, it takes at least 2 days for the sleep/wake cycle to adjust to a 6-hour transmeridian flight. 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) 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 appendix 23-C.

B. 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 following additional guidelines regarding scheduling of night workers, including workers on rotating schedules that include night work, are recommended for consideration when preparing schedules.

(1) At least 48 hours off should follow the night shift rotation.

(2) Overtime should be avoided for personnel adjusting to time shifts.

C. 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 the following medical conditions that may impair an individual's ability to perform assigned tasks safely or be aggravated by shift work schedules:

(1) 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.

(2) Supervisors are cautioned to consult Federal Personnel Manual (FPM) chapter 339 governing medical qualification determinations.

D. Additional References.

(1) LaDou J., Occupational and Environmental Medicine, 2nd ed., pp 592-3, Appleton and Lange, 1997.

(2) Rom W.N., Environmental and Occupational Medicine, 3rd ed., pp 1173-7, Lippincott Williams and Wilkins, 1998.

(3) Scott A.J., "Shift Work and Health", Primary Care, 1 Dec 2000, 1057-79.

CHAPTER 24

ENERGY CONTROL PROGRAM (LOCKOUT/TAGOUT)

2401. Discussion

a. Purpose. 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 24-1 and the minimum performance standards of reference 24-2.

b. Scope and Application. The requirements of this chapter apply to the control of energy during servicing and maintenance of machinery and equipment ashore. These requirements apply only when the unexpected energizing or movement of machinery/equipment or the release of energy during the maintaining or servicing of such equipment/machinery could cause injury to personnel and/or property damage.

(1) 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 (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.

(2) The requirements of this chapter do not apply to the following:

(a) Shipboard operations that are covered under references 24-3, 24-4, and 24-5.

(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 references 24-6 and 24-7.

(c) Exposure to electrical hazards from work on, near or with conductors or equipment in electrical utilization installations, which are covered under references 24-6 and 24-7.

(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 per references 24-3, 24-4, and 24-5. However, the installation of equipment for such training is covered by this instruction.

2402. General Policy

All regions and shore activities shall comply with the lockout/tagout requirements of reference 24-1, except as noted in paragraph 2401.

a. Commands shall discipline any person(s), other than the original person(s) who installed the lockout/tagout device(s) or that person's supervisor, who removes a lockout/tagout device.

b. When similar machines and/or equipment are covered with a single generic written procedure, the procedure shall list the types of equipment to which the operating procedure applies.

c. Lockout/tagout is the preferred method of energy control and commands shall use it ashore where feasible. Regions/Activities shall not use combination locks for lockout. No two-lockout devices (locks) shall have the same key. No more than two keys shall exist for any lock. The worker shall maintain one key and the supervisor shall maintain the other in a location readily accessible to that supervisor in the event of an emergency.

d. Both lockout and tagout devices shall indicate the identity of the employee applying the device(s). Lockout/tagout devices shall be standardized throughout a region or within each shore activity.

e. Commands shall ensure that all training complies with reference 24-1, is specific to the region or activity, but need not include instruction on energy sources or means of isolation that are not applicable to the region or activity.

2403. Requirements for Contractors or Other Outside Agencies

Regions/Activities shall ensure contracts require the contractor or agency to:

a. Submit a copy of instructions explaining the contractor's or agency's lockout/tagout program. In addition, the region or activity shall provide the contractor or agency with a copy of the lockout/tagout program instruction of the region or activity where the work is to be performed.

b. Contractors must comply with the requirements of reference 24-8.

2404. Responsibilities

a. Commanders of Echelon 2 and Other Headquarters Commands shall:

(1) Ensure development and implementation of lockout/tagout programs are per the guidance in this chapter for all systems and operations under their cognizance.

(2) As necessary, provide amplifying guidance to subordinate activities on command implementation of the lockout/ tagout program to ensure program consistency and effectiveness.

b. Naval Education and Training Command (NETC) and/or Naval Personnel Development Command (NPDC) shall:

(1) Incorporate lockout/tagout requirements into appropriate Navy Training Systems Plan.

(2) Develop a lockout/tagout training syllabus and related performance qualification standards to include the provisions of lockout/tagout.

(3) Provide specialized lockout/ tagout training where necessary.

(4) Integrate lockout/tagout principles and procedures into the curriculum of the Navy Supply Corps School (Athens, GA) and the Naval School Civil Engineer Corps Officers (Port Hueneme, CA).

(5) Serve as the central source for delivery and dissemination of information on Navy lockout/tagout training.

(6) Incorporate lockout/tagout information into the curriculum of all appropriate training courses.

c. Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) shall provide standard stock OSHA-compliant tags and locks for use within the region or activity per the requirements of this chapter.

d. Commanders, Commanding Officers, and Officers in Charge shall:

(1) Develop and implement written plans and procedures for a lockout/tagout program that meet the policy of this chapter and the direction of reference 24-1.

(2) Initiate actions to identify and resolve deficiencies in the lockout/tagout 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., lockout/tagout identification, notification requirements and general energy control program requirements.

e. Region or Activity Safety Offices shall:

(1) Approve the equipment or applications where tagout 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 tagout shall 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 reference 24-1.

(2) Annually review compliance with the provisions of this chapter and any specific procedures developed as a result.

(3) Where lockout is not feasible, tagout may be used. Regions/Activities shall maintain a list of the type of equipment and applications. The official authorizing tagout will ensure compliance with the requirements of this chapter for use of tagouts to achieve equivalent protection to lockout systems.

(4) Ensure periodic inspections are performed by an authorized employee other than the one utilizing the procedures. Further, periodic inspection shall be documented and certified as being performed in accordance with reference 24-1.

Chapter 24

References

24-1. Title 29 Code of Federal Regulations (CFR) 1910.147 of 13 Feb 96, The Control of Hazardous Energy (lockout/tagout), latest revision, and Title 29 CFR 1910.332 of 6 Aug 90, Electrical-Safety-Related Work Practices http://www.access.gpo.gov/nara/cfr/waisidx_04/29cfr1910_04.html.

24-2. American National Standards Institute (ANSI) Standard Z244.1-2003, American National Standard for Personal Protection Lockout/Tagout of Energy Sources-Minimum Safety Requirements (NOTAL), http://www.ansi.org.

24-3. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health Program Manual for Forces Afloat, http://neds.daps.dla.mil/Directives/5100.19d_CH-1.pdf.

24-4. OPNAVINST 3120.32C of 11 Apr 94, Standard Organization and Regulations of the U.S. Navy. http://neds.daps.dla.mil/312032.htm.

24-5. NAVSEA Technical Manual SO400-AD-URM-010/TUM, of 1 Sept 2000, “Tag-out Users Manual”.

24-6. OPNAV P-45-117-6-98 of Jun 98, Electrical Safety Field Guide http://www.safetycenter.navy.mil/instructions/osh/OPNAVP-45-117-6-98.pdf.

24-7. UFC 3-560-02 of 16 Jan 04, Safety of Electrical Transmission and Distribution Systems.

24-8. EM385-1-1 of 3 Nov 03, U.S. Army Corps of Engineers Safety and Health Requirements Manual. http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm.

CHAPTER 25

POLYCHLORINATED BIPHENYLS (PCBs)

2501. Policy

a. Navy policy is to minimize the potential for polychlorinated biphenyl (PCB) exposure by substitution with non-PCB containing materials, using engineering and administrative controls and using appropriate personal protective equipment (PPE).

b. Occupational exposures to PCBs may arise from processes such as retrofilling PCB-containing electrical transformers, removing PCB-impregnated felts or gaskets or working with synthetic rubber, plasticizers or other materials that contain PCBs.

2502. Discussion

a. The Occupational Safety and Health Administration (OSHA) regulates workplace PCBs as air contaminants per reference 25-1. The Environmental Protection Agency (EPA) regulates environmental contamination involving PCBs under reference 25-2. The only human health hazard that has been definitively associated with prolonged exposure to liquid PCBs is a type of skin lesion characterized as chloracne. Eye irritation, chloracne and subclinical liver enzyme abnormalities have been recorded with high inhalation exposures. Note that no adverse human effects have ever been described for exposures to PCB surface contamination alone (references 25-3 and 25-4). For additional information regarding toxicological evaluation, guidance on occupational and environmental issues and other technical information, refer to reference 25-5.

b. The low vapor pressure associated with PCBs suggests that air concentrations on the order of 0.5 milligram per cubic meter (mg/m^3) of air are difficult to achieve under normal workplace conditions. High concentrations of liquid PCBs, optimal temperature and pressure conditions and/or subjection to mechanical dispersion processes would be required to achieve such airborne levels. 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.

c. Under certain conditions such as industrial transformer fires, polychlorinated dibenzo-dioxins (PCDDs) and polychlorinated dibenzo-furans (PCDFs) can be generated from PCBs or PCB solvents (chlorophenols). It must be noted that the health effects of these toxic by-products do not apply to unpyrolized PCB compounds, as is sometimes falsely assumed.

d. The National Institute for Occupational Safety and Health (NIOSH) and the International Agency for Research on Cancer have concluded that there is sufficient toxicological evidence to characterize PCBs as "suspected carcinogens." Neither OSHA nor the American Conference of Governmental Industrial Hygienists (ACGIH) characterize PCBs as suspected human carcinogens.

2503. Permissible Exposure Limits, Skin Designation

a. Permissible Exposure Limits (PELs). PCB PELs relate to allowable airborne exposure concentrations for an 8-hour day in a 40-hour workweek. There are two PELs for PCBs depending on the approximate percentage by weight of chlorine in the compound:

(1) Chlorodiphenyl (42 percent chlorine) - 1.0 mg/m^3

(2) Chlorodiphenyl (54 percent chlorine) - 0.5 mg/m^3

b. Skin Designation. Skin designation denotes that PCBs can be absorbed through the skin. Activities shall prevent or reduce skin exposure to PCBs to the extent necessary through the use of substitution, engineering controls, work practices or PPE, such as gloves, coveralls, goggles or other appropriate PPE.

2504. Control of PCB Exposure in the Workplace Environment

a. General Workplace Control Practices. For situations not exceeding the PELs and not involving unprotected PCB skin contact, activities shall 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 shall strictly observe good housekeeping procedures to avoid the possibility of secondary surface contamination.

(2) Employees involved in PCB- related work activities shall not eat, drink, smoke, chew tobacco or gum or apply cosmetics in the work area.

(3) Activities shall 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 per applicable Federal, State or local environmental regulations. For guidance consult reference 25-2.

(4) Personnel shall not perform hot work in the immediate area when work is performed with PCB material.

b. Personal Protective Equipment

(1) Personnel engaged in handling PCB-contaminated or PCB-impregnated material (such as "rip out" or "stripping" operations), during which skin contact with PCBs is considered probable, shall wear the following PPE:

(a) Full-body, one-piece disposable coveralls constructed of Tyvek® material or comparable substitute material.

(b) Nitrile or Viton® gloves.

(c) Nitrile or neoprene 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.

(2) If work situations exist where it is likely that workers' clothing will become saturated with PCB-containing liquids, personnel shall use protective clothing materials having "greater than 24 hours" breakthrough times against PCBs, as listed in reference 25-6. The following PPE is recommended if saturation is anticipated:

(a) Saranex®-coated Tyvek® coveralls for whole body protection.

(b) Viton® rubber for gloves and foot coverings.

(c) Face shields and chemical goggles for eye protection.

c. Respiratory Protection

(1) Under most conditions, activity safety offices shall use air-sampling data to determine the necessity for wearing respiratory protection. The cognizant industrial hygienist shall determine the need to perform air sampling for PCBs.

(2) If air sampling results indicate that the PELs for PCBs have been exceeded, personnel shall use a supplied air respirator that has a full face piece and is operated in the pressure-demand or other positive-pressure mode.

(3) Use of respirators shall comply with the requirements of chapter 15.

(4) When selecting respiratory protection for PCB decontamination, the cognizant industrial hygienist should give consideration to the solvent being used, the potential airborne concentration of the solvent and the possible presence of chlorinated dioxins and furans.

2505. Medical Surveillance Program

Activities shall include personnel who meet the exposure criteria outlined in reference 25-7, and as determined by an industrial hygienist, in the appropriate medical surveillance program.

2506. Environmental Contamination

PCBs are recognized environmental contaminants. The threat they pose to the environment is largely due to their chemical stability, lipid solubility and resistance to biodegradation.

Reference 25-8 provides Navy requirements that address Federal environmental regulations. Refer to reference 25-2 for spill cleanup requirements.

Chapter 25

References

25-1. Title 29 Code of Federal Regulations (CFR) 1910.1000 Subpart Z, Table Z-1-A, of 1 Jul 96, Limits for Air Contaminants www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9992.

25-2. Title 40 CFR 761 of 1 Jul 96, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=6ef43a59d61828d3ff2c7b39ca02a54a&rgn=div5&view=text&node=40:30.0.1.1.17&idno=40/.

25-3. DHHS, National Institute for Occupational Safety and Health (NIOSH) Publication No. 77-225 of Sep 77, "Criteria for a recommended standard, Occupational Exposure to Polychlorinated Biphenyls". http://www.cdc.gov/niosh/77-225.html.

25-4. U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR) Publication No. TP-92/16 of 1993, Toxicological Profile for Selected PCBs (Arochlor-1260, 1254, 1248, 1242, 1232, 1221, and 1016) www.hhs.gov/hhsmanuals/safety.pdf.

25-5. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, of August 2004, "Poly-chlorinated Biphenyls (PCBs), Polychlorinated Dibenzofurans (PCDFs), and Polychlorinated Dioxins (PCDDs), latest edition, http://www-nehc.med.navy.mil/ih/ihfom.htm.

25-6. ACGIH (American Conference of Governmental Industrial Hygienists) 3rd Edition, Guidelines for Selection of Chemical Protective Clothing (NOTAL), http://www.acgih.org/store/ProductDetail.cfm?id=256.

25-7. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, of March 2004, "Medical Surveillance Procedures Manual and Medical Matrix," latest edition, http://www-nehc.med.navy.mil/occmed/Matrix.htm.

25-8. OPNAVINST 5090.1B of 1 Nov 94, Environmental and Natural Resources Program Manual, Chapter 11, "PCB Management Ashore", http://neds.daps.dla.mil/5090.htm.

CHAPTER 26

CHEMICAL-BIOLOGICAL-RADIOLOGICAL-NUCLEAR-EXPLOSIVE (CBRNE)
(Formerly Man-Made Vitreous Fibers)

2601. Discussion

Secretary of the Navy (SECNAV) issued DON "Installation Chemical, Biological, Radiological, Nuclear and High-Yield Explosive (CBRNE) Emergency Response Guidelines" in June 2004 (see reference 26-1). Occupational Safety and Health Administration (OSHA) "Guidelines for Emergency Preparedness and Response" are available at http://www.osha-slc.gov/SLTC/emergencypreparedness/index.html. OPNAV Instruction 3440.17, reference 26-2 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 Shore installations and regions.

This chapter provides occupational safety and health guidance and direction on responsibilities for protective equipment, heat stress, mishap investigation, and the CBRN Respiratory Protection Program as they relate to CBRNE incidents. CBRNE incidents like industrial explosions, fires or release of chemicals require plans and policies to mitigate loss of life and property. A list of military chemical agents that could be involved is available in appendix 26-A.

2602. Roles and Responsibilities

a. Safety Support. Working as part of an emergency management team in accordance with this instruction, Navy Shore Installation Commanders shall provide the following support capability:

(1) Participation in Emergency Planning, whereby the designated safety representative:

(a) Participates in planning for selection of personal protection equipment.

(b) Participates in planning for emergency equipment acquisition and review.

(c) Assists in integrating safety into training plans (formal and exercise).

(d) Participates in preparing hazard and risk communication plans.

(e) Participates in vulnerability assessments.

(f) Participates in preparing plans for notification/recall of essential personnel.

(g) Participates in communication of emergency plans.

(h) Participates in development of Navy policy and doctrine, for Tactics, Techniques, and Procedures (TTP).

(i) Participates in risk analysis and threat assessments.

(j) Ensures employees who respond to CBRNE incidents are appropriately enrolled in medical surveillance and respiratory protection programs.

(2) Participation in Emergency Response, whereby the designated safety representative:

(a) Participates in development of site-specific Health and Safety Plans (HASP).

(b) Serves as Incident Command System, Regional Operations Center (ROC) representative and Emergency Operating Center (EOC) safety representative.

b. Industrial Hygiene and Occupational Medicine Support. Chief, Bureau of Medicine and Surgery (BUMED) shall provide all Navy shore activities with technical industrial hygiene and occupational medicine response capability to support installation emergency responders.

(1) Industrial hygiene technical representatives shall provide the following capabilities

(a) Participation in Emergency Planning, whereby the industrial hygiene representative:

1. Participates in preparation of the installation Chemical, Biological, Radiological Defense (CBRD) including preparation, endurance, and recovery from a natural or man-made disaster.

2. Provides industrial hygiene support including consultation on such issues as hazardous materials, chemical detection and identification, and personal protective equipment.

3. Participates in primary and secondary decontamination planning.

4. Assists in the development of health risk communication plans for shore installations including Medical Treatment Facilities (MTF).

5. Participates in medical surveillance planning.

6. Participates in collective protective shelter system planning.

7. Provides risk assessment interpretation and maintenance of record of exposure documentation.

8. Conducts review and implementation of exposure monitoring plans.

9. Provides PPE evaluation in relation to incident.

(b) Participation in Emergency Response. Regional response capabilities shall 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 shall include the following capabilities:

1. Provides consultation before and during an incident on the capabilities and limitations of chemical and biological detection methods and the interpretation of monitoring data.

2. Participates in the interpretation and communication of sampling and monitoring information provided by detection equipment.

3. Provides technical expertise in 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. Participates in monitoring collective protective shelter systems.

(2) Occupational Medicine Support. (See paragraph 0805 for further detail)

(a) Serves as installation Medical Treatment Facility (MTF) Emergency Operating Center (EOC) representative equivalent.

(b) Conducts medical surveillance in accordance with the NEHC Technical Manual, reference 26-3.

NOTE:

Military personnel, who have been confirmed by their region or activity as having no deployment limiting medical conditions, and with a current annual Preventive Health Assessment per OPNAVINST 6120.3 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 self-contained breathing apparatuses (SCBA), including the oxygen breathing apparatus (OBA), prior to reporting for training.

2603. Personal Protective Equipment

a. Navy policy is that activities provide, use and maintain personal or individual 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 activity. Equipment breakdown, failure or misuse immediately exposes 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, maintenance, 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 nature of the task that the responder is assigned to complete during the incident.

(1) Per reference 26-4, 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 MCU-2A/P military respirator is worn during the highest level of MOPP protection (MOPP IV).

NOTE:

MOPP IV is not equivalent to Level C because the Joint Service Light-Weight Integrated Suit Technology (JSLIST) will not pass penetration testing of National Fire Protection Association (NFPA) 1992. Military personnel stationed overseas are permitted to wear MOPP gear, including military gas masks (e.g., M40A1 or MCU-A/P) in lieu of level C protection during first response operations only if and when directed by the Theater Combatant Commander.

Warning:

C2A1 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. See Table (1), which lists the filtration performance of C2A1 canisters against TICs.

Table 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 – E	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
	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

High Hazard	Medium Hazard	Low Hazard
	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.

(2) Navy military and civilian personnel shall use protective ensembles that are compliant with this manual, 29 CFR 1910.120, and reference 26-5 (NFPA 1994, *Protective Ensembles for Chemical/Biological Terrorism Incidents*). NFPA 1994 establishes specifications "for minimum levels of protection for fire and emergency services personnel assigned to chemical/biological terrorism agents including dual-use industrial chemicals, chemical terrorism agents, or biological terrorism agents." Only NIOSH approved respirators may be used (see Section 2606 and Chapter 15 of this manual).

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 protective material should exceed the work durations.

(1) Per Appendix B of reference 26-6, PPE is divided into four levels described in Tables 2, 3, 4 and 5 based on the degree of protection afforded. See Section 2606 and Chapter 15 of this manual for specific details on respirator selection. All SCBA purchased for first responders must be NIOSH CBRN approved. Once activities are fully equipped with NIOSH CBRN approved SCBA, then these respirators will be the only respirators allowed for use with Level A and Level B protective ensembles. During the interim period, NIOSH approved SCBA meeting NFPA 1981 requirements may be worn with Level A and B protective ensembles under the circumstances described in Tables 2 and 3:

Table 2 – Level A Protection

Level A protection is selected when the greatest level of skin, respiratory, and eye protection is required. The following constitute Level A equipment; it may be used as appropriate;

1. NIOSH CBRN agent approved SCBAs are the first choice of respiratory protection. Since SCBAs will be worn under Level A encapsulating suits, a NIOSH approved SCBA meeting NFPA 1981 requirements (see glossary) may also be worn. SCBA air cylinder service life must be rated for 60 minutes.
2. Totally encapsulating chemical-protective suit.
3. Coveralls. [1]
4. Long underwear. [1]
5. Gloves, outer, chemical-resistant.
6. Gloves, inner, chemical-resistant.
7. Boots, chemical-resistant, steel toe and shank.
8. Hardhat (under suit). [1]
9. Disposable protective suit, gloves and boots (depending on suit construction, may be worn over totally encapsulating suit). [1]

[1] Optional, as applicable.

Table 3 – Level B Protection

Level B protection is selected when the highest level of respiratory protection is necessary but a lesser level of skin protection is needed. The following constitutes Level B equipment (to be used as appropriate).

1. SCBA will be selected on a case-by-case basis depending on the presence of chemical warfare agent(s)(CWA). When CWA agent is present, then only a NIOSH CBRN agent approved SCBA may be worn. If CWA is not present, then a NIOSH CBRN agent approved SCBA is the first choice of SCBA, however, use of a NIOSH approved SCBA meeting NFPA 1981 requirements (see glossary) is permissible.
2. Hooded chemical-resistant clothing (overalls and long-sleeved jacket; coveralls; one or two-piece chemical-splash suit; disposable chemical-resistant overalls).
3. Coveralls. [1]
4. Gloves, outer, chemical-resistant.
5. Gloves, inner, chemical-resistant.
6. Boots, outer, chemical-resistant steel toe and shank.
7. Boot-covers, outer, chemical-resistant (disposable). [1]
8. Hardhat. [1]
9. Face shield [1]

[1] Optional, as applicable.

Table 4 – Level C Protection

Level C protection is selected when the concentration(s) and type(s) of airborne substance(s) are known and the criteria for using air-purifying respirators are met. The following constitute Level C equipment (to be used as appropriate).

1. NIOSH CBRN agent approved air-purifying respirators.
2. Hooded chemical-resistant clothing (overalls; two-piece chemical-splash suit; disposable chemical resistant overalls).
3. Coveralls. [1]
4. **Gloves, outer, chemical-resistant.**
5. Gloves, inner, chemical-resistant.
6. Boots (outer), chemical-resistant steel toe and shank. [1]
7. Boot-covers, outer, chemical-resistant (disposable). [1]
8. Hardhat. [1]
9. Escape mask. [1, 2]
10. Face shield. [1]

[1]Optional, as applicable.
[2]Currently, there is an interim period between promulgation of the NIOSH CBRN agent escape only respirator approval schedule and the time that escape only respirators have completed certification testing and have been granted NIOSH approval. During the interim period, NIOSH CBRN agent approved air-purifying respirators may be worn where escape only respirators have been determined to be required. They are to be worn only for escape when used in this capacity.

Table 5 – Level D Protection

Level D - A work uniform affording minimal protection: used for nuisance contamination only. The following constitute Level D equipment (to be used as appropriate):

1. Coveralls.
2. Gloves. [1]
3. Boots/shoes, chemical-resistant steel toe and shank.
4. Boots, outer, chemical-resistant (disposable). [1]
5. Safety glasses or chemical splash goggles. [1]
6. Hardhat. [1]
7. Escape mask. [1, 2]
8. Face shield. [1]

[1]Optional, as applicable.
[2]Currently, there is an interim period between promulgation of the NIOSH CBRN agent escape only respirator approval schedule and the time that escape only respirators have completed certification testing and have been granted NIOSH approval. During the interim period, NIOSH CBRN agent approved air-purifying respirators may be worn where escape only respirators have been determined to be required. They are to be worn only for escape when used in this capacity.

(2) Table 6 provides an overview of the National Fire Protection Association (NFPA) responder levels associated with the appropriate respiratory and personal protective levels (per reference 26-6 and NFPA 472, Standards for Professional Competence of Responders to HAZMAT Incidents.

Table 6 – NFPA Responder Levels & Required Equipment/Training Standards

Emergency Response Organization Levels (Parallel to OSHA Training Standards)		Minimum Equipment and Training Requirements
Level 1	First Responder Awareness Level: Witnesses and/or discovers a HAZMAT release.	Equip and train to operate in an environment requiring Level D protection (as defined in OSHA Standards, Title 29).
Level 2	First Responder Operations Level: Responds to HAZMAT release in defensive manner without trying to stop release.	Equip and train to operate in an environment requiring Level C protection, with full-face respirator.
Level 3	HAZMAT Technician: Responds aggressively to stop HAZMAT release.	Equip and train to operate in an environment requiring Level A protection.
Level 4	HAZMAT Specialist: Responds with and in support of HAZMAT technician but has specific knowledge of HAZMAT substances.	Equip and train to operate in an environment requiring Level A protection.
Level 5	Incident Commander: Assumes control of the incident scene beyond the first responder awareness level.	Equip and train to operate in an environment requiring Level A protection.

Note: OSHA training requirements for emergency responders covered in 1910.120 (q); and, NFPA 472, *Professional Competence of Responders to Hazardous Material Incidents* gives a comprehensive set of training knowledge necessary for the various levels of responders (awareness through incident command).

(3) Specific training standards for protective equipment are discussed in reference 26-7. Respiratory protection program requirements are addressed in Chapter 15 of this manual.

d. All personal protective clothing and equipment as well as respiratory protective equipment shall be sized to fit the individual and 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 shall only use those items that have been recognized and approved. Upon approval by NIOSH, CBRN-approved respirators are listed on the NIOSH National Personal Protective Technology Laboratory (NPPTL) website, and then included in the NIOSH Certified Equipment List (CEL) when it is periodically updated. Additional equipment may be approved in the future through the use of Federal specifications, American National Standards Institute (ANSI) specifications and recognized approval authority, such as Underwriter's Laboratories (UL), Factory Mutual (FM), or

American Society of Testing and Materials (ASTM). Website addresses for NIOSH NPPTL and NIOSH CEL are located at the following website addresses:

- http://www.cdc.gov/niosh/npptl/default.html
- http://www.cdc.gov/niosh/celintro.html

e. Notable Exemptions.

(1) Where the safety and health of the contractor's employees are affected, references 26-7 and 26-8 specify that the contractor is responsible directly to OSHA or appropriate state office where OSHA has approved a state plan. Per paragraph 1502.b.1 contractors are responsible for providing their own respiratory protection programs and respiratory protective equipment.

(2) Further guidance on safety and occupational health policies and procedures may be found in references 26-9 and 26-10.

2604. Heat Stress

Mandatory levels of protection for first responders require full or partially encapsulating ensembles of PPE. These protective ensembles serve to prevent bodily absorption of harmful CBRN agents via skin, eye and respiratory contact. Protective ensembles can rapidly become hot, heavy, and restrictive even under mild to moderate activity. While guarding against exposure to harmful CBRN agents, the protective ensemble also prevents dissipation of normal body heat. As a consequence, heat and sweat accumulate inside the PPE ensemble becoming, first, a source of discomfort, then a distraction that could impair job performance, and finally result in a serious and possibly life-threatening heat-related injury or illness.

a. Per reference 26-11, the IC should consider the circumstances of each incident and make suitable provisions for rehydration, rest and rehabilitation for members operating at the scene. These considerations should include medical evaluation and treatment, food and fluid replenishment, and relief from extreme climatic conditions, according to the circumstances of the incident. The IC should maintain an awareness of the condition of members operating within their span of control and ensure that steps are taken to provide for their safety and health. The command structure should be utilized to request relief and reassignment of fatigued members.

(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 specified by reference 26-11 are also recommended for any first responder requiring medical treatment.

b. 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 or B 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 26-12.

c. Per U.S. Fire Administration, (Federal Emergency Management Agency, FEMA, U.S. Fire Administration, Emergency Incident Rehabilitation, FA-114/July1992 http://www.usfa.fema.gov/downloads/pdf/publications/fa-114.pdf), the following summary guidelines are recommended to prevent heat stress 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. It should be stressed that the climatic or environmental conditions of the emergency scene should not be the sole justification for establishing a rehabilitation area. Any activity/incident that is large in size, long in duration, and/or labor intensive will rapidly deplete the energy and strength of personnel and therefore merits consideration for rehabilitation. Climatic or environmental conditions with a heat stress index above 90 degrees or a wind chill index below 10 degrees Fahrenheit warrant establishing a rehabilitation area.

(2) Hydration. A critical factor in the prevention of heat injury is the maintenance of water and electrolytes. Water and electrolytes must be replaced during work periods and at emergency incidents. Rehydration is important even during cold weather operations where, despite the outside temperature, heat stress may occur during firefighting or other strenuous activity when protective equipment is worn.

(3) Nourishment. The IC shall provide food at the scene of an extended incident when units are engaged for three or more hours.

(4) Rest. Members should rehydrate (at least eight ounces) while SCBA cylinders are being changed. In all cases, the objective evaluation of a member’s fatigue level shall be the criteria for rehabilitation time. The Rehabilitation Officer shall determine duration of rest intervals. Fresh crews, or crews released from the Rehabilitation Sector/Group, shall be

available in the staging area to ensure that fatigued members are not required to return to duty before they are rested, evaluated, and released by the Rehabilitation Officer.

(5) Recovery. Members in the Rehabilitation Area should maintain a high level of hydration. Members should not be moved from a hot environment directly into an air conditioned area because the body's cooling system can shut down in response to the external cooling. An air-conditioned environment is acceptable after a cool-down period at ambient temperature with sufficient air movement. Certain drugs impair the body's ability to sweat and extreme caution must be exercised if the member has taken antihistamines, diuretics or stimulants.

d. Medical Evaluation.

(1) Medical Response Group. The Medical Response Group will provide qualified personnel that shall evaluate vital signs, examine members, and make proper disposition (return to duty, continued reconstitution, or medical treatment and transport to medical facility). Continued reconstitution should consist of additional monitoring of vital signs, providing rest, and providing fluids for re-hydration. Medical treatment should be provided for members whose signs and/or symptoms indicate potential problems, in accordance with local medical control procedures. Emergency Management Specialists (EMS) shall be assertive in an effort to find potential medical problems early.

(2) Documentation. All medical evaluations should be recorded on standard forms.

2605. Confined Space Entry

Entry into a confined space shall 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.

2606. CBRN Respiratory Protection Program

a. Scope. Reference 26-13 requires that a respiratory protection program be established where respiratory protection is necessary to protect employees against inhalation hazards. The CBRNE Respiratory Protection Program includes all elements of the respirator program described in reference 26-13 and Chapter 15 of this instruction. 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. Roles and Responsibilities. The Respiratory Protection Program Manager (RPPM) having cognizance over the first responders will be assigned as the CBRN RPPM. At facilities where there is no RPPM, the Commanding Officer will assign, in writing, an RPPM to manage the CBRN Respirator Protection Program. Alternatively, these facilities may obtain RPPM services from another command via an interservice 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 CBNRE incident.

c. CBRN-Specific Respiratory Protection Program Elements

(1) Respirator Selection. Respirator selection for first responders is based on the same principles discussed in Section 1507.c. of this instruction and directed by the IC. Should it become necessary to respond to incidents involving CBRNE agents, the following respiratory protection will be worn. (See Section 2603 for descriptions of Levels A, B, and C protection).

NOTE:

SCBA operated in the "demand mode" and respirators receiving only NIOSH approval as pressure demand respirators shall not be worn for Level A or B protection. Also, there are currently no NIOSH CBRN agent approved combination airline/SCBA. All of these types of respirators do not provide adequate airflow for entering CBRNE immediately dangerous to life or health (IDLH) atmospheres and have not undergone permeation testing against vapor and liquid chemical agents. All SCBA purchased for first responders must be NIOSH CBRN approved. Once activities are fully equipped with NIOSH CBRN approved SCBA, then these respirators will be the only respirators allowed for use with Level A and Level B protective ensembles. During the interim period, NIOSH approved SCBA meeting the NFPA-1981 requirements may be worn with Level A and B protective ensembles under the circumstances described in the following two paragraphs.

(a) Level A - NIOSH CBRN agent approved SCBA are the first choice of respiratory protection. Since SCBA will be worn under Level A encapsulating suits, NIOSH approved SCBA meeting the NFPA 1981 requirements (see glossary) may also be worn. SCBA air cylinder service life must be rated for 60 minutes. NIOSH CBRN-agent approved SCBA are listed on the following website:

- http://www.cdc.gov/niosh/npptl/cbrncheck.html

(b) Level B - SCBAs will be selected on a case-by-case basis depending on the presence of liquid chemical warfare agent(s) (CWA). When CWA is present then only NIOSH CBRN agent approved SCBA are permitted to be worn. If CWA agent is not present, then NIOSH CBRN agent approved SCBA are the first choice of SCBA, however, use of NIOSH approved SCBA meeting NFPA 1981 requirements is permissible.

(c) Level C - NIOSH CBRN agent approved air-purifying respirators will be selected for Level C protection. The MSA CBRN agent approved Millennium® respirator (TC-14G-0270) is the first choice of Level C respiratory protection. The MSA Millennium® and the Navy's military gas masks (MCU-2A/P) are almost identical respirators. The MSA Millennium® is made from the same mold as the MCU-2A/P. Besides using different canisters, the main difference between these two masks is that the Millennium® is made of Hycar rubber, whereas the MCU-2A/P is made of silicone and therefore requires a rubber second skin because silicone is much more permeable to chemical agents. Also, the MCU-2A/P exhalation valve pressure is greater than the Millennium®. Although the Millennium® is the first choice,

equivalent masks are also authorized for purchase. NIOSH CBRN agent approved air-purifying respirators can be accessed at the following website:

- http://www.cdc.gov/niosh/npptl/cbrnaprcheck.html

(d) Medical Treadtment Facility (MTF) Secondary Decontamination Stations and Decontamination Corridor Security Until NIOSH CBRN approved powered air purifying respirators (PAPRs) are available, personnel assigned to secondary decontamination stations at MTFs and military security personnel stationed at the decontamination corridor will wear full-face rubber PAPRs equipped with combination organic vapor, acid gas, and HEPA filters. Once NIOSH CBRN agent approved PAPRs are available, they will be the only air-purifying respirators permitted for use during these operations.

(2) Use and Limitations.

(a) NIOSH CBRN agent approved SCBAs shall not be used beyond six hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation.

(b) NIOSH CBRN agent approved air-purifying respirators shall 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 shall not be used for more than two hours.

(c) Additional limitations of NIOSH CBRN approvied respirators are addressed further on the NIOSH approval labels and in respirator manufacturers' instruction manuals. Ensure all of these limitations are understood by all personnel in the CBRN respirator program and by personnel implementing this program.

(3) Inspection, Cleaning, and Decontamination.

(a) Inspection. Manufacturer's instructions will be used for inspecting full-facepiece air purifying respirators, powered air purifying respirators (PAPRs) and SCBAs. Per paragraph (h) of reference 26-13, 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 shall 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 shall not be used.

(b) Cleaning and Decontamination. Respirators exposed to contaminants must be properly decontaminated. Decontamination procedures are in reference 26-15 (see section 2608). Respirator cleaning procedures are covered in Chapter 15.

(4) Training. Respirator training requirements for first responders, supervisors, and respirator issuers are specified in Section 1511 of Chapter 15. Additional training requirements are provided in reference 26-6.

(5) Fit Testing. Personnel wearing tight-fitting respirators shall 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 26-13. 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. Employees shall not be fit tested unless they have been medically evaluated.

(6) 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 Section 1513.

(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, respirator cartridges used by security guards must be changed after every eight-hour shift; and cartridges used by personnel assigned to secondary decontamination stations at medical treatment facilities and by security guards stationed at the decontamination corridor must be changed every two and a half hours; C2A1 cartridges, when military gas masks are allowed to be worn by the Theatre Combatant Commander, must be changed according to reference 26-4. More detailed information on respirator cartridge change out schedules, including a method for validating estimated change out schedules, is provided in articles addressing this issue on the Navy Environmental Health Center (NEHC) respirator homepage located at the following website addresses:

- http://www-nehc.med.navy.mil/ih/Respirator/ChangeSchedule.htm
- http://www-nehc.med.navy.mil/ih/launches/CalChemCart.doc

2607. Training

Training requirements are specified in Navy Shore Installation Emergency Management Program, reference 26-2.

2608. Decontamination

Decontamination requirements are specified in Navy Shore Installation Emergency Management Program, reference 26-2. Guidelines for the decontamination of emergency response personnel and their equipment after exposure to hazardous materials, and for planning for decontamination before an incident occurs is in references 26-14.

2609. Risk Communication

Risk Communication requirements are specified in Navy Shore Installation Emergency Management Program, reference 26-2. In addition, the Navy Environmental Health Center "Risk Communication Primer: A Guide for Conveying Controversial or Sensitve Environmental, Health and Safety Information to a Concerned Audiend," reference 26-15 is a useful tool for use by commanding officers, public health officials, emergency response personnel, medical personnel and safety , and health and environmental personnel.

Chapter 26

References

26-1. SECNAV Instruction 3400.4 of 8 June 04, DON "Installation Chemical, Biological, Radiological, Nuclear and High-Yield Explosive (CBRNE) Emergency Response Guidelines." http://neds.daps.dla.mil/Directives/3400_4.pdf.

26-2. OPNAVINST 3440.17, Navy Shore Installation Emergency Management Program

26-3. NEHC Technical Manual OM 6260 of 1 Feb 01, Occupational Medical Surveillance Procedure Manual and Medical Matrix http://www-nehc.med.navy.mil/occmed/Matrix.htm

26-4. NTTP 3-11.27, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, of 02 Jun 2003 http://globalsecurity.org/wmd/library/policy/army/fm/3-11-4/index.html.

26-5. NFPA 1994, Standard on Protective Ensembles for Chemical/Biological Terrorism Incidents, 2001 Edition http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=1994&cookie%5Ftest=1.

26-6. Title 29, Code of Federal Regulations, Part 1910, Subpart 120 (29 CFR 1910.120) http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9765

26-7. Title 29, Code of Federal Regulations, Part 1910, Occupational Safety and Health Standards for General Industry http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9696.

26-8. Title 29, Code of Federal Regulations, Part 1926, Safety and Health Regulations for Construction

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10593.

26-9. DODINST 6055.1, of 13 Aug 98, DOD Safety & Occupational Health (SOH) Program http://www.dtic.mil/whs/directives/corres/html/60551.htm.

26-10. DODINST 6055.5, of 10 Jan 89, Industrial Hygiene and Occupational Health http://www.dtic.mil/whs/directives/corres/html/60555.htm.

26-11NFPA 471 2002, Recommended Practice for Responding to Hazardous Materials Incidents www.nfpa.org/Codes/NFPA_Codes_and_Standards/List_of_NFPA_documents/NFPA_471.asp.

26-12. OSHA Technical Manual, Section III, Chapter 4, Heat Stress. http://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_4.html.

26-13. Title 29, Code of Federal Regulations, Part 1910.134, Respiratory Protection http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=12716.

26-14. NFPA Hazardous Material Response Handbook, Supplement 10, Guidelines for the Decontamination of Firefighters and Their Equipment following Hazardous Material Incidents, 1997 http://www.nfpa.org/PDF/Sup10.pdf?src=nfpa.

26-15. Risk Communication Primer: A Guide for Conveying Controversial or Sensitive Environmental, Health, and Safety Information to a Concerned Audience, NEHC. http://www-nehc.med.navy.mil/HERC/Products/primer.pdf.

Appendix 26-A

MILITARY AGENTS

Nerve Agents

- Tabun (NATO military designation, GA)
- Sarin (NATO military designation, GB)
- Soman (NATO military designation, GD)
- GF (Cyclohexyl methylphosphonofluoridate)
- VX (Methylphosphonothioic acid S-(2-(bis(1-methylethyl)amino)ethyl) O-ethyl ester)
- GE (Phosphonofluoridic acid, ethyl-, isopropyl ester)
- VE (Phosphonothioic acid, ethyl-, S-(2-(diethylamino)ethyl) O-ethyl ester)
- VG (Amiton)
- VM (Phosphonothioic acid, methyl-, S-(2-(diethylamino)ethyl) O-ethyl ester)

Health Effects

- Cholinesterase inhibitors
- Disable enzymes responsible for transmitting nerve impulses.
- Initial effects of organophosphorus agents occur within 1-10 minutes of exposure
- Death
    - Within 15 minutes for Tabun, Sarin, and Soman
    - From 4-42 hours for VX.

Blister/Vesicant Agents

- Lewisite (L)
- Mustard-Lewisite (HL)
- Nitrogen mustards (HN-1, HN-2, HN-3)
- Phosgene oxime (CX)
- Sulfur mustards (H, HD, HT)

Health Effects

- Vesicants
- Skin blisters
- Damage eyes, mucous membranes, respiratory tract, and internal organs
- Initial effects rapid
- Mustard agents
- Destroy different substances within cells of living tissue
- Initial effects occur 12 to 24 hours after exposure.
- Symptoms variable
- Acute mortality low
- Death can occur from complications after lung injury.

Blood Agents

- Cyanogen chloride (CK)
- Hydrogen cyanide (AC)

Health Effects

- Highly volatile
- Rapidly acting
- Seizures
- Respiratory failure
- Cardiac arrest

Pulmonary Agents

- Chlorine
- Chloropicrin (PS)
- Diphosgene (DP)
- Phosgene (CG)

Health Effects

- Liquids dispersed in gas form
- Damage the respiratory tract and cause severe pulmonary edema in about four hours, leading to eventual death. Effects are variable
- Rapid or delayed depending on the specific agent.

WEB LINKS FOR MORE INFORMATION

National Institute of Health (NIH)
http://www.nlm.nih.gov/medlineplus/chemicalweapons.html

Center for Disease Control and Prevention (CDC)
http://www.cdc.gov/search.do?action=search&queryText=chemical+warfare+agents

CDC Morbidity and Mortality Weekly Report

- Recommendations for Protecting Human Health Against Potential Adverse Effects of Long-Term Exposure to Low Doses of Chemical Warfare Agents.
  MMWR Morb Mortal Wkly Rep. 1988 Feb 12;37(5):72-4, 79
  http://www.cdc.gov/mmwr/preview/mmwrhtml/00001041.htm
- Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response: Recommendations of the CDC Strategic Planning Workgroup
  MMWR Recomm Rep. 2000 Apr 21;49(RR-4):1-14.
  http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4904a1.htm

National Center for Environmental Health
http://www.cdc.gov/search.do?action=search&queryText=chemical+weapons

NFPA
Supplement 14, Emergency Response to Incidents Involving Chemical and Biological Warfare Agents http://www.nfpa.org/index.asp

Chemical and Biological Defense Information Analysis Center (CBIAC). The CBIAC is a DoD Information Analysis Center
http://www.cbiac.apgea.army.mil/index.html

Department of Homeland Security

- Chemical Threat
  http://www.ready.gov/chemical.html

U.S. Army

- Chemical Materials Agency http://www.cma.army.mil/
- U.S. Army Center for Health Promotion & Preventive Medicine, Chemical Exposure Guidelines http://www.hard-target.net/htsb81.pdf
- U.S. Army Medical Research Institute of Chemical Defense
  http://chemdef.apgea.army.mil/
- Health Service Support in a Nuclear, Biological and Chemical Environment
  http://www.nbc-med.org/SiteContent/MedRef/OnlineRef/FieldManuals/fm4-02.7.pdf
- Chemical Stockpile Emergency Preparedness Program http://www.csepp.army.mil/

U. S. Environmental Protection Agency

- Chemical Emergency Preparedness and Prevention Office
  http://www.epa.gov/swercepp/

Federal Emergency Management Administration (FEMA)

- Hazardous Materials Guide for First Responders
  http://usfa.fema.gov/fire-service/hazmat/hazmatguide/hmgfr2e.shtm
- Terrorism
  http://www.fema.gov/hazards/terrorism/

Occupational Safety and Health Administration

- OSHA's Emergency Preparedness and Response Page
  http://www.osha.gov/SLTC/emergencypreparedness/index.html

Textbook

Yin Sun and Kwok Y. Ong, Detection Technologies for Chemical Warfare Agents and Toxic Vapors, CRC press, New York, 2005.

CHAPTER 27

CONFINED SPACE ENTRY (CSE) PROGRAM (NON-MARITIME)

2701. Discussion

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. Each year, over a million and a half workers enter confined spaces. Many are seriously injured or killed as a result of asphyxiation, electric shock, heat stress or engulfment by liquids or finely divided solids such as wood dust. Many incidents are exacerbated by ill-fated rescue attempts made by well meaning, but untrained, rescuers.

The Occupational Safety and Health Administration (OSHA) estimates that 85 percent of confined space-related incidents could have been prevented if proper precautions had been followed. Moreover, the overwhelming majority of all confined space fatalities could have been prevented if spaces had simply been tested for atmospheric hazards or ventilated prior to entry. For this reason, Navy policy is to consider all confined spaces to contain the most unfavorable and unsafe conditions. Entry into, or work in or on, such spaces is prohibited until qualified personnel have performed the tests, evaluations and prescribed procedures of this chapter to ensure that safe conditions exist and are maintained. Each installation shall develop a written, program that explains the processes, means and methods used for recognizing, evaluating and controlling potential confined space hazards, and for communicating information concerning those hazards to employees.

This instruction explains the minimum requirements for an acceptable written, site-specific confined space program. It incorporates the requirements of those standards, codes, rules and regulations outlined in appendix A. In situations where a conflict exists, the most restrictive requirement prevails.

2702. Applicability

a. The provisions of this chapter apply to all Navy shore non-maritime commands.

b. Naval maritime facilities such as naval shipyards, Ship Repair Facilities (SRFs), Intermediate Maintenance Facilities (IMFs), Shore Intermediate Maintenance Activities (SIMAs), Trident Refit Facilities (TRFs), and other Navy commands whose primary mission is shipbuilding, ship repair, or ship breaking are governed by reference 27-1.

c. Navy shore non-maritime commands (e.g. FISC) performing facilities-related confined space work ashore within a facility identified in subparagraph 2702.b shall comply with this chapter, except that a certified NFPA Marine Chemist or Board certified Navy GFE shall be used as required by reference 27-1. For those situations where non-maritime commands perform confined space work at naval maritime facilities and occupy the same confined space with naval maritime facility employees, entry procedures shall be developed and managed by the cognizant Navy GFE.

d. Navy shore non-maritime commands performing ship repair operations shall comply with reference 27-1, except that the Confined Space Program Manager (CSPM) may

provide management of the applicable reference 27-1 requirements, and perform or designate other personnel to perform duties limited to those of a Navy Competent Person (formerly known as Gas Free Technician). Personnel performing Navy Competent Person duties must have completed the training and OJT specified in reference 27-1, except that the amount of experience in a maritime facility and the amount of OJT may be limited to the appropriate types of confined space operations performed by the activity as determined by the CSPM. A certified NFPA Marine Chemist or Board Certified Navy GFE shall still be used as required by reference 27-1.

e. Shipboard confined space and gas free requirements are found in references 27-2 and 27-3.

2703. Program Management

a. Regional commanders, commanding officers, or officers in charge are ultimately responsible for all safety and health issues at their installations. In cooperation with other members of their management team, they shall provide continuing support, both motivational and financial; to ensure that an installation's confined space entry program remains effective. They shall appoint, in writing, a qualified CSPM.

b. The CSPM, in cooperation with line managers, supervisors, and employees, shall manage all facets of the installations confined space entry program, and has full authority to make necessary decisions to ensure the program's continued success. The CSPM is the only person authorized to amend an installation's confined space program

c. The CSPM shall successfully complete course number A-493-0030, Confined Space Safety, (formally OSH 245E Gas Free Engineering for Non-Maritime Operations) conducted by the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN), or equivalent. The cognizant headquarters command OSH manager must approve equivalent training. The command OSH office shall keep verification of such training on file along with the written appointment to the position. In addition to formal classroom training, the command shall establish a proficiency program to ensure that CSPMs possess the understanding, knowledge, and skill necessary for the safe performance of their duties. This can be accomplished by having the program audited by a CSPM from another activity.

d. The CSPM shall use additional personnel to perform duties in support of the confined space program. The CSPM has the authority to designate other qualified persons to assist in the day-to-day management and implementation of the confined space program as follows:

(1) Assistant Confined Space Manager (ACSPM). The ACSPM may be authorized to perform duties equivalent to those of the CSPM and shall meet the same qualifying criteria. The CSPM must designate the ACSPM in writing.

(2) Qualified Person (QP). QP duties are limited to performing atmospheric testing in confined spaces and inspecting for physical hazards. If the space does not contain, or have the potential to contain, any atmospheric or serious physical hazard, the QP may reclassify the space as "non-permit required". If the space contains hazards that cannot be eliminated, its classification will remain "permit required" and the QP shall contact the CSPM or

ACSPM to inspect and provide an entry permit. If authorized, the QP may also conduct follow-up inspections and atmospheric testing on permit required spaces after initial permits were issued by the CSPM/ASCPM. CSPM or ACSPM shall conduct/coordinate the formal classroom/ proficiency training for personnel assigned duties as a QP and appoint the QP in writing. Training shall include the proper use, maintenance, calibration, and operational check of equipment being used. In addition, training shall include requirements and provision of this chapter as it relates to the QP responsibilities, procedures for testing atmospheric hazards, recognition and control of hazards related to confined spaces, responsibilities of personnel entering and working in confined spaces and emergency procedures.

e. Tenant commands and/or shore installations participating in a regional OSH program may have the regional CSPM manage and administer the program through a written agreement signed by both parties.

f. Individual employees are responsible for fully understanding the installation's confined space program and for complying with its procedures and policies.

2704. <u>Duties and Responsibilities</u>

a. CSPM's duties and responsibilities include, but are not limited to:

(1) Ensuring, to the extent feasible, that surveys of the installation are conducted to identify existing and potential confined spaces

(2) Ensuring, to the extent feasible, that the hazards associated with each identified confined space are characterized to the extent necessary to minimize losses

(3) Reviewing and approving the purchase of equipment required for confined space entry

(4) Auditing the training of those employees involved in confined space entry to assure that they are able to demonstrate proficiency in the requirements of the installation's confined space program

(5) Auditing line managers, supervisors and designated QPs to verify that they continue to demonstrate proficiency in the discharge of their duties and responsibilities related to confined space entry

(6) Ensuring, to the extent feasible, that effective procedures for managing confined space entry work performed by independent contractors are in place

(7) Ensuring, 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's confined spaces

(8) Determining when it is necessary to obtain the assistance of outside professional resources.

b. Supervisor's duties and responsibilities include, but are not limited to:

(1) Ensuring that workers under their control who enter confined spaces are informed of the hazards to which they may be exposed and have demonstrated proficiency in the skills necessary to protect themselves from those hazards.

(2) Ensuring that all special equipment required for entry is available and in proper working order

(3) Determining that training in both confined space procedures and the use of any specialized equipment has been provided, and that employees under their control who enter confined spaces, have demonstrated proficiency in the application of those procedures specialized equipment

(4) Auditing the work performed by employees under their control who enter confined spaces to assure that it conforms to this program as well as those programs integrated into it, such as lock-out/tag-out, respiratory protection, bloodborne pathogens, etc.

(5) Informing the CSPM of any unauthorized digressions from the installation's confined space program or any problems that arise during confined space entry

c. Individual employees' duties and responsibilities include, but are not limited to:

(1) Participating in the development of the installation's site specific confined space program

(2) Minimizing their exposure to potentially hazardous conditions

(3) Notifying their supervisors of any recognized uncontrolled hazards

(4) Interceding with coworkers to stop inappropriate or hazardous behaviors that may result in injury or property damage

(5) Not using defective equipment, and reporting defects to their supervisors

(6) Inquiring about the potential hazards to which they may be exposed to ensure that they know and understand the precautions they must take to protect themselves from those hazards

(7) Using equipment and conducting themselves in a manner consistent with the training they have received.

2705. <u>Entry Options</u>

Three options are available with respect to entry into permit-required confined spaces:

a. Reclassifying a permit-space as a non-permit space by eliminating all entry-related hazards as explained in section 2723.

b. Implementing alternative entry 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, as explained in section 2724.

c. Establishing a permit-entry procedure, as explained in section 2725, that includes provisions for:

(1) Designating authorized entrants, authorized attendants, and authorized entry supervisors as described in section 2726.

(2) Implementing a process for issuing, canceling, reviewing and archiving written entry permits as described in section 2726.

(3) Providing for emergency rescue services as described in section 2728.

(4) Implementing, if necessary, procedures for entry into atmospheres that are immediately dangerous to life or heath (IDLH), as described in section 2729.

2706. Administrative Policy

a. As a matter of administrative policy, all shore-side confined spaces, other than those associated with new construction activities, tunneling operations, trenching and excavating, telecommunications, and electrical generation, distribution, and transmission shall be permit-required confined spaces.

b. Personnel may enter permit-spaces only per the provisions of a written confined space program that explains the processes, means, and methods used to achieve compliance with this instruction. However, the ACSPM or QP may declassify a permit-space per the provisions of section 2723 or allow entry into a permit-space under the alternative entry procedures described in section 2724.

NOTE:

Locally generated confined space entry permits shall contain, at minimum, the required items found in 29 CFR 1910.146 (f).

c. Every entry into a permit-required confined space must be documented on a confined space permit/entry certificate like that in appendix B, or on an equivalent permit/certificate that is designed and formatted to addresses site-specific issues, conditions or concerns.

2707. Program Content

The CSPM, or other designated qualified person responsible for confined space program management, shall consult with affected employees and their authorized representatives on the development of a written confined space program. The program shall describe with reasonable specificity the processes, means and methods by which the installation manages its entries into confined spaces.

2708. Identification of Confined Spaces

The written program shall describe the process the installation employs to identify on-site confined spaces and poorly ventilated enclosed spaces. The process must ensure that both permit and non-permit spaces are identified. This includes mobile, portable and transient confined spaces such as those imparted by aircraft, pollution control equipment, rail tank cars, highway tank trucks, and similar shipping containers.

2709. Hazard Analysis and Risk Communication

The written program must describe the process, means, and methods the installation uses to inform affected employees of the:

a. Existence and location of confined spaces and poorly ventilated enclosed spaces.

b. Nature of the potential hazards posed by confined spaces and poorly ventilated enclosed spaces.

c. Prohibition against entering confined spaces and poorly ventilated enclosed spaces unless special precautions are taken and an entry permit is completed.

2710. Preventing Unauthorized Entry

The written program shall describe the site-specific processes, means and methods that are used to prohibit unauthorized entrants from entering confined spaces. These methods may include any combination of the following:

a. Verbal notification,

b. Posting warning signs,

c. Stickers or labels,

d. Limiting access through the use of key cards, cipher locks, cylinder locks; tack welding the edges of the cover to the body of the enclosure, the need for a special tool, or any other equally effective means used in lieu of signs, stickers and/or labels.

2711. Pre-Entry Precautions

a. The written program shall explain the site-specific process used to identify any precautions, work practices, or controls that need to be implemented before entry. At a minimum, the program shall address the following, if applicable to the installation's operations:

(1) Conducting a job-specific hazard analysis

(2) Limiting access to the work area

(3) Controlling hazardous energy

(4) Providing effective isolation

(5) Draining, flushing and cleaning

(6) Testing and monitoring

(7) Controlling atmospheric hazards

(8) Controlling physical hazards

(9) Assessing protective equipment needs

(10) Emergency response planning

(11) Determining if entry conditions are acceptable.

b. The written program shall identify any specialized equipment necessary to accomplish the tasks specified above. It shall also include provisions that the region or activity shall provide this equipment to employees at no cost and shall maintain the equipment to ensure its continued effectiveness.

2712. Job-Specific Hazard Analysis

All hazards associated with entry must be identified and noted on the permit before a space is entered. The written program shall describe the process for conducting a job specific hazard analysis used to achieve this objective, and a requirement that any hazards, including those that have been controlled or eliminated, be identified on the permit so that the hazard information may be communicated to affected employees.

2713. Limiting Unauthorized Access

Access to a confined space work zone must be limited to authorized employees. The written program shall describe the means and methods used to achieve this objective.

2714. Controlling of Hazardous Energy

Energy that poses a hazard to authorized entrants must be controlled to the extent feasible through disconnecting, blocking or otherwise disabling equipment whose unexpected start up could cause injury, or alternatively, by implementing a lock-out/tag-out program, that at a minimum meets the requirements of 29 CFR 1910.147. If reference is made to the facilities lock-out/tag-out program, the CSPM shall ensure that the lockout/tagout procedures are incorporated in the procedures used for confined space entry.

2715. Providing Effective Isolation

a. Isolation is the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; providing a double block and bleed system; locking- or tagging-out of all sources of energy; or blocking or disconnecting all mechanical linkages.

b. The written program shall either describe the process used to achieve isolation, or refer to the facilities general isolation program. If reference is made to the installation's program, the CSPM must evaluate that program to determine if it meets the requirements necessary to allow it to be used for confined space entry.

2716. Draining, Flushing and Cleaning

a. Spaces may contain residue that is flammable, corrosive, toxic or otherwise hazardous to entrants. The written program shall describe the process used to identify these hazards and explain how they may be eliminated or controlled prior to entry.

b. The written program shall incorporate a provision that the installation's cognizant environmental representative shall be notified to evaluate any space that is to be drained, flushed, or rinsed. This evaluation must identify any **specific** Federal, State, and/or local environmental codes, standards, rules, regulations, or statutes that apply to the draining, flushing rinsing, and waste disposal processes.

2717. Testing and Monitoring

a. This section shall explain the installation's process for identifying hazards that may require testing and monitoring, and describe the means and methods by which this testing and monitoring is to be conducted. At a minimum, the written program shall address:

(1) Testing and monitoring of non-atmospheric hazards

(2) Testing and monitoring of atmospheric hazards

(3) Identifying factors affecting instrument selection

(4) Sampling strategies, methods and techniques

(5) Establishing instrument alarm set points

(6) Interpreting testing and monitoring results

(7) Establishing acceptable entry conditions

(8) Establishing maintenance and calibration protocols

(9) Requiring continuous monitoring when feasible

(10) Appropriate selection and proper calibration of instruments.

b. The written program, shall also describe the process by which authorized entrants or their authorized representatives are provided with the opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces.

2718. Control Of Atmospheric Hazards

a. Written confined space programs shall stipulate that atmospheric hazards be controlled to the extent feasible through forced, mechanical ventilation. If the CSPM or other designated qualified person determines that ventilation is not effective for controlling atmosphere hazards, he/she shall require respiratory protection. Personnel entering the space shall use air-supplied respirators unless the CSPM or other designated qualified person determines that air-purifying devices are acceptable.

b. The following is the minimum standard when evaluating for atmospheric hazards:

(1) A flammable gas, vapor, or mist shall be lower than 10 percent of its lower explosive limit (LEL). Hot work may only be performed if the source of the gas, vapor, or mist has been determined and adequately controlled below 10% of the LEL.

Note: Even though the atmosphere is controlled to concentrations lower than 10% LEL, the CSPM or designated qualified person must ensure the measured LEL of a particular gas, vapor, or mist does not also exceed the PEL.

(2) The atmospheric oxygen concentration shall not be below 19.5 percent or above 22 percent;

(3) The Permissible Exposure Limit of any substance is not exceeded.

2719. Control of Physical Hazards

Physical hazards associated with confined space entry include: environmental hazards such as heat and cold stress, ionizing and non-ionizing radiation and noise; equipment-related hazards such as unguarded machinery and exposed energized conductors; and task-related hazards such splash with corrosive materials, contusions from impacts, and lacerations from sharp edges. The written program shall describe the process used to manage entrants' exposure to physical hazards.

2720. Assessing Protective Equipment

The CSPM/ACSPM, in coordination with a safety specialist and/or industrial hygienist, shall determine the requirements for appropriate personal protective clothing and equipment. See chapters 15 and 20 of this manual for specific requirements. The CSPM/ACSPM shall list required clothing and equipment on the entry certificate. The written program shall either describe the process used to assess the need for personal protective equipment, or refer to the installation's personal protective equipment program. If reference is made to the installation's program, the CSPM or other designated qualified person shall evaluate that program to determine if it meets the requirements necessary to allow it to be used for confined space entry.

2721. Emergency Response Planning

An emergency is any occurrence, including any failure of hazard control or monitoring equipment, or event internal or external, to a permit space that could endanger entrants. The written program shall explain the process for developing an emergency response plan that addresses the unique nature of each entry.

2722. Determining If Entry Conditions Are Acceptable

While precautions such as barricading, ventilating, controlling hazardous energy, and conducting atmospheric testing may be taken for entry into many confined spaces, each entry is unique. Consequently, a variety of variable parameters shall be used to establish whether or not conditions are suitable for entry. The written program shall describe the process for identifying what conditions are deemed to be acceptable for entry.

2723. Reclassification Procedures

If a permit space poses no actual or potential atmospheric hazards, 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. If it is necessary to enter the permit space to eliminate hazards, that entry shall be performed per section 2724.

The written program for any installation that decides to reclassify a permit space shall describe the process used for reclassification. At a minimum this process shall 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 above.

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. Evacuating the space if hazards arise, and reevaluating the space to determine if it must be reclassified as a permit space.

e. The entry certificate is only valid for a period of time as determined by the CSPM.

f. Canceled entry certificates shall be retained for at least 1 year to facilitate the review of the permit-required confined space program required by section 2735.

2724. Alternative Entry Procedures

Less stringent entry procedures that do not require a permit, an attendant, an entry supervisor, or rescue provisions, may be used in situations where the only hazard posed is an atmospheric hazard that can be controlled through continuous, forced, mechanical ventilation.

The written program for any installation that decides to enter permit spaces under the alternate entry procedure shall describe the process for implementing that procedure. At a minimum, this process shall include provisions for ensuring that:

a. An explanation of the basis for determining that the permit space poses only an atmospheric hazard is provided.

b. An explanation of the basis for determining that the hazard can be controlled though continuous forced ventilation is provided.

c. Any conditions that make it hazardous to remove an entrance cover are eliminated before the cover is removed.

d. When entrance covers are removed, a railing, temporary cover, or other temporary barrier that prevents an accidental fall through the opening and protects employees from foreign objects entering the space promptly guards openings.

e. Before employees enter the space, the internal atmosphere is to be tested, with a calibrated, direct-reading instrument, for oxygen content, flammable gases and vapors, and potential air contaminants.

f. Any employee who enters the space, or that employee's authorized representative, is provided an opportunity to observe the pre-entry testing.

g. A hazardous atmosphere does not exist in the space whenever it is occupied.

h. Continuous forced ventilation is provided and used.

i. Employees do not enter the space until the ventilation has eliminated any hazardous atmosphere.

j. The ventilation air is provided by a clean source and does not increase the hazards in the space.

k. The air is delivered in a manner that ventilates the immediate areas where employees are present within the space.

l. The ventilation is continued until all employees have left the space.

m. The atmosphere within the space shall be monitored continuously with a direct reading instrument to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere, unless the CSPM or other designated qualified person determines that such monitoring is unnecessary. Atmospheric testing results shall be documented with the date and time of test. Test results shall be kept with the entry certificate.

n. A written entry certificate is issued that contains the date, the location of the space, and the signature of the person providing the certification. The certification shall be made before entry and shall be made available to each employee entering the space, or to that employee's authorized representative.

o. When there are changes in the use or configuration of a non-permit space that might increase the hazards to entrants, the space is reevaluated and if necessary, reclassified as a permit-space.

p. If a hazardous atmosphere is detected during entry, employees shall immediately evacuate, and the space shall be evaluated to determine how the hazardous atmosphere developed, and procedures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

q. Canceled entry certificates shall be retained for at least 1 year to facilitate the review of the permit-required confined space program required by section 2735.

2725. Permit-Required Program Elements

If a permit-space cannot be reclassified as explained in section 2723, or cannot be entered under the alternate entry procedures described in 2724, it shall be entered under the auspices of a written, site-specific, entry permit procedure, which at a minimum, describes the process for:

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.

2726. Permit System

The written program shall include an explanation of the process used for issuing, canceling, reviewing and archiving entry permits. The process shall include provisions that require that:

a. The supervisor sign the permit indicating that all specified precautions have been taken, that conditions are acceptable for entry as explained in section 2722 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.

c. 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.

d. Canceled permits be retained for at least 1 year to facilitate the review of the permit-required confined space program required by section 2735. Permits that contain atmospheric testing information that constitutes an employee exposure record shall be maintained for the employee's duration of employment plus 30 years as stipulated by 29 CFR 1910.1020.

2727. Designation of Employees

The written program shall describe the process used to designate confined space entrants, attendants, supervisors, and entry. Duties and responsibilities for these individuals are described in appendix B.

2728. Rescue Procedures

The written, site-specific plan shall describe the process used to:

a. Identify 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.

2729. Procedures For Entry Into IDLH Atmospheres

Entry into, work in, or on a confined space that is immediately dangerous to life and health (IDLH) shall not be permitted under normal operations and is only authorized in cases of rescue efforts and extreme emergencies. The written program shall 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 shall include provisions for ensuring that:

a. Installation commanders 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.

f. In the case of a potentially flammable atmosphere, all ignition sources are prohibited.

2730. Hot Work

Hot work includes all flame heating, welding, torch cutting, brazing, carbon arc gouging or any work which produces heat, by any means, of 400 degrees F (204 degrees C) or more, and, in the presence of flammables or flammable atmospheres, other 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. The written program shall 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 shall 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 shall address are described in chapter 5 of reference 27-1.

2731. Special Processes

Processes such as, but not limited to, spray application of flammable or combustible materials, abrasive blasting, and pressure-washing pose special hazards. An installation that performs these tasks shall develop a job-specific hazard analysis that addresses the unique hazards posed by each of these processes.

2732. Employee Training

Employees who enter confined spaces shall possess the understanding, knowledge, and skill necessary for the performance of their duties. The written program shall explain the process the installation uses to ensure that employees are trained and have demonstrated proficiency in confined space entry.

2733. Contractor Management Provisions

a. Whenever contractors perform work in an installation's confined spaces, the job shall be coordinated so that neither the contractor nor the installation's employees jeopardize each other's safety. The written program shall describe the process for managing work contractors perform in the installation's confined spaces. At no time shall contractor personnel enter a confined space under the installation's permit or certification. If contractor personnel and Navy personnel occupy the same space certification shall be for Navy personnel only and stated so on the permit or certificate.

b. At a minimum the written program shall include provisions that stipulate that the party responsible for requesting that the contract work be performed is personably responsible for ensuring that the work is carried out per the contract provisions. The written program shall also describe the installation's process for:

(1) Informing the contractor that the installation contains permit spaces

(2) Explaining to the contractor why a space is considered to be a permit-space

(3) Sharing knowledge of the hazards that have been identified through experience with the space

(4) Informing the contractor that their personnel may only enter permit-spaces under the provisions of the installations written program

(5) Apprising the contractor of any precautions or procedures that the installation has implemented for the protection of employees in or near permit spaces where contractor personnel will be working (for example draining, flushing, isolating, etc.)

(6) Coordinating entry operations with the contractor, so that contractor and installation employees do not compromise each other's safety

(7) Debriefing the contractor at the conclusion of the entry relative to any hazards confronted or created during entry operations.

c. The written program shall include a provision that describes the installation's process for determining if the contractor's written program addresses at least the following elements as applicable to the specific job to be performed:

(1) Conducting a job-specific hazard analysis

(2) Limiting access to the work area

(3) Controlling hazardous energy

(4) Providing effective isolation

(5) Draining, flushing and cleaning

(6) Testing and monitoring

(7) Controlling atmospheric hazards

(8) Controlling physical hazards

(9) Assessing protective equipment needs

(10) Determining if entry conditions are acceptable

(11) Issuing, canceling, reviewing and archiving entry permits

(12) Designating of employees authorized to participate in the entry including entrants, attendants and entry supervisors

(13) Emergency planning, including identifying, evaluating and selecting rescue services

(14) Establishing procedures for entry into atmospheres that are immediately dangerous to life or health.

d. The written program shall also describe the process that will be followed in the event that the CSPM or other designated qualified person determines that the contractor's program does not address one of the elements listed above. The contractor shall correct this deficiency before the installation allows work to proceed.

2734. Precautions for Specific Operations

a. Specific regulatory provisions govern construction activities including underground construction and trenching; telecommunications work; and work involving the generation, distribution and transmission of electricity.

b. Construction Operations

(1) Even though the OSHA permit-required confined space standard does not apply to construction work, construction contractors shall comply with generally accepted industry procedures, practices and standards covering entry into confined spaces. To that end, construction contractors who enter confined spaces at naval facilities shall have a written confined space program that meets the minimum requirements prescribed by this instruction.

(2) A construction contractor may use its existing generalized confined space entry program, provided that it is supplemented by other documentation that describes how it intends to manage the job-specific hazards. In addition, as stipulated by OSHA standard 29 CFR 1926.21(b)(2) each construction contractor shall have a designated competent person as defined by 29 CFR 1926.32(f) who is responsible for making regular and frequent inspections of the job sites. For all ROICC contracts, military construction contracts, contractors must follow guidelines provided in EM-385-1 U.S. Army Corps Of Engineers Safety And Health Requirements Manual for working in confined spaces as well as 29 CFR 1926 Construction Standards.

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 then the installation's confined space program should address entry into trenches and excavations.

d. Underground Construction

(1) This section applies to the construction of underground tunnels, shafts, chambers, and passageways. It also applies to cut-and-cover excavations, which are both physically connected to ongoing underground construction operations within the scope of this section, and covered in such a manner as to create conditions characteristic of underground construction.

(2) A separate site-specific tunneling and excavation policy rather than the installation's confined space program should address working involving tunneling and other underground construction activities excavations.

e. Aircraft (ACFT) Fuel Cells

(1) ACFT fuel cell entry often presents unique entry requirements. Installations shall acquaint personnel with the fuel cell associated with each type, model, and series. ACFT or fuel cell configuration on which they will be providing confined space services. All elements of this instruction apply to ACFT confined space entry.

(2) A previously certified rubber fuel cell, which has been removed from the aircraft, may be reclassified as requiring no certificate if testing and inspection demonstrate that the hazards within the fuel cell have been eliminated. This applies only to rubber fuel cells that have been removed from the ACFT. It does not apply to installed rubber fuel cells or drop tanks.

(3) Only the Naval Air Systems Command (NAVAIRSYSCOM) (PMA 260) approved gas detectors shall be used to obtain required test readings of the atmosphere in a fuel cell.

f. 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 29 CFR 1910.268 and 269.

g. Confined space operations conducted on a Naval Maritime Facility or ship repair operations at any location

(1) The requirements of subparagraphs 2702.c and 2702.d shall be followed, except that 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. In such case, the Certified Industrial Hygienist also may provide the certification.

(2) In situations that apply to paragraph 2702.c, the CSPM or designated representative shall be trained and knowledgeable of reference 27-1 procedures that are applicable to the operations being performed.

2735. Program Evaluation

The CSPM or other designated qualified person shall 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 shall describe the process used for conducting and reviewing the installation's confined space program.

Chapter 27

References

27-1. Gas Free Engineering Manual, of 1 Sept 99, NAVSEA S6470-AA-SAF-010 REV 01.

27-2. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health Program Manual for Forces Afloat, chapter BB, Gas Free Engineering http://neds.daps.dla.mil/Directives/5100.19d_CH-1.pdf.

27-3. Naval Ships Technical Manual, NAVSEA S9086-CH-STM-030/CH-074, Gas Free Engineering.

Appendix 27-A

Standards Incorporated by Reference

Occupational Safety and Health Administration

Government Printing Office http://www.gpo.gov

General Industry Standard 29 CFR 1910

Shipyard Industry Standard 29 CFR 1915

Construction Industry Standards 29 CFR 1926

National Fire Protection Association
Battery March Park
Quincy, MA
http://www.nfpa.org

American National Standards Institute

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

Appendix 27-B

Entry Permit/Certificate Minimum Requirements

Confined space entry permit/certificate must minimally contain the following information per 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 servings 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 section for reclassification/or alternative entry procedure to allow for explanation for basis of downgrading the permit for personnel entry.

Appendix 27-C

Designation of Employees

1. Supervisors. Supervisors shall 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 shall 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' duties and responsibilities shall 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 shall:

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 following 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 the following actions when unauthorized persons 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 shall:

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 is activated.

CHAPTER 28

BLOODBORNE PATHOGENS

2801. Discussion

The principal bloodborne pathogens of concern in this chapter are human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). Many others exist, but generally are not occupationally transmitted in significant numbers. Due to the rapid spread of Acquired Immune Deficiency Syndrome (AIDS), and its precursor HIV, and to counter HBV, the Occupational Safety and Health Administration (OSHA) generated the bloodborne pathogens standard to protect people from occupational exposures to all bloodborne pathogens. The diseases associated with these pathogens are preventable when the appropriate precautions are taken. The objective of this chapter is to protect Navy personnel by providing the guidance necessary to understand and implement the requirements of the bloodborne pathogens standard.

2802. Applicability

This chapter applies to all facilities in which workers have occupational exposure to potential bloodborne pathogens. Hospitals, medical treatment facilities, emergency rescue personnel, enforcement personnel, laboratories working with potential bloodborne pathogens, and all other personnel who can reasonably anticipate to have occupational exposure to bloodborne pathogens shall meet the requirements of reference 28-1.

2803. Exposure Determination

The requirement for first aid and cardio pulmonary resuscitation (CPR) training alone does not dictate the need to include individuals into programs designed to meet the bloodborne pathogens standard's requirements. Personnel who perform "Good Samaritan" acts that result in potential exposure shall receive the same prompt medical evaluations and follow-up that covered employees receive. Facilities shall follow reference 28-1 for exposure determination procedures.

2804. Hazard Prevention and Control

Facilities shall conduct hazard prevention and control procedures per references 28-1 and 28-2.

2805. Responsibilities

a. Echelon 2 and other Headquarters Commanders shall provide guidance and assistance to subordinate commands to ensure the effectiveness of this program, including assistance in determining the job classifications of covered employees.

b. Naval Education and Training Command (NETC) shall provide bloodborne pathogen training, and training materials meeting the requirements of reference 28-1 through the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN). Development of training and training material shall be coordinated with the Chief, Bureau of Medicine and Surgery (BUMED).

c. BUMED shall:

(1) Review and provide technical and administrative guidance on the medical aspects of the bloodborne pathogens program.

(2) Provide guidance for the review of medical records for bloodborne pathogen information and trends.

(3) Review NETC training material, (e.g., videos, interactive computer software, courses), for consistency with requirements of this chapter.

Chapter 28

References

28-1. Title 29 Code of Federal Regulations (CFR) 1910.1030 of 6 December 1991, Bloodborne Pathogens http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051.

28-2. BUMEDINST 6230.15, of 1 November 1995, Immunization and Chemoprophylaxis, http://navymedicine.med.navy.mil/Files/Media/directives/6230-15.pdf.

CHAPTER 29

OCCUPATIONAL REPRODUCTIVE HAZARDS

2901. 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 through either parent's reproductive cells, 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 government already regulates many of them based on these other effects. Therefore, if the worksite is following regulations and exposures are below established permissible levels for these regulated hazards, the reproductive system is also protected. However, in some cases reproductive effects occur at lower exposure levels than these other effects. In these cases, 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. A hazardous workplace exposure may, in some cases, occur far removed from its ultimate reproductive effect. Flexibility in handling these issues is, therefore, a necessity to allow changes to procedures and processes as knowledge is gained.

2902. 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. The number of occupational exposure criteria (permissible exposure limits (PELs,) etc.) that were developed to protect the reproductive system is limited. The goal is to keep the utilization of known reproductive stressors as low as reasonably achievable. Regions/Activities shall document efforts to achieve this goal per paragraph 2903. The primary methods of achieving this goal shall be through use of engineering controls, and the judicious use of personal protective equipment.

c. In most cases, the potential for exposure to reproductive hazards should not automatically force the removal of an individual from a position, billet or job. However, removal from a particular task within a position or job modification may be necessary. In no case shall regions 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, regions or activities shall not deny any individual pay or promotion because of regions or activities enacting measures to protect their reproductive health and/or that of their developing fetus.

d. Reference 29-1 provides policy and procedures regarding the management of pregnant service women. References 29-2 through 29-6 contain guidance on civilian personnel issues related to pregnant workers. The safety office shall refer all employee questions regarding pregnancy employment issues to the human resources office. Appendix 29-A reprints specific information from references 29-5 and 29-6 on work-related issues during pregnancy.

2903. Control of Reproductive Hazards in the Workplace

a. Identification and Evaluation of Reproductive Stressors

(1) For simplicity, reference 29-7 provides a list of common chemicals that may be present in general Navy workplaces. Safety personnel shall routinely look for these hazards during inspections or visits.

(2) Industrial hygiene personnel shall identify reproductive stressors that are listed in reference 29-7 during surveys of all Navy workplaces, as section 0802 of this instruction requires.

(3) Industrial hygienists (IH) shall clearly annotate (highlight, asterisk, etc.) reproductive stressors on the list of materials and harmful physical agents found in each workplace.

(4) Where stressor-specific exposure standards developed with the intent to protect the reproductive system exist, regions or activities shall 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, regions and activities shall still determine the quantitative evaluation of the exposure if possible. An IH and an occupational physician shall review the results of sampling. They shall determine the significance of any potential reproductive risk to male and female employees or developing fetuses at this time and incorporate the findings into the report along with recommended mitigation procedures, if necessary.

(5) The IH shall specifically address a reproductive hazard assessment (including negative determinations) as part of the routine evaluation in industrial hygiene survey reports they submit to the cognizant line activity per paragraph 0803 of this instruction. If the exposure assessment is unacceptable, recommendations to reduce exposures per paragraph 2902b should be made.

(6) Regions/Activities should contact the Navy Environmental Health Center (NEHC) if they need additional assistance, (757) 953-0700-5500 (DSN: 377-0700).

b. Hazard Abatement

(1) Chapter 5 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 personal protective equipment (PPE).

Regions/Activities shall not consider the routine prolonged removal of an individual (or subpopulation) from a particular worksite an appropriate administrative control.

(a) For chemicals that are known reproductive hazards, substitution with a less hazardous substance is the abatement method of choice.

(b) Regions/Activities shall consider all products that they currently use containing more than trace amounts of any of the chemicals. Reference 29-7 lists stressors for possible elimination by substitution with a less hazardous material. While it is not possible to establish a strict definition of the term "trace", the presence of a confirmed reproductive toxicant in a product, at a concentration of 0.1 percent or greater by weight, should serve as a general guideline with regard to consideration of hazardous materials control/ substitution initiatives.

(c) Regions/Activities shall consider products containing chemicals in reference 29-7 for elimination/reduction via the Environmental and Natural Resources Program Manual in reference 29-8.

(d) Regions/Activities shall also consider these chemicals (reference 29-7) for substitution issues in the development of hazardous material inventories and authorized use lists that chapter 7 of this instruction prescribes.

(2) The use of PPE, including respirators, is the last resort method for hazard abatement. If activities use PPE, they shall 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 NETC-approved courses sufficient to satisfy this requirement.

(2) Regions/Activities shall 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) per chapter 6 of this instruction.

d. Counseling Section

(1) General. Regions/Activities shall afford all employees who have potential exposure to occupational reproductive hazards counseling by a credentialed occupational medicine provider, if requested.

(2) Medical activities including contract facilities, shall question pregnant women, seen at the facility regarding their, and their spouses', potential exposure to developmental hazards. The Navy recommends referral to occupational medicine for evaluation if regions or activities determine there is a possibility of exposure.

(3) Developmental Hazards. Reference 29-1 requires servicewomen who become pregnant to notify their commands. Civilian employees are strongly encouraged to notify their commands as soon as possible after becoming pregnant. Upon notification, the command shall perform the following evaluation:

(a) The woman shall be given the Developmental Hazard Questionnaire from reference 29-7. A command supervisor, knowledgeable about the woman's workplace shall fill out the Supervisor's Statement found in 29-7. 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, regions/activities shall arrange for an occupational health physician to evaluate the woman 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 woman's workplace, then an occupational medicine evaluation should occur if either the pregnant woman or her commanding officer 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 safety office.

(4) Regions/Activities shall encourage all male employees anticipating conceiving children within 120 days, or whose partner is currently pregnant, to notify their commanding officer so that regions/activities can conduct a reproductive/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.

2904. Responsibilities

a. Commanding Officers shall:

(1) Ensure that all safety supervisors are cognizant of all items in reference 29-7 utilized at the command. Medical commands and commands with hospital units shall utilize the list in reference 29-7, paying particular attention to medications and anti-neoplastic drugs that are listed.

(2) Train all employees concerning the importance of occupational reproductive hazards, and specifically concerning the hazards present at the command, and the importance of command notification of pregnancy as part of routine hazard awareness. Upon notification of pregnancy, ensure that female military and civilian employees are provided the questionnaire in reference 29-7 and are made aware of the availability of evaluation by an occupational health physician per 2903.d)(3)(a).

(3) 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. The Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Provide for professional and technical assistance relative to reproductive hazards to all commands.

(2) Publish guidance for occupation health professionals on industrial hygiene and medical issues concerning occupational reproductive hazards. Such guidance shall 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 29-7 contains the 2001 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 29-1 and 29-9 and this chapter to ensure that Navy policy is consistent with the Supreme Court ruling and other related legislation.

(4) Review of possible candidate-substitute materials identified by Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) to identify potential reproductive toxicants, upon request.

(5) Assist NETC in developing training programs for safety and occupational health professionals and workers. Provide for individual occupational medicine counseling of pregnant employees exposed to developmental hazards per section 2903d and of other employees upon request.

c. Naval Education and Training Center (NETC) shall develop training programs for safety and occupational health professionals and workers to address reproductive stressors of Navy concern. BUMED shall provide technical guidance for this training.

d. COMNAVSUPSYSCOM shall identify products currently in Navy use that contain reproductive stressors listed in reference 29-7 for substitution, elimination, and annotation in HMIS.

Chapter 29

References

29-1. OPNAVINST 6000.1B of March 03, Guidelines Concerning Pregnant Servicewomen. http://neds.daps.dla.mil/Directives/6000_1b.pdf.

29-2. Title 5 Code of Federal Regulations (CFR), Part 630, Subpart L, of 1993, Family and Medical Leave Act (FMLA) http://www.opm.gov/cfr/.

29-3. Public Law 95-555 (92STAT 2076) of 1978, Prohibition of Sex Discrimination on the Basis of Pregnancy.

29-4. Title 5 CFR part 335 of 1 Jan 04, Promotion and Internal Placement http://www.opm.gov/cfr/.

29-5. 29 CFR 1604.10, Employment Policies Relating to Pregnancy and Childbirth http://www.access.gpo.gov/nara/cfr/waisidx_00/29cfr1604_00.html.

29-6. Title 5 CFR, part 339, Medical Qualification Determinations http://www.opm.gov/cfr/.

29-7. Navy Environmental Health Center Technical Manual NEHC-TM-6260-01, of 13 June 01, Reproductive and Developmental Hazards: A Guide for Occupational Health Professionals http://www-nehc.med.navy.mil/downloads/occmed/Reprodev2001.pdf.

29-8. OPNAVINST 5090.1B of 1 Nov 94, Environmental and Natural Resources Program Manual http://neds.daps.dla.mil/5090.htm.

29-9. Supreme Court Ruling, 89-1215 of 20 Mar 91, International Union, United Automobile, Aerospace and Agricultural Implement Worker's of America, UAW, et al., Petitioners v. Johnson Controls, Inc.

Appendix 29-A

Pertinent Reference Information On Pregnancy Employment Policies For Civilian Personnel

1. Office of Personnel Management http://www.opm.gov/oca/leave/html/factindx.asp

Agencies should always be aware of working conditions or strenuous requirements in the workplace that could have an adverse effect on an expectant mother. If, after consulting her doctor, an employee asks for a change in duties or assignment, every reasonable effort should be made to accommodate her. Agencies may request medical certification of the nature of the limitations recommended by the employee's doctor. Sick leave may also be used for physical examinations.

2. 29 CFR 1604 Appendix - Questions and Answers on the Pregnancy Discrimination Act

a. Question: If, for pregnancy-related reasons, an employee is unable to perform the functions of her job, does the employer have to provide her an alternative job?

Answer: An employer is required to treat an employee temporarily unable to perform the functions of her job because of her pregnancy-related condition in the same manner as it treats other temporarily disabled employees, whether by providing modified tasks, alternative assignments, disability leaves, leave without pay, etc. For example, a woman's primary job function may be the operation of a machine, and, incidental to that function, she may carry materials to and from the machine. If other employees temporarily unable to lift are relieved of these functions, pregnant employees also unable to lift must be temporarily relieved of the function.

b. Question: What procedures may an employer use to determine whether to place on leave a pregnant employee who claims she is able to work or deny leave to a pregnant employee who claims that she is disabled from work?

Answer: An employer may not single out pregnancy-related conditions for special procedures for determining an employee's ability to work. For example, if an employer requires its employees to submit a doctor's statement concerning their inability to work before granting leave or paying sick benefits, the employer may require employees affected by pregnancy-related conditions to submit such statement. Similarly, if an employer allows its employees to obtain doctor's statements from the personal physicians for absences due to other disabilities or return dates from other disabilities, it must accept doctor's statements from personal physicians for absences and return dates connected with pregnancy-related disabilities.

c. Question: Can an employer have a rule that prohibits an employee from returning to work for a predetermined length of time after childbirth?

Answer: No.

d. Question: If an employee has been absent from work as a result of a pregnancy-

related condition and recovers, may her employer require her to be on leave until after her baby is born?

Answer: No. An employee must be permitted to work at all times during pregnancy when she is able to perform her job.

e. Question: Must an employer hold open the job of an employee who is absent on leave because she is temporarily disabled by pregnancy-related conditions?

Answer: Unless the employee on leave has informed the employer that she does not intend to return to work, her job must be held open for her return on the same basis as jobs are held open for employees on sick or disability leave for other reasons.

f. Question: Must an employer hire a woman who is medically unable, because of pregnancy-related conditions, to perform a necessary function of a job?

Answer: An employer cannot refuse to hire a woman because of her pregnancy-related condition so long as she is able to perform the major functions necessary to the job. Nor can an employer refuse to hire her because of its preferences against pregnant workers or the preferences of co-workers, clients, or customer.

CHAPTER 30

INDOOR AIR QUALITY MANAGEMENT

3001. Discussion

a. Poor indoor air quality (IAQ) 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, make an effort to evaluate, maintain and improve IAQ.

b. Multiple causes of poor IAQ exist, any one of which could decrease the quality of the work environment. Some examples are:

(1) Unacceptable Humidity Ranges (Below 30% and Above 60%). 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 can experience allergic reactions to mold spores and particulate matter from the breakdown of mold protein.

(2) Insufficient Ventilation. Lack of sufficient fresh air leads to high carbon dioxide concentrations in workspaces. Lack of fresh air may cause fatigue, drowsiness, poor concentration, and the sensation of temperature extremes without actual temperature changes. Increased CO_2 levels are an indicator of poor ventilation. Carbon dioxide levels are not correlated with other contaminant levels, but with the ability of the ventilation system to provide and circulate fresh air, dilute, remove and recirculate "stale" air. Reference 30-1 states that between 15 and 33 percent of the population will have symptoms when the level of CO_2 is between 600 and 800 parts per million (ppm). Between 33 and 50 percent of the population become symptomatic when the level of CO2 is between 800 and 1000 ppm, and virtually everyone will have some or all symptoms when the level is above 1500 ppm.

(3) Off-gas Chemicals. Many modern office furnishings and equipment off-gas chemicals. Adhesives, carpeting, upholstery, manufactured wood products, copy machines, pesticides, and cleaning agents are examples of items that off-gas.

(4) Tobacco Smoke. Smoking and second hand smoke, otherwise known as environmental tobacco smoke (ETS), contribute to poor IAQ. According to the American Cancer Society, tobacco smoke contains more than 4,000 different chemical compounds, including about 43 carcinogens. ETS causes eye, nose, and throat irritation; headaches; and bronchitis. In 1986, approximately 23,000 U.S. nonsmokers died from lung cancer. The U.S. Surgeon General attributed a substantial number of those deaths to ETS. In addition, ETS contributes to heart disease.

(5) Biological Contamination. Biological contaminants such as bacteria, molds, pollen, and viruses may be present in stagnant water, air ducts, humidifiers, and drain pans. Water-damaged material and insect and bird droppings contribute to biological contamination. Biological contaminants can trigger allergic reactions and some types of asthma and can cause some common infectious diseases.

(6) Combustion Products. Combustion products, such as carbon monoxide and nitrogen oxides, can be released by vehicle exhaust, improperly burning furnaces, appliances, and ETS.

(7) Building Modifications. Physical modifications within buildings usually generate dust. Improper isolation techniques can release asbestos, lead, and other contaminants into the renovated building's ventilation systems.

(8) Poor Air Distribution. Poorly distributed air in a building creating a wide range of temperature within a work environment is a common cause of poor air quality in the work environment.

c. Proper designs for new and renovated buildings preclude many IAQ problems. However, modified structures may experience heating, ventilating, and air conditioning (HVAC) problems (e.g., HVAC not capable of providing adequate fresh air for new uses of the space).

3002. IAQ Investigation Approach

a. Individuals working in buildings with indications of poor IAQ shall report the problem(s) to their immediate supervisors. If the Navy maintains the building, the appropriate supervisor shall coordinate all contact with the designated facilities maintenance activity and the region or activity safety manager. If the region or activity is unable to determine the cause of the problem, the safety manager shall request the cognizant industrial hygiene service to initiate an IAQ investigation. Reference 30-2 provides guidance on indoor air quality evaluations and includes the mold assessment tool, “Mold Remediation Wheel.”

b. The Chief, Bureau of Medicine and Surgery (BUMED) Consultative Assistance Team (CAT) shall assist in IAQ investigations beyond the scope of the cognizant industrial hygiene service. BUMED will determine whether the problem is primarily health-related or engineering-related, or both and will request assistance from appropriate sources as needed (e.g., NAVFACENGCOM). Paragraph 0806 discusses CAT capabilities and functions.

c. If the IAQ investigation or CAT reveals mold contamination, follow the procedures in reference 30-2, chapter 13 and 30-9 for assessment and remediation.

d. If the building contains Navy personnel, but is maintained by a private enterprise, report the problem(s) to the appropriate facilities maintenance organization. If there is no solution, contact the safety manager and follow the process described in paragraphs 3002a and 3002b.

3003. Environmental Tobacco Smoke

a. A prime source of poor IAQ is environmental tobacco smoke. Many non-smokers find ETS offensive. The National Institute for Occupational Safety and Health (NIOSH), in reference 30-3, states that the preferable method to protect nonsmokers is the elimination of smoking indoors.

b. The Department of Defense (DOD) mandates smoke-free workplaces in reference 30-4. U.S. Navy policy on ETS is to protect all personnel in working and public living environments from involuntary exposure to ETS. Navy regions and activities shall:

(1) Prohibit smoking in all Department of the Navy (DON) vehicles, aircraft, and work buildings. This applies to all Navy and Marine Corps (USMC) active duty, civilian personnel, their dependents, and visitors in DON-controlled locations.

(2) Permit smoking only in individually assigned family and bachelor living quarters and in Navy lodge and USMC hostess houserooms designated for smoking except when a common HVAC system serves individual housing units. In such circumstances, commanding officers (COs) should make reasonable efforts to designate sufficient smoking quarters for smoking members. Do not recirculate air from smoking quarters with air entering nonsmoking quarters.

(3) Prohibit smoking in common spaces of multiple housing units (e.g., family housing apartment complexes, bachelor quarters, Navy lodges, USMC hostess houses, 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 by nonsmokers. Locate the smoking area away from supply air intakes and building entryways/egresses to prevent ETS entering the building.

c. The Federal Labor Relations Authority for Washington, D.C., in reference 30-5, has determined that unions could negotiate "hazardous duty" pay for those employees exposed to ETS.

3004. <u>Building Design and Maintenance</u>

a. Regions/activities can preclude many potential IAQ problems through proper planning in the design of new and renovated buildings. Single copies of reference 30-6 are available from NIOSH as publication 91-114. In addition, the EPA has established an IAQ Information Clearinghouse (1-800-438-4318).

b. Regions/activities shall design and construct new and renovated buildings to meet the latest American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) standards, references 30-7 and 30-8. Reference 30-7 specifies the conditions in which at least 80 percent of the occupants will find the environment thermally acceptable. Reference 30-8 specifies the minimum ventilation rates and recommends indicator levels for IAQ that should provide occupants with an acceptable level of comfort and minimize the potential for adverse health effects. Reference 30-10 or similar documentation should be used during ventilation system design development, construction, and acceptance testing and should be used in conjunction with NAVFACINST 1227.1, “NAVFAC Total Building Commissioning Policy” of 23 October 2003, reference 30-11. Reference 30-12 should be used to provide the CO’s staff with sufficient information to maintain the system throughout the system life cycle.

c. Regions/activities shall ensure that building designs properly locate air intakes and exhaust vents or stacks during new and renovated building construction.

(1) Do not place fresh air intakes above loading docks. This avoids pulling truck exhaust and odor from dumpsters directly into the building. Place fresh air intakes on the prevailing wind side of the building.

(2) Place exhaust vents on the opposite side of the building from fresh air intakes. Do not locate intakes and exhaust vents in close proximity to each other.

(3) Extend all exhaust stacks or chimneys beyond the roofline of the building. Exhaust stacks should have sufficient height and discharge velocity to ensure that exhaust gases release into the true airflow over the building. If located lower than the true airflow, exhaust gases could swirl at the edges of the building and be pulled back inside through a fresh air intake.

(4) Do not place caps over exhaust stacks or chimneys. Use bird and debris screens over all HVAC in-take and exhaust openings.

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 that the modular office systems are compatible with the airflow patterns proposed by the HVAC engineers. The ASHRAE standard (see reference 30-8) for offices of 20 cfm of fresh air/occupant is based on a maximum occupancy of seven people/1,000 square feet. The designer shall not reduce airflow where there are fewer than seven people. Increase airflow per the ASHRAE standard if the occupancy is greater than seven people/1,000 square feet.

e. Design new and renovated buildings to ensure HVAC systems are accessible for maintenance actions, especially preventive maintenance.

f. Personnel shall not make unauthorized 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 shall report ventilation problems according to the guidance given in Paragraph 3002.

g. Do not modify HVAC systems for energy conservation in such a way as to affect adequate air quality (e.g., sealing outdoor air intakes).

h. To help maintain good IAQ, commanding officers shall develop and implement effective programs of routine inspection and preventive maintenance of all HVAC systems and spaces.

3005. Responsibilities

a. Echelon 2 and other headquarters commanders shall provide guidance and assistance to subordinate commands to ensure the effectiveness of this program.

b. BUMED shall:

(1) When appropriate, request that BUMED CAT be augmented by the Naval Facilities Engineering Service Center (NFESC) ventilation engineering personnel.

(2) Budget adequate resources for medical facilities to support this policy.

c. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) shall:

(1) Augment BUMED CAT with NFESC ventilation engineers when requested.

(2) Ensure that building construction and modification plans reflect consideration of IAQ issues and comply with requirements described in paragraph 3004.

(3) Ensure that HVAC systems in new buildings meet the specifications in the ASHRAE standards contained in references 30-7 and 30-8.

d. Commanders, Commanding Officers, and Officers in Charge shall:

(1) Establish smoke-free buildings and zones.

(2) Ensure that IAQ issues are considered in the design of new buildings.

(3) Coordinate with COMNAVFACENGCOM to ensure that new building design adheres to the ASHRAE standards contained in references 30-7 and 30-8.

(4) Develop and implement an effective program of routine inspections and preventive maintenance of all HVAC systems and spaces, including HVAC accessibility per paragraph 3004e.

(5) Ensure that employee concerns or complaints of IAQ problems are investigated and resolved in a timely manner using the procedures in paragraph 3002.

(6) Ensure HVAC systems meet paragraph 3004 requirements.

Chapter 30

References

30-1. Air Force Occupational & Environmental Health Laboratory (AFOEHL) Report 90-169CA00111KGA, 1 Oct 90, Brooks, AFB http://www.osti.gov/energycitations/product.biblio.jsp?osti_id=5772668&query_id=0.

30-2. Industrial Hygiene Field Operations Manual, NEHC Technical Manual, NEHC-TM IH 6260.91-2 of Oct 03, Chapter 13 http://www-nehc.med.navy.mil/ih/ihfom.htm.

30-3. U.S. Department of Health and Human Services (DHHS), National Institute for Occupational Safety and Health (NIOSH) Publication No. 91-108 of June 1991, Current Intelligence Bulletin 54: Environmental Tobacco Smoke in the Workplace - Lung Cancer and Other Health Effects. http://www.cdc.gov/niosh/91108_54.html.

30-4. DODI 1010.15 of 1 Feb 01, Smoke-Free DOD Facilities http://www.dtic.mil/whs/directives/corres/html/101015.htm.

30-5. SECNAVINST 5100.13C of 2 Aug 02, Navy and Marine Corps Tobacco Policy http://neds.daps.dla.mil/Directives/5100_13c.pdf.

30-6. Federal Labor Relations Authority, Case No. 0-NG-1947-1949 of 13 December 1991. Vol. 42 http://www.flra.gov/decisions/v43/43-084-4.html.

30-7. American Society of Heating, Refrigerating, and Air-Conditioning Engineers Standard ASHRAE 55-1992 (with), Thermal Environmental Conditions for Human Occupancy (NOTAL) http://membership.ashrae.org/template/EnewsletterLanding.

30-8. American Society of Heating, Refrigerating, and Air-Conditioning Engineers Standard ANSI/ASHRAE 62-2001, Ventilation for Acceptable Indoor Air Quality (NOTAL) http://membership.ashrae.org/template/EnewsletterLanding.

30-9. Interim Technical Guidance (ITG) FY03-4, NAVFAC Mold Response Manual.

30-10. American Society of Heating, Refrigerating, and Air-Conditioning Engineers Guideline 1-1996, The HVAC Commissioning Process (NOTAL) http://ashrae.org

30-11. NAVFACINST 12271.1, of 23 October 03 “NAVFAC Total Building Commissioning Policy.”

30-12. NAVFACINST 11013.39B, of 14 September 00, “Operation and Maintenance Support Information (OMSI) for Facility Projects.”

CHAPTER 31

WEIGHT HANDLING SAFETY

3101. 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 (WH) and rigging equipment at Navy shore activities, and shore based commands, are summarized below.

3102. Program Requirements

a. Reference 31-1 provides weight handling policy and directs compliance with reference 31-2 for Navy shore activities and shore-based commands. Shore-based commands include the Naval Construction Force (NCF) and other operating forces that own or operate WH equipment ashore.

b. Reference 31-2 is a single source document and complies with references 31-3 through 8, which are the Occupational Safety and Health Administration (OSHA) standards applicable to WH and rigging equipment, and references 31-9 through 31-23, which are national consensus standards.

c. The commanding officer or officer in charge is responsible for ensuring safety of the activity's weight handling program which includes certification of equipment, training and qualification of personnel.

d. OSHA requires activities using cranes and derricks in longshoring operations, and floating cranes and floating derricks in shipbuilding, ship repair and shipbreaking to be certified by an OSHA accredited certification agency. References 31-3, 31-4, 31-5 and 31-6 address OSHA certification requirements. Activities shall use reference 31-2 as an alternate standard to the certification requirements for Navy-owned equipment, and the Navy Crane Center, Naval Facilities Engineering Command shall perform the certification. Non-floating cranes and derricks that activities use in shipbuilding, ship repair and shipbreaking do not require third party certification.

(1) Longshoring Definition. Reference 31-5 defines the term "longshoring operations" as "the loading, unloading, moving, or handling of cargo, ship's stores, gear, or any other materials, into, in, on, or out of any vessel." The certification program includes mobile cranes, placed aboard barges or other vessels, and used to transfer materials into, on, in, or out of a vessel.

(2) Certification Requirement. The Navy Crane Center shall certify all Navy-owned equipment requiring third party certification, unless CNO (N09F) approves an alternative certification source. For contractor-owned equipment operated on Navy installations, a private OSHA-accredited certification agency shall provide the third party certification.

(3) Procedures. Reference 31-2 addresses specific procedures for third party certification.

e. Investigation and Reporting of WH Accidents. Reference 31-2 contains special reporting requirements concerning WH accidents.

3103. Responsibilities

a. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) shall manage the Navy's WH programs ashore through its Navy Crane Center of Expertise, ensuring compliance with OSHA standards. Specific mission responsibilities include providing and maintaining policy to establish design standards and manage weight handling equipment and operations, auditing shore and shore-based command weight handling programs to ensure compliance, reviewing and approving crane alterations, issuing crane safety advisories, equipment deficiency notices and establishing training programs.

b. Reimbursable functions include:

(1) Performing third party certifications.

(2) Providing technical assistance to solve unique weight handling problems.

(3) Acquiring new cranes or refurbishing existing cranes by contract.

These responsibilities are specifically addressed in reference 31-1.

c. Naval Education and Training Command (NETC) shall assist COMNAVFACENGCOM in establishing and maintaining weight handling training programs.

d. Commanders, Commanding Officers and Officers In Charge shall develop and implement WH and rigging programs per references 31-1 and 31-2 and adequately budget to ensure compliance.

e. Cognizant Safety Offices shall provide oversight of the safety program, including safety inspection, evaluations, assessments and audits, risk assessments and mishap investigation.

Chapter 31

References

31-1. SECNAVINST 11260.2 of 10 Sept 97, Navy Weight Handling Program for Shore Activities, http://neds.daps.dla.mil/Directives/11260_2.pdf.

31-2. NAVFAC P-307, Management of Weight Handling Equipment, http://ncc.navfac.navy.mil/crane/rcdr/rcdr.htm.

31-3. Title 29 Code of Federal Regulations (CFR) 1915, Occupational Safety and Health (OSH) Standards for Shipyard Employment,

http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1915.

31-4. Title 29 CFR 1917, Safety and Health Regulations for Marine Terminals, http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1917.

31-5. Title 29 CFR 1918, Safety and Health Regulations for Longshoring, http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1918.

31-6. Title 29 CFR 1919, Safety and Health Regulations for Gear Certification, http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1919.

31-7. Title 29 CFR 1910, OSH General Industry Standards, http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1910.

31-8. Title 29 CFR 1926, Safety and Health Regulations for Construction, http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926.

31-9. American Society of Mechanical Engineers (ASME) B30.2-2002, An American National Standard for Overhead and Gantry Cranes (To Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist) (NOTAL), http://www.asme.org.

31-10. Amerian Society of Mechanical Engineers (ASME) B30.4-2003, An American National Standard for Portal, Tower and Pillar Cranes (NOTAL), http://www.asme.org/.

31-11. American Society of Mechanical Engineers (ASME) B30.5-2002, An American National Standard for Mobile and Locomotive Cranes (NOTAL), http://www.asme.org/.

31-12. American Society of Mechanical Engineers (ASME) B30.6-2003, An American National Standard for Derricks (NOTAL),http://www.asme.org/.

31-13. American Society of Mechanical Engineers (ASME) B30.7-2002, An American National Standard for Base Mounted Drum Hoists (NOTAL), http://www.asme.org/.

31-14. American Society of Mechanical Engineers (ASME) B30.8-2004, An American National Standard for Floating Cranes and Floating Derricks, (NOTAL), http://www.asme.org/.

31-15. American Society of Mechanical Engineers (ASME) B30.9-2003, An American National Standard for Slings, (NOTAL), http://www.asme.org/.

31-16. American Society of Mechanical Engineers (ASME) B30.10-2000, An American National Standard for Hooks, (NOTAL), http://www.asme.org/.

31-17. American Society of Mechanical Engineers (ASME) B30.11-1998 An American National Standard for Monorail and Underhung Cranes, (NOTAL), http://www.asme.org/.

31-18. American Society of Mechanical Engineers (ASME) B30.16-2003, An American National Standard for Overhead Hoists (Underhung), (NOTAL), http://www.asme.org/.

31-19. American Society of Mechanical Engineers (ASME) B30.17-12003, An American National Standard for Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist), (NOTAL), http://www.asme.org/.

31-20. American Socieity of Mechanical Engineers (ASME) B30.20-2003, An American National Standard for Below-the-Hook Lifting Devices, (NOTAL), http://www.asme.org/.

31-21. American Society of Mechancial Engineers (ASME) B30.21-1999, An American National Standard for Manually Lever Operated Hoists, (NOTAL), http://www.asme.org/.

31-22. American Society of Mechanical Engineers (ASME) B30.22-2000, An American National Standard for Articulating Boom Cranes, (NOTAL), http://www.asme.org/.

31-23. Wire Rope Sling Users Manual published by the Wire Rope Technical Board, http://www.domesticwirerope.org/wrtb/.

CHAPTER 32

SAFETY AWARDS PROGRAM ASHORE

3201. Purpose

To issue the policy and procedures for selecting the winners of the Chief of Naval Operations (CNO) Shore Safety Awards.

3202. Applicability

This chapter applies to all U. S. Navy shore establishments and activities.

3203. Policy

CNO policy requires military and civilian personnel to apply safe and healthful practices in all their daily activities. To recognize outstanding efforts in risk management and mishap prevention, the CNO Safety Shore Activity Awards Program provides recognition to a command with the best overall command safety program record; and to individuals who have made significant contributions to a command/ activity or overall safety program. The awards recognize outstanding contributions to operational readiness and conservation of resources through effective risk management. In addition to outstanding safety records, activities selected must have aggressive, innovative mishap prevention programs. These awards recognize excellence and are not to be confused with recognition for safety improvements (e.g., suggestion, invention, special achievement) under the provisions of the incentive awards program.

3204. Types of Awards

Appendix 32-A provides an explanation and selection criteria for CNO Shore Safety Awards Ashore, based on the requirements of reference 32-1. Appendix 32-B provides applicable formulas for the calculation of ashore mishap statistics. Awards are presented for excellence at the region/activity and individual levels.

3205. Action

Region/Activity commanders, commanding officers, or officers in charge shall develop and implement a region/activity safety awards program applicable to the mission and operations of the individual activity.

Echelon 2 and 3 headquarters commands are also encouraged to establish “in-house” safety awards of their own in line with the CNO award criteria to recognize respective activities and individuals within each claimancy.

Chapter 32

References

32-1. SECNAVINST 5100.15B of 25 May 05, Secretary of the Navy Awards for Achievements in Safety Ashore http://neds.daps.dla.mil/Directives/5100_15b.pdf.

Appendix 32-A

Awards Selection Criteria

Description

Chief of Naval Operations (CNO) Shore Safety Awards will be presented annually on a fiscal year basis to shore activities (including Fleet operational/support units located ashore) based on the overall quality of their safety programs, mishap prevention records, and contributions to the Navy's safety program. In addition, individuals will be recognized for their contributions to their command/region/activity and/or the Navy's safety program through CNO Individual Awards for Safety.

Award Categories

a. Region or Activity. Regions or activities in the following categories will compete for one award each per category.

(1) Industrial – Those activities in the 50 United States whose primary mission is the production, maintenance, or rehabilitation of Navy equipment, material, or facilities. These include aviation depots, public works centers, shipyards, and ship repair facilities. Test centers and research and development (R&D) facilities will compete in the non-industrial category.

(a) Small - activities with military and civilian working population of 1 - 1,000

(b) Medium - activities with military and civilian working population of 1,001 - 3,000

(c) Large - activities with military and civilian working population of 3,001 and greater

(2) Non-Industrial – Activities such as naval stations, air stations, supply depots, training centers, and medical centers in the 50 United States will compete in this category.

(a) Small - activities with military and civilian working population of 1 - 800

(b) Medium - activities with military and civilian working population of 801 - 2,000

(c) Large - activities with military and civilian working population of 2,001 and above

(3) Industrial - Outside of the 50 United States.

(4) Non-industrial - Outside of the 50 United States.

(5) Fleet Operational/Support Unit Ashore - one award - for those commands located ashore with sea or shore duty unit identification codes that are designated as fleet operating or fleet support units and are not eligible for the surface ship award. The safety program must be based on the shore safety requirements of OPNAVINST 5100.23G.

b. Individual. The CNO Individual Award for safety will be presented to one military officer, one military enlisted, and one Navy civilian for a total of three (3) awards. All civilian nominees must be performing safety duties either in a full-time or collateral status, or have made a significant contribution to their command's, or the Navy's safety program in some other capacity related to safety.

Eligibility

a. Region/activity Awards. Regions and activities are eligible to compete for the award if:

(1) All industrial and non-industrial shore activities and fleet operational/support units ashore are eligible if they have received a rating of satisfactory or better as a result of the most recent inspection(s) by the Naval Inspector General (IG), or the major command Safety Office. The inspection must have occurred within the past three fiscal years. Documentation (copy of the inspection cover letter, with score or results) of this inspection must be included in the nomination package or the activity will not be considered.

b. Individual Awards.

(1) CNO Safety Award – Nominees must have made significant contributions to either the individual command program or to the overall Navy safety program. The award will be based on contributions made during the previous three years, including the past fiscal year.

(2) Activities and units that have experienced a military off-duty or PMV fatality or permanent total disability, or on–duty Class A mishap, are not eligible to compete for the award.

Nomination and Evaluation Criteria

a. Activities meeting the eligibility criteria may submit a nomination package through their chain of command with sufficient supporting documentation to allow evaluation by the higher command. Echelon 3 commands, as applicable, will evaluate documentation and nominate one activity for each category, as applicable, and submit the nomination to their Echelon 2 command not later than 30 November of the year following the fiscal year under award consideration.

b. Echelon 2 commands shall evaluate documentation and nominate one activity for each category, as applicable, for the annual awards and submit their nominations to the Commander, Naval Safety Center (COMNAVSAFECEN), 375 A Street, Norfolk, VA 23511-4399

with a letter of recommendation stating the award category for consideration. COMNAVSAFECEN will accept nominations only from Echelon 2 commands.

c. As the CNO shore safety program encompasses all safety disciplines, nominations will be evaluated for program elements in the following: occupational safety and health; motor vehicle; fire safety; and off-duty safety program.

d. Additionally, the following loss data shall be included to determine the degree of program effectiveness:

(1) Three year trend in civilian mishap compensation costs

(2) Three year trend in civilian mishap rates

(3) Three year trend in military on-duty mishap rates

(4) Three year trend in the number and cost of reportable government motor vehicle mishaps

(5) Three year trend in the number and cost of reportable fire mishaps

e. Echelon 2 nominations shall be submitted in writing to be received at COMNAVSAFECEN not later than 31 December of the year following the fiscal year under award consideration. Nominations received after 31 December will not be considered. The nominations must be supported with sufficient documentation to substantiate program implementation. All programs applicable to the activity shall be addressed. The nomination package shall be limited to 20 pages (11” X 11 1/2” maximum size).

f. A preliminary evaluation will be conducted by COMNAVSAFECEN to ensure eligibility. The programs determined to be best qualified will be evaluated by a selection committee of at least four subject matter experts and chaired by an O-6 from COMNAVSAFECEN/CNO N09F

g. Winners of the CNO Shore Safety Award shall be forwarded as the Navy’s nominees to compete with the Marine Corps nominees for the SECNAV Shore Safety Award of reference (a).

h. Activity Award. The nomination package shall be completed using guidance provided below. Include in the package:

(1) Copy of higher command or Navy IG inspection letter to verify eligibility requirement with score or ratings of that inspection

(2) Copy of higher command or Navy IG inspection results

(3) Documentation of workplace population to support the award category for consideration

(4) List of activity safety instructions

(5) Brief synopsis of each program applicable to the activity:

(a) Organization, Staffing and Management Support (include host/tenant support and number of people supported)

(b) Inspection and Abatement Program

(c) Mishap Reporting and Record keeping

(d) Mishap Reduction

(e) Industrial Hygiene - workplace monitoring, annual evaluations and medical surveillance

(f) Safety Councils and Committees

(g) Safety Training

(h) Safety Program Cost Data

(j) Safety Promotion/Awards

(j) Motor Vehicle Safety

(k) Successes/initiatives in various other safety elements, such as Confined Space Entry, Hearing Conservation, Respiratory Protection Program, Electrical (Lockout-Tagout), Asbestos, etc. and other programs applicable to the individual activity

(l) Review of project plans, specifications

(m) Fiscal year 3-year on-duty Mishap Trends – Civilians

(n) Fiscal year 3-year on-duty Mishap Trends – Military

(o) Fiscal year 3-year Government Motor Vehicle (GMV) Mishap Trends - number and cost

(p) Fiscal year 3-year Fire Trends - number and cost

(q) Fiscal year 3-year Compensation Costs Trends – Civilian

(r) Unique/special initiatives

Explain each program sufficiently to address key elements of each and to support implementation of the total program. Statements that the program is established in accordance with required instructions are not sufficient.

i. CNO Individual Award for SOH - Nominations for the CNO Individual Award for safety may be by individual nomination, either by the individual themselves, by others, or from the activity. Submittals must be from the activity to which the individual is assigned and be routed via the appropriate chain of command for endorsement. No more than a three-page nomination letter stating the contributions the individual has made to the command/activity program or the overall Navy program shall be submitted directly to COMNAVSAFECEN by 31 December annually. Only those written nominations received by 31 December will be considered. A COMNAVSAFECEN/CNO (N09F) selection committee will evaluate all nominations. The selection committee will be composed of an O-6 chair from COMNAVSAFECEN and at least four other representatives from the Navy safety community. None of the committee members may be under consideration for the award. The selection committee shall meet no later than 15 January annually to evaluate and select the winners.

Presentation of Awards and Recognition of Nominees

a. COMNAVSAFECEN may present the CNO Award for Safety Ashore and CNO Individual Award for Safety to winners at a special ceremony during the annual Safety Professional Development Conference (Safety PDC). All winners will be announced by CNO via Naval message and recognized in other Navy publications, as appropriate. Winners in the activity category will be forwarded to Secretary of the Navy for consideration for the Secretary of the Navy Award for Achievement in Safety Ashore.

b. Winners will be awarded with an engraved plaque. COMNAVSAFECEN will maintain awards records and post award information on their web site.

SECNAV Awards

The Secretary of the Navy (SECNAV) Activity Award is governed by SECNAVINST 5100.15B. Nominating packages for the winners in each category of the CNO Award for Safety Ashore will be forwarded to compete in their respective category for the SECNAV award.

Appendix 32-B

Formulas for Calculation of Mishap Trends

1. TOTAL CASE RATES:

   a. Military and Civilian On-Duty Total Case Rate:

   $$\frac{\text{*Total Number of Injuries X 200,000}}{\text{End Strength X 2000HRS}}$$

   b. Military Off-Duty Total Case Rate:

   $$\frac{\text{*Number of recorded off-duty injuries X 200,000}}{\text{End Strength X 3760 HRS}}$$

2. LOST TIME CASE RATES

   a. Military and Civilian On-Duty Lost Time Case Rate:

   $$\frac{\text{**Number of all On-duty lost time/deaths X 200,000}}{\text{End strength X 2000 HRS}}$$

   b. Military Off-duty Lost Time Case Rate:

   $$\frac{\text{**Number of off-duty lost time/deaths X 200,000}}{\text{End strength X 3760 HRS}}$$

*Number of injuries/death (deaths, lost time, no lost time, first aid) recorded on the Log of Navy Injuries and Illnesses.

**Number of lost time/death mishaps recorded on the Log of Navy Injuries and Illnesses.

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.

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 1 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.

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).

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.

A-Weighted Sound Level - The sound pressure level that has been filtered or weighted to quantitively 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)

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, in-cluding 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.

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.

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 following are examples of concentration units:

mg/m^3 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).

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.

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 filitered 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 shall 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 form 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 shall the amount of which can be contained in one glove bag or waste bag, which shall not exceed 60 inches in length and width.

Dosimeter - A device for measuring cumulatively the exposure of an individual over a period of time.

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.

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.

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 work place risk factors. The use of PPE is not considered an engineering control.

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 physiological stress to a worker. Examples of work place 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, BandAids™, 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.

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 - A workplace condition that might result in injury, health impairment, illness, disease, or death to any worker who is exposed to the condition, or damage or loss to property/equipment.

Hazard Category - A workplace condition as defined below:

(1) Category I - Catastrophic: The hazard may cause death or loss of a facility.

(2) Category II - Critical: May cause severe injury, severe occupational illness, or major property damage.

(3) Category III - Marginal: May cause minor injury, minor occupational illness, or minor property damage.

(4) 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 per 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 Material Safety Data Sheet, a hazardous material is defined as a material having one or more of the following characteristics: (a) has a flashpoint below 200°F (93.3^{o}C) 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/m^3 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 (HMIS) - 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 - An Echelon 2 organization 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. Examples of headquarters commands are the systems commands headquarters, Fleet 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

Hot Work - Hot work includes all flame heating, welding, torch cutting, brazing, carbon arc gouging or any work which produces heat, by any means, of 400°F 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.

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.

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 know 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 instruction, 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.

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 following 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) - OSHA Form 174 or an equivalent 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. It should be emphasized that OSHA Form 20 or DD-1813 forms are considered obsolete and should not be used for supplying MSDS information. All data submitted must comply with provisions of FED-STD 313C (NOTAL). See chapter 7.

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 that result in damage to DoD property; occupational illness or injury to on-duty DoD military or civilian personnel; or damage to public and private property or injury and illness to non-DoD personnel caused by DoD operations.

Mishap Severity Classification – DoD mishaps are classified according to the severity of resulting injury, occupational illness or property damage. Property damage severity is generally given in terms of cost and is calculated as the sum of the costs associated with DoD property and non-DoD property that is damaged in a DoD mishap. Additionally, if a reportable

occupational injury or occupational illness results, the event is reportable even if the associated costs are less than the minimum dollar criteria. The following classifies DoD mishaps:

(1) Class A Mishap. The resulting total cost of reportable material property damage is $1,000,000 or more; or an injury or occupational illness results in a fatality or permanent total disability.

(2) Class B Mishap. The resulting total cost of reportable material (property) damage is $200,000 or more, but less than $1,000,000; or an injury or occupational illness results in permanent partial disability; or three or more personnel are inpatient hospitalized.

(3) Class C Mishap. The resulting total cost of reportable material (property) damage is $20,000 or more, but less than $200,000; a non-fatal injury that causes any loss of time from work beyond the day or shift on which it occurred; or a non-fatal illness or disease that causes loss of time from work or disability at any time (lost time case). For reporting purposes, refer to paragraph 1408a.

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.

MSHA - Mine Safety and Health Administration

NAVOSH - Navy Occupational Safety and 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 shall review and determine if the host nation injury and illness reporting and compensation systems supersede DoD requirements per the status of forces agreements.

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 instruction, Navy employees include all military and civilian personnel (except contractors) paid from Navy appropriated and non-appropriated funds.

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 instruction include the following 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.

Needleless 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.

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 form 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 practioners, 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 Professional - Persons who meet the Office of Personnel Management standards for Safety and Occupational Health Specialist/Manager GS-018, Safety Engineer GS-803, Ergonomist (Medical Officer GS-602, Health Physicist GS-1306, Industrial Hygienist GS-690, Occupational Health Nurse GS-610, , Industrial Hygiene Officer, Audiologists, Radiation Health Officers, or comparably qualified personnel as determined by appropriate Navy authority. A Certified Safety Professional (CSP) is a safety professional that has obtained and maintains national certification form the Board of Certified Safety Professional (BCSP). A Certified Industrial Hygienist (CIH) is an industrial hygiene professional that has obtained and maintains national certification from the American Board of Industrial Hygiene (ABIH)

Off-Duty Personnel - (See OPNAVINST 5102.1D)

On-Duty Personnel - (See OPNAVINST 5102.1D)

OSHA - Occupational Safety and Health Administration, Department of Labor (DOL).

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 OSHAct.

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.

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 following 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, 40 Contains any other recognized serious safety or health hazards.

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.

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 following: 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.

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.

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 Section 1408. 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.

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 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.

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 or Health Professional – (see Occupational Safety and Health Professional)

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).

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 shall 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/cm^2.

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 shall 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.

Systems Acquisition - The process by which weapon systems, weapons platforms, and related equipments are conceived, designed, obtained, and introduced into operational use.

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 know as the Joint Service Mask Leakage Tester (JSMLT) is used to perform quantitative fit testing.

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 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.

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 NAVOSH 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.

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 that the information in appendix D 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.

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