NAVY OCCUPATIONAL SAFETY AND HEALTH (NAVOSH) PROGRAM MANUAL

TABLE OF CONTENTS

CHAPTER 1. INTRODUCTION 1-1

0101. References 1-1
0102. Definition of Terms 1-1
0103. Background 1-1
0104. Navy Occupational Safety and Health (NAVOSH) Policy 1-2
0105. Applicability 1-3
Chapter 1 References 1-4

CHAPTER 2. RESPONSIBILITIES 2-1

0201. Discussion 2-1
0202. Assistant Secretary of the Navy (Installations and Environment)(ASN (I&E)) 2-1
0203. Chief of Naval Operations (CNO) 2-1
0204. Headquarters Commands 2-2
0205. Policy Formulation and Implementation 2-2
0206. Specified Support Areas 2-3
0207. Activity Programs 2-5
0208. Individual Civilian and Military Personnel 2-7
Chapter 2 References 2-8
Appendix 2-A DOD Occupational Safety and Health Program 2-A-1

CHAPTER 3. ORGANIZATION AND STAFFING 3-1

0301. Discussion 3-1
0302. Organization of Occupational Safety and Health (OSH) Organizations at Headquarters Commands 3-1
0303. Organization, Functional Responsibilities, and Staffing Criteria for Shore Activity OSH Organizations 3-2
0304. Consolidated OSH Organizations 3-6
0305. Organization and Staffing of the Occupational Health Function 3-7
Chapter 3 References 3-12
Appendix 3-A Job Hazard Categories 3-A-1

TABLE OF CONTENTS

Appendix 3-B Distribution of Occupational Health Physicians by Rank/Grade Level…. 3-B-1

Appendix 3-C Suggested Rank/Grade Level Structure for Industrial Hygiene Support 3-C-1

Appendix 3-D Suggested Grade Level Structure for Consolidated Industrial Hygiene Laboratories 3-D-1

CHAPTER 4. COUNCILS AND COMMITTEES 4-1

0401. Discussion 4-1

0402. OSH Councils, Committees and Total Quality Leadership Boards Ashore .. 4-1

0403. Federal Safety and Health Conferences 4-2

0404. NAVOSH Quality Council 4-2

Chapter 4 References 4-3

CHAPTER 5. PREVENTION AND CONTROL OF WORKPLACE HAZARDS 5-1

0501. Discussion 5-1

0502. Principles of Hazard Control 5-1

0503. Application of Hazard Control Principles 5-3

0504. Development of Hazard Control Recommendations 5-5

0505. Occupational Safety and Health Program Self-Assessment and Improve-ment Plans5-5

0506. Responsibilities 5-6

Chapter 5 References 5-8

CHAPTER 6. TRAINING 6-1

0601. Discussion 6-1

0602. Shore Training Programs 6-1

0603. OSH Training for Forces Afloat 6-5

0604. Educational and Reference Materials 6-5

0605. Recordkeeping (Shore Activities) 6-6

0606. Professional Certification 6-7

0607. Responsibilities 6-7

Chapter 6 References 6-8

TABLE OF CONTENTS

Appendix 6-A Occupational Safety and Health Training Requirements 6-A-1

Appendix 6-B Hazard Communication Training 6-B-1

Appendix 6-C Standard NAVOSH Classroom Training Courses Offered by the NAVOSHENVTRACEN 6-C-1

Appendix 6-D Occupational Safety and Health Administration Courses for OSH Professional Development 6-D-1

CHAPTER 7. HAZARDOUS MATERIAL CONTROL AND MANAGEMENT (HMC&M) 7-1

0701. Background 7-1

0702. Responsibilities 7-2

0703. Headquarters Command OSH Functions in Support of HMC&M 7-5

0704. Afloat HMC&M 7-5

0705. Shore Activities in Foreign Countries 7-6

0706. Chemical Hygiene Plans 7-6

0707. Process Safety Management 7-6

Chapter 7 References 7-6

Appendix 7-A Hazardous Material Information System (HMIS) 7-A-1

CHAPTER 8. OCCUPATIONAL HEALTH 8-1

0801. Discussion 8-1

0802. Industrial Hygiene 8-1

0803. Occupational Exposure Assessment 8-2

0804. Retention and Access Sampling Records (Disposition) 8-4

0805. Occupational Exposure Registry and Data Bank 8-5

0806. Consultative Assistance Teams 8-5

0807. Occupational Medicine Service Program Elements 8-5

0808. Medical Records 8-6

0809. Responsibilities 8-6

Chapter 8 References 8-7

Appendix 8-A Exposure Monitoring Plan 8-A-1

Appendix 8-B Periodic Industrial Hygiene Reevaluation Frequency Categories8-B-1

TABLE OF CONTENTS

CHAPTER 9. NAVOSH INSPECTION PROGRAM 9-1

0901. Discussion 9-1

0902. Qualifications for Inspectors 9-1

0903. Workplace Inspections - Shore Activity Level 9-2

0904. Command Inspections 9-3

0905. Oversight Inspections 9-3

Chapter 9 References 9-4

Appendix 9-A Naval Occupational Safety and Health Inspection Program Organizational Relationships 9-A-1

Appendix 9-B NAVOSH Deficiency Notice 9-B-1

CHAPTER 10. EMPLOYEE REPORTS OF UNSAFE/UNHEALTHFUL WORKING CONDITIONS 10-1

1001. Discussion 10-1

1002. Hazard Reporting 10-1

1003. Appeals 10-2

1004. Reports to the Occupational Safety and Health Administration (OSHA) 10-3

1005. Responsibilities 10-3

Appendix 10-A Navy Employee Report of Unsafe or Unhealthful Working Condition 10-A-1

CHAPTER 11. INSPECTIONS AND INVESTIGATIONS OF WORKPLACES BY FEDERAL AND STATE OSH OFFICIALS 11-1

1101. Background and Discussion 11-1

1102. Federal and State Occupational Safety and Health Inspections at Contractor Workplaces on Navy Shore Installations 11-1

1103. Federal and State Occupational Safety and Health Inspections of Contractor Workplaces Aboard Navy Ships 11-4

1104. Federal Occupational Safety and Health Inspections of Navy Civilian Workplaces 11-5

1105. OSHA Targeted Inspections 11-7

1106. Overall Information Security Requirements 11-8

TABLE OF CONTENTS

Chapter 11 References 11-8

Appendix 11-A Inspection of Department of the Navy Workplaces by Federal and State OSH Representatives 11-A-1

CHAPTER 12. HAZARD ABATEMENT PROGRAM 12-1

1201. Discussion 12-1

1202. Hazard Abatement Processing and Tracking 12-1

1203. Interim Controls 12-4

1204. Hazard Abatement Project Development 12-4

1205. Prioritization of Hazard Abatement Projects 12-5

1206. Responsibilities 12-6

Chapter 12 References 12-6

Appendix 12-A Instructions for Determining Risk Assessment Code (RAC) for Asbestos Projects 12-A-1

CHAPTER 13. NAVY OCCUPATIONAL SAFETY AND HEALTH COST DATA (SHORE ONLY) 13-1

1301. Discussion 13-1

1302. Applicability 13-1

1303. Data Requirements 13-1

1304. Responsibilities 13-2

Appendix 13-A Navy Occupational Safety and Health (NAVOSH) Program Costs OPNAV 5100-21 ..... 13-A-1

CHAPTER 14. MISHAP INVESTIGATION, REPORTING, AND RECORDKEEPING 14-1

1401. Discussion 14-1

1402. Types of Mishap Investigations 14-1

1403. Mishap Investigation Requirements 14-2

1404. Requirements to Ensure Reporting of All Mishaps 14-3

1405. Mishap Investigation Training 14-3

1406. Collection/Dissemination of Mishap Information for SIRs 14-3

1407. Safety Report Review 14-8

1408. Mishap Reporting Procedures 14-8

TABLE OF CONTENTS

1409. Recording of Occupational Injuries and Illnesses of Navy Personnel 14-15
1410. Injury/Illness Treatment (Civilian Employees Only) 14-18
1411. Commanding Officer Review 14-19
1412. Shore Major Mishap Review Board 14-19
1413. Mishap Analyses 14-19
1414. Records Disposition 14-19
Chapter 14 References 14-20
Appendix 14-A Safety Investigation Report (SIR) Enclosure 14-A-1
Appendix 14-B SAFETYGRAM 14-B-1
Appendix 14-C Format for Safety Investigation Report (SIR) 14-C-1
Appendix 14-D Sample Priority Message for Interim Reporting of Mishaps Requiring a Headquarters Command Investigation 14-D-1
Appendix 14-E Report of Traumatic Injury 14-E-1
Appendix 14-F Annual Report of Navy Civilian Occupational Injuries and Illnesses 14-F-1
Appendix 14-G Dispensary Permit 14-G-1

CHAPTER 15. RESPIRATORY PROTECTION 15-1
1501. Discussion 15-1
1502. Applicability 15-1
1503. General Requirements 15-1
1504. Types of Respirators 15-2
1505. Respirator Cartridges and Gas Mask Canisters 15-3
1506. Breathing Air Requirements 15-3
1507. Respirator Selection Considerations 15-4
1508. Medical Evaluations 15-5
1509. Respirator Fit Testing 15-6
1510. Inspection and Cleaning of Respirators 15-6
1511. Respiratory Protection Training 15-6
1512. RPPM Training 15-7
1513. Responsibilities 15-8

TABLE OF CONTENTS

Chapter 15 References 15-9

Appendix 15-A Request for Medical Clearance for Respirator Use Questionnaire 15-A-1

CHAPTER 16. OCCUPATIONAL SAFETY AND HEALTH STANDARDS 16-1

1601. Discussion 16-1

1602. NAVOSH Standards 16-1

1603. Alternate Standard Approval 16-2

1604. Application 16-3

Chapter 16 References 16-3

Appendix 16-A Approved NAVOSH Standards from Headquarters Commands Having Technical Cognizance 16-A-1

CHAPTER 17. ASBESTOS CONTROL 17-1

1701. Applicability 17-1

1702. Discussion 17-1

1703. Permissible Exposure Limit and Excursion Limit 17-2

1704. Control of Asbestos in the Workplace Environment 17-2

1705. Asbestos Clearance Level Criteria 17-8

1706. Disposal Procedures 17-9

1707. Asbestos Management Program Ashore 17-9

1708. Training 17-9

1709. Industrial Hygiene Surveillance 17-9

1710. Asbestos Medical Surveillance Program (AMSP) 17-10

1711. Work Performed by Private Contractors 17-12

1712. Environmental Protection 17-13

1713. Responsibilities 17-14

Chapter 17 References 17-15

Appendix 17-A Determining Applicability of State and Local Requirements on Asbestos Removal and Disposal 17-A-1

Appendix 17-B Asbestos Training and Certification Requirements Listed by Type of Operation 17-B-1

TABLE OF CONTENTS

Appendix 17-C Asbestos Management Program Ashore 17-C-1
Appendix 17-D Information from NESHAP Asbestos Regulations 17-D-1

CHAPTER 18. HEARING CONSERVATION AND NOISE ABATEMENT 18-1
1801. Discussion 18-1
1802. Hearing Conservation Program Introduction. 18-1
1803. Navy Permissible Exposure Limit (NPEL) 18-2
1804. Noise Measurements and Exposure Assessments 18-2
1805. Labeling of Hazardous Noise Areas and Equipment 18-5
1806. Hearing Testing and Medical Evaluation 18-5
1807. Personal Hearing Protective Devices 18-6
1808. Training 18-7
1809. Recordkeeping 18-8
1811. Preventive Measures 18-8
1812. Abatement of Existing Noise Hazards 18-8
1813. Responsibilities 18-9
Chapter 18 References 18-10
Appendix 18-A Hearing Protective Devices 18-A-1
Appendix 18-B Administrative Control of Noise Exposure with Hearing Protective Devices (Stay Time) 18-B-1

CHAPTER 19. SIGHT CONSERVATION 19-1
1901. Discussion 19-1
1902. Basic Program Requirements 19-1
1903. Occupational Eye Care Services and Equipment 19-1
1904. Temporary Protective Eyewear 19-2
Chapter 19 References 19-2

CHAPTER 20. PERSONAL PROTECTIVE EQUIPMENT 20-1
2001. Discussion and Policy 20-1
2002. Basic Program Requirements 20-1

TABLE OF CONTENTS

2003. Equipment Specifications and Requirements 20-2
2004. Eye and Face Protection 20-2
2005. Hearing Protection 20-2
2006. Respiratory Protection 20-2
2007. Head Protection 20-2
2008. Foot Protection 20-2
2009. Hand Protection 20-4
2010. Electrical Protective Devices 20-4
2011. Training 20-4
2012. Responsibilities 20-5
Chapter 20 References 20-5

CHAPTER 21. LEAD 21-1
2101 Applicability 21-1
2102. Discussion 21-1
2103. Permissible Exposure Limit (PEL) and Action Level Triggering Requirements21-2
2104. Control of Lead in the Workplace Environment 21-3
2105. Environmental Protection and Waste Disposal Procedures 21-7
2106. Training 21-7
2107. Industrial Hygiene Surveillance 21-8
2108. Employee Notification 21-8
2109. Medical Surveillance Program 21-8
2110. Work Performed by Private Contractors 21-11
2111. Responsibilities 21-11
Chapter 21 References 21-12
Appendix 21-A Required Respirator 21-A-1

CHAPTER 22. NON-IONIZING RADIATION 22-1
2201. Discussion 22-1
2202. Policy22-1
2203. Applicability 22-1
2204. Laser Radiation 22-1

TABLE OF CONTENTS

2205. Laser Radiation Policy 22-1
2206. Laser Permissible Exposure Limits (PELs) 22-2
2207. Laser Classification, Labeling, Technical Assistance and Exposure Incidents 22-2
2208. Military Exempt Lasers 22-2
2209. Laser Safety Review Board (LSRB) 22-3
2210. Laser Safety Hazard Control Program 22-3
2211. Medical Surveillance Procedures 22-3
2212. Laser Safety Training 22-4
2213. Other Optical Sources 22-5
2214. Radio Frequency (RF) Electromagnetic Fields (EMF) 22-5
2215. Radio Frequency Ashore and Afloat 22-5
2216. RF Permissible Exposure Limits (PELs) 22-5
2217. RF Measurement and Evaluation 22-6
2218. Safety Certification 22-7
2219. Warning Signs, Labels and Devices 22-7
2220. Research, Development and Acquisition 22-8
2221. RF Safety Training 22-8
2222. Protective Clothing 22-8
2223. Low Frequency and Static Electric and Magnetic Fields 22-8
2224. Video Display Terminals 22-9
2225. Responsibilities 22-9
Chapter 22 References 22-11
Appendix 22-A Laser Classification, Labeling, Warning Signs, Technical Assistance, and Exposure Incidents 22-A-1
Appendix 22-B RF Permissible Exposure Limits 22-B-1
Appendix 22-C RFR Hazard Warning Sign, Labels, Exposure Incidents and Technical Assistance 22-C-1

CHAPTER 23. ERGONOMICS PROGRAM 23-1
2301. Background and Discussion 23-1
2302. Management Commitment and Employee Involvement 23-2

TABLE OF CONTENTS

2303. Work Site Analysis 23-3
2304. Workplace Analysis 23-4
2305. Hazard Prevention and Control 23-4
2306. Training 23-6
2307. Medical Program 23-8
2308. Responsibilities 23-10
Chapter 23 References 23-12
Appendix 23-A Occupational Survey 23-A-1
Appendix 23-B Checklist for Evaluation of Ergonomic Stress in Industrial Shops 23-B-1
Appendix 23-C Model Specification for an Ergonomic Job Hazard Analysis23-C-1
Appendix 23-D Ergonomic Considerations for Shift Workers 23-D-1

CHAPTER 24. ENERGY CONTROL PROGRAM (LOCKOUT/TAGOUT) 24-1
2401. Discussion 24-1
2402. General Policy 24-2
2403. Requirements for Contractors or Other Outside Agencies 24-2
2404. Responsibilities 24-2
Chapter 24 References 24-3

CHAPTER 25. POLYCHLORINATED BIPHENYLS (PCBs) 25-1
2501. Policy 25-1
2502. Discussion 25-1
2503. Permissible Exposure Limits, Skin Designation 25-1
2504. Control of PCB Exposure in the Workplace Environment 25-2
2505. Medical Surveillance Program 25-3
2506. Environmental Contamination 25-3
Chapter 25 References 25-3

CHAPTER 26. MAN-MADE VITREOUS FIBERS 26-1

TABLE OF CONTENTS

2601. Discussion 26-1
2602. Applicability 26-1
2603. Exposure Limits 26-1
2604. Control of MMVF in the Workplace 26-1
2605. Disposal Procedures 26-2
2606. Training 26-2
2607. Industrial Hygiene Surveillance 26-3
2608. Man-made Vitreous Fiber Medical Surveillance Program 26-3
Chapter 26 References 26-3
Appendix 26-A Exposure limits for MMVFs 26-A-1

CHAPTER 27. CONFINED SPACE ENTRY (CSE) PROGRAM (NON-MARITIME) .. 27-1
2701. Discussion 27-1
2702. Applicability 27-1
2703. Program Management 27-1
2704. Basic Program Elements 27-2
2705. Requirements for Confined Space Entry and Work 27-4
2706. Special Precautions for Specific Operations 27-4
2707. Emergency Rescue Procedures 27-4
2708. Contractor Operations 27-5
2709. Responsibilities 27-5
Chapter 27 References 27-7
Appendix 27-A Confined Space Entry Permit 27-A-1

CHAPTER 28. BLOODBORNE PATHOGENS 28-1
2801. Discussion 28-1
2802. Applicability 28-1
2803. Exposure Determination 28-1
2804. Hazard Prevention and Control 28-1
2805. Responsibilities 28-1
Chapter 28 References 28-2

TABLE OF CONTENTS

CHAPTER 29. OCCUPATIONAL REPRODUCTIVE HAZARDS 29-1

2901. Discussion 29-1

2902. Policy 29-1

2903. Control of Reproductive Hazards in the Workplace 29-2

2904. Responsibilities 29-4

Chapter 29 References 29-5

Appendix 29-A Pertinent Reference Information On Pregnancy Employment Policies 29-A-1

Appendix 29-B Occupational Reproductive Chemical Stressors List 29-B-1

Appendix 29-C Workplace Exposures of Reproductive Concern Joint Supervisor's and Worker's Statement 29-C-1

CHAPTER 30. INDOOR AIR QUALITY MANAGEMENT 30-1

3001. Discussion 30-1

3002. IAQ Investigation Approach 30-2

3003. Environmental Tobacco Smoke 30-2

3004. Building Design and Maintenance 30-3

3005. Responsibilities 30-4

Chapter 30 References 30-5

CHAPTER 31. WEIGHT HANDLING SAFETY 31-1

3101. Discussion 31-1

3102. Program Requirements 31-1

3103. Responsibilities 31-2

Chapter 31 References 31-2

CHAPTER 32.SAFETY AND OCCUPATIONAL HEALTH AWARDS ASHORE 32-1

3201. Purpose 32-1

3202. Applicability 32-1

3203. Policy 32-1

3204. Types of Awards 32-1

TABLE OF CONTENTS

3205. Action 32-1
Appendix 32-A Awards Selection Criteria 32-A-1
Appendix 32-B Formulas for Calculation of Mishap Trends 32-B-1

GLOSSARY…. G-1

INDEX……..... I-1

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 (N45) has traditionally managed the occupational safety and health program.

b. The program gained special prominence after passage of the Occupational Safety and Health Act (OSH Act) on 31 December 1970. Although the primary thrust of the OSH Act was directed at the private sector employer, Section 19 of the OSH Act directed Federal agencies to establish and maintain comprehensive and effective Occupational Safety and Health (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 OSH program in compliance with Section 19 of the OSH Act. Over the next 3 years, many Federal agencies made only moderate progress. Consequently, Congress received considerable criticism for a perceived double standard in OSH 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 reis-

sued 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. Prominent among these is reference 1-1 that outlines general DoD policy and procedures for implementation of the OSH Act and the associated E.O., and reference 1-2 that provides more specific guidance for implementation of the basic OSH 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 1-3. Reference 1-3 contains policy statements and outlines responsibilities for the implementation of the total safety and occupational health program for the Navy. Reference 1-3 delegates responsibility for managing the Navy Occupational Safety and Health (NAVOSH) Program to the Chief of Naval Operations (CNO) who is specifically responsible for the issuance of appropriate implementing directives.

g. This manual implements references 1-1 through 1-3 and provides policy, procedures and guidance for the NAVOSH Program.

0104. <u>Navy Occupational Safety and Health (NAVOSH) Policy</u>

Navy policy is to provide a safe and healthful workplace for all personnel. The Navy achieves these conditions through an aggressive and comprehensive NAVOSH 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. OSH inspection of all workplaces by qualified OSH 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, activities shall provide appropriate personal protective equipment (PPE) at government expense. Where hazard abatement resources are limited, activities shall eliminate the most serious problems first. Where unabated serious hazards have not been eliminated, 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 OSH training for all safety and health officials, supervisory and management personnel, and employees. Activities shall integrate applicable OSH 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 OSH hazards are eliminated or controlled throughout the life cycle

g. Thorough mishap investigations and a comprehensive OSH management information system that provides all OSH 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 NAVOSH 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 1-4. 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 (for example, for employees working under the Commander, Military Sealift Command (COMSC), (reference 1-4)).

(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. Commanding officers shall apply this manual consistently with the provisions of reference 1-5, 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 1-5 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, 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 occupational safety and health issues in explosives and ordinance 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 activities (such areas as chain of command relationships, required councils or committees, training and hazard abatement procedures), forces afloat require specifically tailored procedures. Reference 1-4 contains these provisions. The applicable chapter in reference 1-4 is identified at the end of each chapter in this manual.

Chapter 1

References

1-1. DoD Directive 1000.3 of 29 Mar 79, Safety and Occupational Health Policy for the Department of Defense (NOTAL)

1-2. DoD Instruction 6055.1 of 26 Oct 84, DoD Occupational Safety and Health Program (NOTAL)

1-3. SECNAV Instruction 5100.10G of 15 Dec 89, Department of the Navy Safety and Occupational Health Policy for Programs; Mishap Prevention of (NOTAL)

1-4. OPNAVINST 5100.19C of 14 Jan 94, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

1-5. P.L. 95-454, Title VII, Civil Service Reform Act, 5 U.S.C. Sections 7101-7135 (1978 Supp.), 13 October 1978

CHAPTER 2

RESPONSIBILITIES

0201. Discussion

a. The maintenance of a safe and healthful workplace is a responsibility of commands throughout the Navy. A successful Navy Occupational Safety and Health (NAVOSH) 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 NAVOSH 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 NAVOSH program.

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

ASN(I&E) is the designated safety and occupational health official for the Department of the Navy (DON) which includes the Navy and Marine Corps.

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 NAVOSH program per references 2-1 through 2-3. The Director, Environmental Protection, Safety and Occupational Health Division (N45) is responsible for developing NAVOSH program policy and guidance and issuing NAVOSH standards under references 2-1 through 2-6.

b. Establish, manage and maintain appropriate planning, programming, staffing and budgeting for NAVOSH 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 2-9.

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. Maintain the NAVOSH Quality Council.

g. Adopt, develop and issue, as necessary, NAVOSH standards (see chapter 16 on Standards). Coordinate Navy review and input for new and revised occupational safety and 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. Section 0302 delineates these duties and responsibilities.

0205. Policy Formulation and Implementation

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

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

(1) NAVOSH Program. The NAVOSH 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 Director, Environmental Protection, Safety and Occupational Health Division (CNO N45) is responsible for developing NAVOSH program policy and guidance and issuing NAVOSH standards under references 2-2 through 2-7. Additionally, (CNO N45) is responsible for program sponsorship of occupational health Navy-wide

(2) Operational Unit Safety

(a) The Director, Submarine Warfare Division (CNO N87) is responsible for the safety of submarines, assigned surface ships, deep submergence systems and diving.

(b) The Director, Surface Warfare Division (CNO N86) is responsible for the safety of assigned surface ships.

(c) The Director, Air Warfare Division (CNO N88) 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 N45) 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. Because safety is an inherent responsibility of command, activities shall implement all aspects of the Navy Safety and NAVOSH programs through the chain of command. Echelon 2 commanders are responsible for ensuring that the commanders, commanding officers, directors, officers in charge and supervisors 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 defines programs that support the NAVOSH program. The commanders of the Systems Commands (SYSCOMS), the Chief, Bureau of Medicine and Surgery (BUMED), the Commander, Naval Safety Center (COM-NAVSAFECEN) and the Chief of Naval Education and

Training (CNET) 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. The Commanders of Headquarters Commands. Reference 2-12 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 the Headquarters Commands, including CNET, in coordinating occupational health training in response to needs and requirements developed in the areas set forth in enclosure (1) of reference 2-13.

(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 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 programs.

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

(4) Conduct surveys and investigations as requested by CNO (N45).

(5) Promote the safety program

(6) Maintain a repository of accident, injury, illness and claims data.

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

(8) Provide lessons learned through the accident, 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 accident reports.

(10) Provide management information system (MIS) and automated data processing (ADP) assistance and support to the Naval Inspector General (NAVINSGEN) and the Naval Inspector General Oversight Inspection Unit (NOIU).

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

d. CNET Occupational safety and health (OSH) training and education is an inherent element in each primary and specified program element area. CNET, in coordination with COMNAVSAFECEN and BUMED, shall:

(1) Incorporate OSH educational materials, including applicable provisions of this manual, into the curricula of all appropriate training courses.

(2) Provide specialized OSH training and education to military and civilian personnel as required to support the overall program per reference 2-13.

(3) Prepare and distribute audio-visual aids and other training materials for use in local command OSH training programs.

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

e. The Naval Inspector General (NAVINSGEN). NAVINSGEN coordinates the oversight inspection program aspects of the NAVOSH program and conducts oversight inspections of Navy shore activities. NAVINSGEN shall apprise higher authorities of program effectiveness determined by the oversight inspection program. NAVINSGEN shall maintain close liaison with the NAVOSH Program Manager, who is the Director, Environmental Protection, Safety and Occupational Health Division (N45). NAVINSGEN will support the NAVOSH Quality Council's implementation of the NAVOSH Strategic Plan. This effort will include use of the Process Review and Measurement System (PR&MS) to determine NAVOSH Program continuous improvement actions and cost avoidance initiatives. NAVINS-GEN shall also maintain close liaison with the President, Board of Inspection and Survey (PRESNSURV) and with cognizant OPNAV sponsors (N4, N45, N86, N87 and N88).

f. President, Board of Inspection and Survey (PRESINSURV). President, Board of Inspection and Survey (PRESINSURV) is responsible for oversight inspections for forces afloat. The effectiveness of the

afloat NAVOSH program shall be assessed, as well as the status of corrective actions recommended in prior NAVOSH-related surveys and/or reports. PRESINSURV will maintain close liaison with NAVINSGEN for matters of common interest and with the cognizant OPNAV sponsors (N4, N45, N86, N87, and N88).

0207. Activity Programs

For shore activities and commands, commanders, commanding officers, directors and officers in charge shall:

a. Conduct an aggressive, continuing OSH program and post and disseminate program information to all personnel.

b. Issue an OSH policy statement adopting and enhancing/expanding the NAVOSH policy established in Section 0104. Issue a new policy statement within 3 months after assumption of command, disseminated to all personnel. 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 OSH and to programs which prevent or minimize occupational mishaps.

c. Organize, staff, and maintain an OSH office as required by chapter 3.

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

e. Establish OSH 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 OSH office and other DoD activities for coordination of specialty functions such as medical, fire, security, etc.

g. Ensure compliance with the mishap investigation reporting procedures of chapter 14. Review lost time mishaps or ensure they are reviewed as stated in section 1411. 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. At a minimum, semi-annually review the activity hazard abatement program plan. Examine project execution priorities, proposed corrective actions and the timeliness of corrective actions. The purpose of the review is to ensure established priorities and corrective actions eliminate workplace hazards in the most expeditious and cost effective manner.

j. Establish procedures to protect all Navy personnel from coercion, discrimination, or reprisals for participation in the NAVOSH 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) and Naval Personnel Command directives to measure and recognize superior

and deficient OSH performance. Performance evaluations shall include personal accountability consistent with the duties of the position. Include recognition of superior performance or conversely deficient performance, as appropriate.

m. Establish NAVOSH 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 NAVOSH self-assessment program for the command per chapter 5.

q. Ensure that senior management, middle management and first line supervision support the OSH 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 OSH responsibilities to subordinates

(4) Documenting OSH performance in evaluation of subordinates in consonance with section 0207.l

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

(6) Conducting or participating in worksite inspections, including those made by the activity OSH personnel

(7) Encouraging safety awareness through incentives and awards programs

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

(9) Acquiring, maintaining and requiring 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 OSH 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. Keep exposure monitoring and survey records per 0804.6.

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

u. 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.

v. 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.

w. Designate appropriate officials to consult with representatives of labor organizations recognized under reference 2-14 with respect to the OSH program.

x. State the location(s) where personnel can review copies of the NAVOSH standards, records of safety and health committees and their actions and recommendations, the activity hazard communication plan, and documentation on the command/activity/unit OSH program (shore only).

y. Make available a copy of the activity's annual summary report of occupational injuries and illnesses for the preceding year. Post this summary no later than 45 days after close of the fiscal year, for at least 30 days. In addition to posting, activities may publish it in appropriate written media, such as the activity's newspaper.

z. 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).

0208. <u>Individual Civilian and Military Personnel</u>

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

a. Comply with NAVOSH standards and all applicable rules, regulations and orders issued under this manual. Violators of NAVOSH regulations or instructions are subject to disciplinary action prescribed in Civilian Personnel Instruction (CPI) 752 (NOTAL) or 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 an accident.

Chapter 2

References

2-1. SECNAVINST 5100.10G of 15 December 89, Department of the Navy Policy for Safety, Mishap Prevention, and Occupational Health Programs (NOTAL)

2-2. DoD Instruction 6055.1 of 26 Oct 84, DoD Occupational Safety and Health (OSH) Program (NOTAL)

2-3. DoD Directive 1000.3 of 29 Mar 79, Safety and Occupational Health Policy for the Department of Defense (NOTAL)

2-4. DoD Instruction 6055.5 of 10 Jan 89, Industrial Hygiene and Occupational Health (NOTAL)

2-5. SECNAVINST 5212.5D of 22 Apr 98, Navy and Marine Corps Records Disposal Manual

2-6. DOD Instruction 6055.7 of 10 Apr 89, Mishap Investigation, Reporting and Recordkeeping (NOTAL)

2-7. SECNAVINST 5211.5D of 17 Jul 92, Department of the Navy Privacy Act (PA) Program

2-8. SECNAVINST 5720.42E of 9 Jun 91, Department of the Navy Freedom of Information Act (FOIA) Program (NOTAL)

2-9. DOD Military Standard 882C of 19 January 93, System Safety Program Requirements (NOTAL)

2-10. OPNAVINST 5100.8G of 2 July 86, Navy Safety and Occupational Safety and Health Program

2-11. Executive Order 12344 of 1 Feb 82, Naval Nuclear Propulsion Program (NOTAL)

2-12. OPNAVINST 3500.39 of 3 Apr 97, Operational Risk Management (NOTAL)

2-13. Navy Occupational Safety and Health and Hazardous Material Control and Management Navy Training Plan (NTP S-40-8603B) (NOTAL)

2-14. Title 5, United States Code, Chapter 71 (Supp.11 1979) (NOTAL)

Appendix 2-A
DOD Occupational Safety and Health Program

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_____
DOD COMPONENT

DESIGNATED SAFETY AND OCCUPATIONAL HEALTH OFFICIAL IS

_____
TITLE ADDRESS

3. THE_____
NAME OF INSTALLATION/FACILITY

SAFETY AND OCCUPATIONAL HEALTH DESIGNEE IS

_____.
NAME/TITLE

4. THE_____
NAME OF INSTALLATION/FACILITY

SAFETY POINT OF CONTACT IS

_____
NAME TELEPHONE NUMBER

5. THE_____
NAME OF INSTALLATION/FACILITY

OCCUPATIONAL HEALTH POINT OF CONTACT IS

_____
NAME TELEPHONE NUMBER

_____
NAME OF INSTALLATION/FACILITY

HAS THE RESPONSIBILITY TO:

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 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.
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 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 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 insure an inspection of the worksite and he/she will report the results of the inspection in writing to the worker 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 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, 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.

CHAPTER 3

ORGANIZATION AND STAFFING

0301. Discussion

This chapter provides guidance on Navy Occupational Safety and Health (NAVOSH) functional organization, staffing and responsibilities. An effective and dynamic command Occupational Safety and Health (OSH) organization requires a structure that provides all levels of the command with good lines of communication to the commanding officer for OSH matters.

0302. Organization of Occupational Safety and Health (OSH) Organizations at Headquarters Commands

Headquarters commands shall designate an OSH 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 OSH program. The designated OSH official shall report directly to the headquarters commander. An OSH organization, staffed and organized commensurate with the mission and functions of the command, shall support and report directly to the designated OSH official. An OSH professional shall head the OSH organization. The designated command OSH official shall:

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

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

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

d. Interpret NAVOSH 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 NAVOSH Program, and those of subordinate commands, and develop plans of action for improving performance in areas identified as needing improvement.

f. Serve as the headquarters command's representative on safety councils, committees and working groups established by higher authority and the private sector. The OSH official shall serve as technical advisor to cognizant offices of the Chief of Naval Operations (CNO) on NAVOSH-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 NAVOSH Program and reduce instances of injury and illness.

h. Foster OSH awareness through appropriate promotional methods and channels of communication.

i. Ensure adequate consideration of OSH features in the design, purchase or procurement of items over which the command exercises acquisition authority.

j. Plan, develop, participate and evaluate employee OSH training in coordination with cognizant training groups, offices and organizations.

k. Review and coordinate budget requirements, requests and program objective memoranda for OSH and coordinate OSH budget submissions, as appropriate. Ensure that the OSH official at each field activity has sufficient authority and responsibility to plan for and ensure funds for the OSH staff, their equipment, materials and the training required to ensure implementation of an effective NAVOSH program.

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

a. Organization. Each shore activity shall have an OSH organization, staffed and organized commensurate with the mission and functions of the command. An OSH professional shall head the OSH organization and shall have the authority, responsibility, and visibility to manage and represent effectively the activity's OSH program. Implementation of the NAVOSH Program is considered a command staff level function. Accordingly, the head of the OSH organization shall report directly to the commanding officer of the shore activity.

b. Functional Responsibilities. "Direct Programs" refer to the OSH program areas that an OSH organization performs to support the command or activity of which it is a part. "Indirect Programs" are administrative activities in support of Direct Programs.

(1) For Direct Programs, as minimum core requirements, all OSH organizations shall:

(a) Manage OSH Programs. Plan, direct and administer the activity OSH program using the components of the process review and measurement system to focus efforts in those areas which will yield the best overall outcomes for the commands safety and health program.

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

(c) Conduct OSH 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, NAVOSH Inspection Program, and chapter 11, Inspections and Investigations of Workplaces by Federal and State OSH officials.

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

(e) Provide Consulting Services. Provide consulting services to all activity organizational elements and all levels of supervision on OSH 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 chapter 14, Mishap Investigation, Reporting and Recordkeeping.

(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 OSH Program Effectiveness. Prepare annual self-evaluation(s) of program and program elements. For detailed information regarding self-evaluations, refer to chapter 5, section 0505.

(i) Attend and Conduct Meetings. Attend, conduct or participate in activity and local OSH council and committee meetings. For detailed information, refer to chapter 4, Councils and Committees.

(j) Promote OSH Training and Education. Coordinate OSH 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 OSH 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 activity 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 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 OSH 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.

NOTE:

Where multiple full-time test personnel are necessary (e.g., Public Work Centers) and the OSH 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 activity 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) 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. Motor vehicle and traffic safety

2. Weapons and explosive safety

3. Fire prevention

4. Recreation and home safety

5. Diving safety

6. Mercury control

7. Contractor oversight

8. Industrial hygiene

9. Environmental protection

10. Weight handling equipment safety

11. Compensation program support

12. Systems safety.

(s) Other Considerations. Other considerations in determining staffing requirements include the geography of an 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 NAVOSH 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 b(1)(r). Activities shall treat these functions as additives when determining staffing requirements. In addition, activities must treat any collateral duties assigned to the OSH organization as additive when determining staffing.

(2) For Indirect (administrative) programs, all OSH 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.

c. Staffing Criteria. Activities with more than 400 employees shall assign, at a minimum, a full time OSH 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 OSH 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 OSH 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 OSH 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 OSH 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 OSH manager and assistant manager(s).

(6) Base clerical support on workload. All OSH organizations supporting an

activity population exceeding 600 need, at least, full-time clerical support.

d. Position Classification Considerations. The OSH organization will have as its head, a fully qualified and trained OSH professional supported by a staff of qualified professionals. Reference 3-1 describes qualification and training requirements for OSH professionals. Classification guidance is provided as follows:

(1) OSH manager positions range from GS-11 up; OSH assistant managers from GS-11 up; 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 OSH 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 OSH organizations.

0304. Consolidated OSH Organizations

In some cases, it may be more effective and practical to establish a single, consolidated OSH organization to meet the aggregate requirements of a number of small activities within the same geographic area and/or to support tenants of an installation. Activities shall staff all such consolidated OSH organizations following the criteria described in section 0303.

a. Activities furnishing OSH services and users of those services, shall establish written agreements. The agreement shall specify the services provided. Administrative control over the OSH organization shall rest with the command supplying the service.

b. Activities should not change consolidated OSH organization services without prior negotiations between the activities and/or units receiving services. Organizations 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 consolidated OSH organization.

0305. Organization and Staffing of the Occupational Health Function

Integral to the proper establishment of a comprehensive NAVOSH 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 NAVOSH 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 physician 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 activity 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 guide on the total military and civilian personnel supported. The following formula determines staffing for industrial hygienists in BUMED organizations that directly support line activities:

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 person 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 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, Board of Inspection and Survey Atlantic/Pacific (INSURVLANT/PAC), 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 Commander In Chief (FLTCINC) staff, officer in charge, commanding officer, or director of a naval medical or line activity, President, Board of Inspection and Survey (PRESINSURV), 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-microbalance

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 spectrophotome-

try). Each activity with a local asbestos laboratory shall enroll it in the Proficiency Analytical Testing (PAT) Program operated by the American Industrial Hygiene Association. 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) Chief, Bureau of Medicine and Surgery (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. NAVEDTRA 10076A, “Career Development Plan for Safety and Occupational Health and Industrial Hygiene Personnel

Appendix 3-A
Job Hazard Categories

Review activity 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 0303c. Most activities will have employees in more than one category. The following workcenter 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, planing 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. 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 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).
		MEDICAL: Radiation sources, communicable diseases, contaminated medical substances and handling chemicals.
		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	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, NAVCOMMSTA, NAVCAMS, 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, LPH, CGN, DD, CG, DDG, FF, FFG, LPD, LSD, LST, LCC, AO, AOE, AE, AOR, AFS, ARS, ATS, SSN, SSBN and other ships not designated.
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	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. Activity occupational safety and health (OSH) committees and councils provide opportunities for various groups and individuals to express multiple viewpoints and interests. Their purpose is to identify, define and assess OSH issues, problems and needs and recommend corrective measures. New or revised policies, procedures and practices may develop from these recommendations to improve the effectiveness of the Navy Occupational Safety and Health (NAVOSH) Program.

b. OSH councils or committees have three basic functions:

(1) create and maintain an active interest in OSH.

(2) serve as a means of communications regarding OSH.

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

0402. OSH Councils, Committees and Total Quality Leadership Boards 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) (N45).

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 OSH educational resources (films, libraries, etc.).

c. DoD chose not to establish an OSH 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 (N45) represent the Navy.

d. Depending upon size, organization and mission, if considered necessary or desirable, major commands (headquarters level or regional level) may establish OSH councils composed of both military members and civilian employees.

e. At the activity level, the commanding officer, executive officer, or equivalent, shall establish and chair OSH councils. 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 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 an

OSH Council can be met by any formally established activity management board or council that addresses OSH issues, even if it also addresses other issues, as long as such boards/councils meet the basic intent and criteria of this chapter.

(1) The council shall meet at least quarterly. The activity OSH organization shall retain minutes on file for a minimum of 3 years.

(2) The council develops agendas and action items based on the nature of the activity, its scope of operations and its hazard or mishap experience. Subject matter discussed by the council will include OSH goals, OSH program improvement plans, mishap prevention experience, requirements and initiatives, compliance issues and hazard abatement. The OSH office shall develop proposed agendas and presentations for the council and ensure meetings are scheduled.

f. Activities with industrial or other hazardous operations may also organize additional OSH committees at the supervisory and/or shop level. When such sub-level committees are formed, activities shall make provisions for their communication with the activity OSH council. Activities may use process action teams (PATs) as alternatives to supervisory and non-supervisory OSH committees.

g. Installations with fewer than 100 employees are exempt from the requirements of this section. However, heads of such activities shall ensure an open line of communication exists for all employees on OSH 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 OSH personnel, in regional and national OSH conferences are strongly encouraged. Where commands sponsor regular OSH 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. NAVOSH Quality Council

a. CNO (N45) established the NAVOSH Quality Council to promote NAVOSH Program strategic thinking and planning.

b. The council shall consist of representatives of CNO (N454) (chairperson), the fleet Commanders in Chief, the Bureau of Medicine and Surgery (both headquarters and field activities), the Systems Commands (both headquarters and field activities), the Chief of Naval Education and Training, the Naval Inspector General, President, Board of Inspection and Survey and the Commander, Naval Safety Center.

c. CNO (N45) tasked the NAVOSH Quality Council with the development, maintenance and implementation of the NAVOSH Strategic Plan.

d. The Council shall meet triennially at a location agreed upon by the membership.

Chapter 4

References

4-1. Executive Order 12196, Occupational Safety and Health Programs for Federal Employees (NOTAL)

4-2. DoD Instruction 6055.1 of 26 Oct 84, DOD Occupational Safety and Health Program (NOTAL)

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.

To minimize hazards in the workplace, commands shall identify hazardous conditions through workplace inspections (discussed in chapter 9) and by employee hazard reports (discussed in chapter 10). 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. 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. 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 operations used in Navy facilities. They shall also be aware of special designs required by Navy Occupational Safety and Health (NAVOSH) standards to mitigate certain hazards. The following sections discuss some of the principles applied to prevent or mitigate workplace hazards.

a. Substitution. Activities may reduce the risk of injury or illness by replacement of an existing (or intended) process, material or equipment with a similar item having more limited hazard potential.

(1) Examples of process substitutions may include:

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

(b) Welding instead of riveting to reduce noise levels.

(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.

(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 synthetic abrasives in abrasive blasting cabinets to minimize the silicosis hazard associated with exposure to free silica dust.

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.

b. Isolation. Activities may control hazards 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. Activities may control potentially hazardous airborne substances by ventilation, using one of two methods:

(1) Diluting the concentration of the substance by mixing it with uncontaminated air

(2) Removing the substance at its source or point of generation. The first of these methods is termed general ventilation or dilution ventilation; the second is called local exhaust ventilation. Local exhaust ventilation is generally the preferred and more economical method of hazard control. Properly used, however, general ventilation can be very 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. Activities shall design, operate and maintain ventilation systems per the principles outlined in references 5-1 through 5-4.

d. Administrative Control. Activities may also control hazards 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 an activity recognizes the hazard has a time limit below which nearly all workers may experience repeated exposure without adverse effects. The amount by which the 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. Activities shall take all factors 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). Activities may also control hazards by using PPE. This method of hazard control is least preferred because personal protective devices may reduce a worker's productivity. 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. Occupational Safety and Health in the Acquisition Process. Reference 5-5 requires that Program Managers (PM) for Major 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 environment, 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 health evaluation as described in reference 5-5. This evaluation shall identify and evaluate occupational safety and health hazards, 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 facility's, 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, cognizant industrial hygienists and safety professionals shall participate in a review of plans and specifications for facility projects, including both special projects and military construction projects (see Section 0506d. 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 employees. 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 (i.e., references 5-2 through 5-4 and 5-6 through 5-9). Commercial software is available to assist design engineers in the process of identifying safety and health requirements. COMNAVFACENGCOM can provide guidance in obtaining the software.

c. Operating Procedures. 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 NAVOSH requirements.

d. Purchasing/Contracting Procedures. Activities can avoid many hazards by incorporating appropriate safety and health hazard control principles and requirements into specifications for purchased equipment/material and contracts that involve work at Navy facilities. Where Navy facilities develop specifications for purchases/contracts, the activity organizations responsible for purchase requests, contracts and engineering design specifications shall coordinate with cognizant OSH personnel. This will ensure that: NAVOSH requirements are considered in specifications; contractor operations do not compromise the safety and health of Navy personnel or NAVOSH regulatory compliance at the involved Navy facility; and contractor operations are compatible with any concurrent/co-located Navy opera-tions. It also ensures an appropriate exchange of information as required by OSHA regulations for multi-employer worksites.

e. 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.

f. Permanent Hazard Abatement. Engineering control methods are the preferred method of hazard control, followed by administrative controls and PPE. 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

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 activities, 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.

0505. <u>Occupational Safety and Health Program Self-Assessment and Improvement Plans</u>

Each headquarters command and all field activities shall perform a comprehensive self-assessment of the command NAVOSH program at least annually. Based on the results of the assessment, each headquarters command and all field activities shall develop and implement plans of action to address program areas in need of improvement. The activity OSH 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 an OSH Council, the commander, commanding officer, or officer in charge shall review and approve the annual self-assessment and improvement plans. For headquarters commands, the designated Safety and Health Official shall review and approve the annual assessment and improve-ment plans.

a. The activity self assessment shall include, as a minimum, a review of mishap statistics and analysis data, as well as inspection records, hazard reports and risk assessments and an evaluation of compliance posture. Headquarters commands will provide additional guidance as necessary to their subordinate activities on conducting self-assessments of the NAVOSH program. The assessment of headquarters NAVOSH programs shall determine the effectiveness of meeting headquarters NAVOSH program require-ments as outlined in chapter 3 section 0303.

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

c. CNO requires self-assessment improvement plans for all activities and for each headquarters command (except for exclusively administrative headquarters commands without subordinate activities).

Headquarters commands shall submit their plans to CNO (N45) within 45 days of the beginning of the fiscal year.

0506. Responsibilities

The control of OSH 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 an effective OSH hazard control program.

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

(1) Assist the Deputy Chief of Naval Operations (DCNO) (Logistics) in carrying out OSH program responsibilities in matters of hazard control.

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

(3) On a continuing basis, identify 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 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 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 the DCNO (Logistics) in carrying out program responsibilities in the area of hazard control.

(2) On a continuing basis, identify and evaluate (in coordination with BUMED), safety and 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 OSH 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 OSH professionals are included in IPPD teams and that comprehensive programmatic ESH evaluations are performed at appropriate phases in the acquisition process.

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

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

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

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

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

d. Naval Facilities Engineering Command, Engineering Field Divisions and Activities should establish a Facility System Safety Working Group (FSSWG) to review facility designs for new military construction (MILCON) projects ensuring hazards are identified and controlled. The FSSWG should include the procuring activity safety manager, industrial hygienist, environmental engineer, planner, user and Naval Facilities Engineering Command Engineering Field Division (EFD) safety engineer. The FSSWG should provide the EFD with a list of hazardous operations that are of concern and review the control methods that will be used. The EFD Safety Engineer should coordinate with the working group to determine adequacy of controls. The FSSWG should track hazard and risk resolution, conduct pre-occupancy inspections and assist the EFD construction safety engineer to verify installation of the required controls as stated by the designers.

Chapter 5

References

5-1. DOD Military Standard 882C of 19 January 93, System Safety Program Requirements

5-2. DoDI 5000.1 of 15 Mar 96 and DoD 5000.2-R of 15 Mar 96

5-3. Industrial Ventilation, A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienists, Inc., P.O. Box 453, Lansing, MI 48902, (NOTAL)

5-4. American National Standards Institute (ANSI), American National Standard - Fundamentals Governing the Design and Operation of Local Exhaust Systems, Z9.2-1979 (NOTAL)

5-5. DODI 5000.2-R of 4 Nov 96, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs (NOTAL)

5-6. Military Handbook - Industrial Ventilation Systems, MIL-HDBK-1003-12A (NOTAL)

5-7. 29 CFR 1910.16, Occupational Safety and Health, Adoption and extension of Federal Standards, Effective Dates

5-8. Compendium of Materials for Noise Control. National Institute for Occupational Safety and Health, Robert A. Taft Laboratories, Cincinnati, OH, May 1980. DHEW (NIOSH) Publication No. 80-116 (NOTAL)

5-9. Noise Control, A Guide for Workers and Employers. U.S. Department of Labor, Occupational Safety and Health Administration, Office of Information, 1980 (NOTAL)

CHAPTER 6

TRAINING

0601. Discussion

a. This chapter provides requirements, guidelines and recommendations for occupational safety and health (OSH) 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 OSH training can change behavior and lead to not only mishap reduction but also performance improvement.

b. Activities shall design, provide and tailor OSH 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 activity's OSH 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 OSH training for personnel assigned ashore. Similarly, appendix 6-B provides HAZCOM training requirements. Appendix 6-C lists standard Navy Occupational Safety and Health (NAVOSH) Program classroom training courses offered by the Naval Occupational Safety and Health, and Environmental Training Center (NAVOSH-ENVTRACEN) which meet the requirements of this instruction. Appendix 6-D lists courses offered by OSHA that meet professional development requirements for OSH staff. Section 0605 contains training recordkeeping requirements. The following are specific training requirements by category of personnel:

a. Management Personnel. Commands shall provide management personnel with sufficient OSH training to enable them to actively and effectively support OSH 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 activity's OSH program. Ensuring that an aggressive and continuing OSH program is implemented throughout the 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 NAVOSH. A broad understanding of the material addressed in this manual is essential.

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

(5) An overview of current Chief of Naval Operations (CNO) emphasis programs.

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. Activities shall provide training for supervisory personnel and employee representatives that includes introductory and specialized courses to enable them to recognize unsafe and unhealthful working conditions and practices in the workplace.

(2) Activities shall provide supervisory personnel with training that includes the development of skills necessary to manage the activity's OSH 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 occupational safety with job training. Activities shall ensure that training for supervisory personnel meets the requirements of reference 6-1, Subpart H and also includes OSH performance measurement (both in terms of mishap/hazard prevention and individual employee/supervisor performance), hazard identification and analysis, enforcement of NAVOSH standards, accident investigation, the use and maintenance of personal protective equipment, and HMC&M.

(3) Activities shall provide newly appointed supervisors with OSH training within 180 calendar days as specified by reference 6-1.

c. Non-Supervisory Personnel

(1) Activities shall provide OSH 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 an examination of the relevant NAVOSH standards, an analysis of the material and equipment hazards associated with the worksite and standard operating procedures (SOPs) for specific tasks. Activities shall also provide instructions on employee rights and responsibilities under relevant OSH statutes, regulations, and the NAVOSH Program.

(2) OSH offices shall direct specialized training for non-supervisory personnel to the individual's worksite. OSH offices shall ensure that employee training is conducted with input and direction from the workplace supervisor.

(3) 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 occupational safety and health

(b) Work unit policy on occupational safety and 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 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. 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 OSH professionals.

(1) OSH managers shall establish and implement individual development plans (IDPs) for each OSH 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 NAVOSH classroom training.

(2) As a minimum, OSH managers shall include the following courses in IDPs for OSH professionals: *Safety Appraisal*, A-493-0043; *Introduction to NAVOSH (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: and *Fall Protection Systems*, A-493-0084.

NOTE:

OSH managers shall include in IDPs provisions for completing the core courses listed above. See reference 6-2 for instruction on preparation of IDP's.

(3) Activities shall ensure all new safety and occupational health personnel with a limited background of NAVOSH policy, including managers, complete the course *Introduction to NAVOSH (Ashore)*, A-493-0050.

NOTE:

OSH professionals may take equivalent courses covering similar subject matter and may substitute formal academic education covering the subject matter. However, the cognizant headquarters command must approve equivalent courses and substitutions.

(4) Personnel conducting formal OSH training (courses providing 2 or more hours of classroom training) shall complete NAVOSHENVTRACEN course, *Safety Training Methods*, A-493-0063, or equivalent training/experience as approved by the cognizant headquarters command.

(5) Safety and Occupational Health Managers and Industrial Hygiene Supervisors shall complete the core course, *Occupational Safety and Health* (*OSH) Management Two Thousand,* A-4J-0019.

e. Collateral Duty Safety Personnel

(1) 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 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, or an equivalent course (as determined or approved by the cognizant Echelon 2 headquarters) prior to their assumption of NAVOSH duties.

(3) OSH managers shall prepare IDPs for collateral duty safety personnel in accordance with 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 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 OSH manager shall:

(a) Identify those personnel who require such training.

(b) Ensure that training is conducted for those personnel identified in section 0602 f (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, 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) Medical provider(s)

(d) Safety and industrial hygiene personnel

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

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

(g) 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 free to Navy personnel through the Navy Military Training Network by the Chief, Bureau of Medicine and Surgery (BUMED). The American Red Cross is another recognized Cardio Pulmonary Resuscitation 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) 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, as specified in appendix 28-G.

0603. OSH 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 OSH and HMC&M when they are available and/or appropriate. Reference 6-3, chapter A7, and reference 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. Naval activities shall maintain and subscribe to appropriate materials as an integral element of the NAVOSH program. The Naval Education and Training Professional Development and Technology Center (NETPDTC) and the Norfolk Regional Electronic Media Center shall stock and make available safety films and videotapes.

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

b. Norfolk Regional Electronic Media Center. Training modules and lesson guides to support training topics required for supervisors and non-supervisors are available from the NAVOSHENVTRACEN Homepage at www.norva.navy.mil/ navosh/ and the Norfolk Regional Electronic Media Center. Computer-assisted training materials on many topics are also available from the center.

c. National Safety Council Material. Activities may make arrangements to purchase National Safety Council educational and promotional materials through a Federal Supply Schedule contract and local funding. Activities shall use Schedule Title: FSC Group 76, Part 1 to purchase various OSH-related publications, posters, periodicals and films. They may obtain additional audio-visual aids through the Norfolk Regional Media Center on either a temporary loan or permanent custody basis. Address requests to:

Director
Norfolk Electronic Media Center
9770 Decatur Ave., Suite 250
Norfolk, VA 23511-3292
Phone: (757) 444-4011
DSN 564-4011
FAX: (757) 444-3711

d. Information Sources on Hazardous Materials

(1) The Department of Defense Hazardous Material Information System (HMIS) 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
2510 Walmer Avenue
Norfolk VA 23513-2617
Telephone: (757) 462-5536
DSN 253-5536
FAX: (757) 445-7330

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 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 *Occupational Safety and Health Reporter*, Bureau of National Affairs, Inc.) and magazines (such as *Safetyline* published by COMNAV-SAFECEN; and *Occupational Hazards)* are usually available at no cost from Penton Publishing Inc., 1100 Superior Ave., Cleveland, Ohio 44114-8245, (216) 696-7000; *Occupational Health and Safety* is available from Medical Publications, Inc. P.O. Box 2573, Waco, Texas 76702-9910, (817) 776-9000). 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. Recordkeeping (Shore Activities)

Naval activities' OSH offices shall ensure maintenance of training records for 5 years. For military personnel, the OSH office shall record training in the Service Record following applicable regulations. Copies of official training records may accompany personnel transferred within the Navy. Activities' OSH 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 recordkeeping data for individuals trained includes the following:

Name
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 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.

d. OSH 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 safety and health technologist (OSHT), 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 provides tuition assistance (if available) for OSH professionals to attend approved CSP review courses.

0607. Responsibilities

a. Deputy Chief of Naval Operations (DCNO) (Logistics) (N4) will maintain policy and direct, coordinate, monitor and evaluate the adequacy and effectiveness of NAVOSH and HMC&M training programs.

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

c. Chief of Naval Education and Training (CNET) shall supplement requirements of Section 0206d of this manual with training and material support including:

(1) Maintaining NAVOSHENVTRACEN

(2) Implementing assigned actions in the Navy Training Plan (NTP) for safety

(3) Issuing annually, by 30 June, a CNET Notice which provides the fiscal year schedule of course offerings for the NAVOSHENVTRACEN, as well as all standard shore NAVOSH courses and classes; and ensuring courses are also listed in the Catalog of Naval Training (CANTRAC), NAVEDTRA 10500

(4) Coordinating with the Occupational Safety and Health Administration Training Institute (OSHATI) to provide OSH professional development training per appendix 6-D.

d. Commanders of Headquarters Commands shall:

(1) Establish programs to provide OSH 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 activity remains responsible for recordkeeping.

(2) Submit to the NAVOSHENVTRACEN by 1 September each year, via the chain of command, a listing of command NAVOSH training requirements for occupational safety and 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.

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

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

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

(3) Maintain local OSH training records.

Chapter 6

References

6-1. 29 CFR 1960, Basic Program Elements for Federal Employee OSH Programs and Related Matters Section 1960.28, “Employee Reports of Unsafe/Unhealthful Working Conditions.”

6-2. NAVEDTRA Publication 10076A, *Career Development Program* for Safety and Occupational Health and Industrial Hygiene Personnel (NOTAL).

6-3. OPNAVINST 5100.19C of 19 Jan 94, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL).

6-4. Navy Occupational Safety and Health and Hazardous Material Control and Management Navy Training Plan (NTP S-40-8603C) (NOTAL).

Appendix 6-A
Occupational Safety and Health
Training Requirements

Type of Training	Top Management Personnel	Supervisory Personnel & Employee Reps.	Non-Supervisory Personnel	Collateral Duty OSH Personnel	Full-Time OSH Profs.
Initial Orientations	x	x	x	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)		Annual	Annual		
Respiratory Protection (when applicable)		Initial and annual refresher IAW CH-15	Initial and annual refresher IAW CH-15		
Lead (when applicable)		Upon assignment. Annual refresher IAW CH-21	Upon assignment. Annual refresher IAW CH-21		
Man-Made Mineral Fiber (when applicable)		Initial and annual refresher	Initial and annual refresher		
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 *		
Professional Development (as applicable)				4 CEUs/ equivalent year**	8 CEUs/ equivalent year**

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 OSH VIDEO TRAINING TAPES AND COMPUTER-BASED OSH TRAINING PROGRAMS ARE TO BE USED ONLY AS SUPPLEMENTAL TRAINING TOOLS SINCE THESE TRAINING AIDES DO NOT NECESSAIRLY 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 OSH supervisor can provide these at "stand-up" safety meetings at industrial 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) activities or personnel, the OSH supervisor should use monthly or periodic "captain's call" or other meetings or methods to distribute information to promote OSH.

** Continuing Education Unit: 4 hours course time equals 0.5 CEU. 1 college course = 8 CEUs. 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). For CEU courses, 1 CEU equals 1 COC point and for non-CEU courses, 3 hours of instruction equals 1/4 COC point. (Activities should provide other occupational health professionals with appropriate levels of professional training.)

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. 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. 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 50521DN), a trainers guide (DoD 6050.50-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 Activities 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
Emergency Response, 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
Standard NAVOSH Classroom Training Courses
Offered by the NAVOSHENVTRACEN

Title	Course No.	Required By
Construction Safety Standards	A-493-0021	Military NEC requirement
Ergonomics Coordinator	A-493-0085	Chapter 23, Section 2306
Confined Space Safety	A-493-0030	Chapter 27, Section 2704e(1)
Introduction to Hazardous Materials (Ashore)	A-493-0031	Chapter 6, Section 0602.d Chapter 7, Section 0702f(9)(h) NOTE Chapter 9, Section 0902(b)
Electrical Standards	A-493-0033	Chapter 6, Section 0602d(2) Chapter 9, Section0902b(5)
Introduction to Industrial Hygiene for Safety Professionals	A-493-0035	Chapter 6, Section 0602d(2) Chapter 9, Section 0902b(4)
Laser System Safety Officer	A-493-0038	Chapter 22, Section 2212a
Safety Appraisal	A-493-0043	Chapter 6, Section 0602d(2) Chapter 9, Section 0902b(3)
Mishap Investigation & Prevention (Ashore)	A-493-0078	Chapter 14, Section 1405
Introduction to NAVOSH (Ashore)	A-493-0050	Chapter 6, Section 0602d(2) Chapter 9, Section 0902b(1)
General Industry Safety Standards	A-493-0061	Chapter 6, Section 0602d(2) Chapter 9, Section 0902b(2)
OSH 2000 (Safety Management)	A-4J-0019	Chapter 6, Section 0602d(5)
Safety Training Methods	A-493-0063	Chapter 6, Section 0602d(4)
Fall Protection	A-493-0084	29 CFR 1926, Subpart M Chapter 6, Section 0602d(2)

Appendix 6-D
Occupational Safety and Health Administration Courses for OSH 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 technical training courses. These courses will be used by Navy OSH personnel as one means of meeting technical training needs. The NAVOSHENVTRACEN shall coordinate with OSHATI to provide courses for naval OSH professionals based on requirements identified by command headquarters in their annual training requirement submissions. 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 occupational safety and health (OSH) functions and defines requirements and responsibilities for shore activity hazardous material control and management (HMC&M). HMC&M focuses on preventing or minimizing the introduction of hazardous material (HM) into the Navy system, the safe use of HM in the workplace, and the safe handling and disposal of hazardous waste (HW). The HMC&M program is applicable to 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. A variety of local organizational and functional elements are involved in HMC&M 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 OSH objectives and functions. All OSH personnel have a crucial role in support of the HMC&M program. Active participation of OSH staff in the program should reduce unnecessary functional overlaps and duplication of effort within the activity organization. Further, active and aggressive OSH, 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 OSH functions for each element, and defines specific responsibilities and actions required for HMC&M program implementation. Section 0704 addresses afloat programs.

d. The Navy operates a toxicology research unit, the Naval Health Research Center Detachment (Toxicology) (TOXDET) at Wright Patterson Air Force Base which conducts toxicological profiles (TP) and human health risk assessments (HHRA) for materials of operational concern for the Navy. TPs completed by this unit are used directly in the setting of allowable exposure limits for hazardous materials in Navy operational scenarios. The National Academy of Sciences (NAS) Committee on Toxicology (COT) collaborates with this unit to ensure the quality of the HHRAs, proposed allowable limits, toxicological profiles, 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 health hazard assessments for operational use of hazardous materials.

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, perform health hazard assessments 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. Chief, 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.

b. Commander, Naval Supply Systems Command shall, in conjunction with subordinate commands, manage the supply system including: 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 Authorized Use Lists (AUL's); and issue guidance for HM reuse and shelf life extension.

c. Chief of Naval Education and Training shall incorporate HMC&M requirements into the Navy Occupational Safety and Health and Hazardous Material Control and Management Navy Training Plan (NTP 40-S-8603C) and provide HMC&M training management and training materials per chapter 6 of this instruction.

d. Commanders of Headquarters Commands shall coordinate with Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) and field activities to implement and maintain HMC&M programs as required by this manual.

e. 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) or other official agreements which are more restrictive than U.S. regulations.

f. Commanders and commanding officers of shore facilities shall:

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

(2) Develop, implement, and revise as necessary a facility level Hazardous Material Authorized Use List (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) for items not purchased via the stock system. In addition, the AUL must identify the processes(es) for which each HM is allowed to be used. Maintain this AUL for all HM allowed for use in the activity. Provide a safety and health review of HM proposed for addition to the activity AUL by appropriate OSH professionals. This review should occur before the HM arrives at the activity. Contact the Navy Environmental Health Center (NAVENVIR-HLTHCEN) for assistance as required. (See also reference 7-6 for further guidance).

(3) 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 reference 7-8, chapter 4).

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

(5) Maintain copies of MSDS for all HM either actually on the facility or allowed to be brought onto the facility.

(6) Establish systems to ensure that all hazardous materials are properly labeled. There are several allowable options for accomplishing this requirement. All HM must be labeled with:

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

(b) For National Stock Number material, the original stock system container label or an exact copy of the stock system label, or

(c) Standard DOD Hazardous Chemical Warning Labels (DD 2521 or DD 2522), or

(d) A label developed by the facility that contains the manufacturer's name, the product name, and either all hazard warning provided by the original stock system/manufacturer's label, or a locally developed hazard warning based on the physical and health hazards listed on the stock system/manufacturer's label.

NOTE:

Activities are not required to perform a quality check of the technical content of stock system or manufacturer labels. Where such labels are utilized, their technical content may be accepted at face value. The activity is, however, responsible to ensure that these labels provide the manufacturer's name, the product name, and hazard warning as required by reference 7-1, and report labeling deficiencies to the external supply organization, manufacturer, or distributor that supplied the material to the activity. Also note that 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.

(7) Implement the Hazardous Substance Management System (HSMS) at the facility, including the establishment of HAZMIN Centers to facilitate the central management of all HM at the facility as required by the Navy Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP). The AUL/inventory capabilities of HSMS may be used to meet the AUL/inventory requirements previously set forth in this paragraph. Where HSMS is used for inventory purposes, a statistically valid audit of the accuracy of HSMS inventory data will be conducted at least annually. Where significant error is found (i.e., over 10 percent error at the 90 percent confidence level), further evaluation and reconciliation of the HSMS inventory will be accomplished as necessary to restore an acceptable level of overall HSMS inventory accuracy.

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

(a) Notifying the facility's responsible organization, usually the OSH Office or the HAZMIN Center, if HM not allowed for use is delivered to the shop or workcenter. When notified, the responsible organization will take action or provide guidance in rectifying the problem. This should be accomplished before the HM is used.

(b) Overseeing their respective areas of responsibility to ensure that HM is used 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 neither used nor stored in the workplace.

(c) Ensuring pipes, tanks, and breakdown containers within their respective areas of responsibility are properly labeled per paragraph 0702 f (6) and the activity's written HAZCOM Plan.

(9) The facility OSH office shall provide staff support to ensure the implementation of a compliant Hazard Communication Program at the facility. In meeting that responsibility, the OSH office shall:

(a) Participate in the DOD Hazardous Material Information System (HMIS) per the guidance contained in appendix 7-A. (See also reference 7-9 for further guidance on the processing of MSDSs to ensure their prompt inclusion in the HSMS).

(b) Establish a system to ensure that current MSDSs are obtained and maintained in a manner that ensures that they are 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 which 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 the review of incoming MSDSs to ensure they contain the information required by reference 7-1. Report MSDS deficiencies to the cognizant manufacturer/distributor for correction.

(e) Provide reports and recommendations resulting from the safety and health review to appropriate line supervisors, managers, and the 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) Develop and establish a program to ensure employees receive required HAZCOM training. Assist supervisors and training specialists in conducting HAZCOM training when requested.

NOTE:

The following courses, available through the Naval Occupational Safety and Health and Environmental Training Center (NAVOSH-ENVTRACEN) or equivalent courses (as determined or approved by the Echelon 2 headquarters), are required for OSH professionals or collateral duty personnel assigned duties or responsibilities for the activity hazardous material program: (1) Introduction to Hazardous Material (Ashore), course A-493-0031; (2) Hazardous Material Control and Management Technician, course A-322-2600 (available and required only for shore and afloat commands with a Navy Enlisted Classification (NEC) 9595 authorized billet requirement listed on their activity's manning document.

(i) Provide a mechanism for informing contractors of Navy HM to which their personnel may be exposed, and for informing Navy personnel of contractor HM and relevant MSDS to which they may be potentially exposed.

0703. Headquarters Command OSH Functions in Support of HMC&M

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

0704. Afloat HMC&M

Chapter 19 of reference 7-8 and chapters B3, C23 and D15 of reference 7-10 delineate functional responsibilities of key HMC&M participants aboard Navy ships. In general, ships shall coordinate the movement of used and excess HM with receiving shore activities, ensure containers are properly labeled with a HAZCOM compliant label or a DOD Hazardous Chemical Warning Label and provide MSDSs to shore activities in the event the material is not listed in the HMIS and the shore activity does not possess an MSDS for the item.

0705. Shore Activities in Foreign Countries

OSH offices shall support and participate in all OSH and 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. In such cases, the activity shall identify the conflict to the appropriate higher authority for resolution.

0706. Chemical Hygiene Plans

Activities with laboratories, as defined in reference 7-7, shall develop Chemical Hygiene Plans. These activities may develop a single plan for more than one laboratory, as long as similar work is performed and the other requirements of reference 7-7 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 which meet the definitions in reference 7-7.

0707. Process Safety Management

Activities meeting the threshold quantities of reference 7-11 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

7-2. Title 29 CFR section 1910.120 of 1 Jul 97, OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard

7-3. Title 40 CFR part 240 of 1 Jul 97, Resource Conservation and Recovery Act (RCRA)

7-4. Title 40 CFR subchapter J of 1 Jul 97, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

7-5. Title 40 CFR part 302 of 1 Jul 97, Superfund Amendments and Reauthorization Act (SARA)

7-6. BUMEDINST 6270.8 of 6 Jun 90, Procedures for Obtaining Health Hazard Assessments Pertaining to Operational Use of Hazardous Materials (NOTAL)

7-7. Title 29 CFR section 1910.1450 of 1 Jul 97, Occupational Exposure to Hazardous Chemicals in Laboratories

7-8. OPNAVINST 5090.1B of 1 Nov 94, Environmental and Natural Resources Program Manual (NOTAL)

7-9. DoD Instruction 6050.5 of 29 Oct 90, DoD Hazard Communication Program (NOTAL)

7-10. OPNAVINST 5100.19C of 19 Jan 94, Navy Occupational Safety and Health Program for Forces Afloat (NOTAL)

7-11. Title 29 CFR section 1910.119 of 1 Jul 97, OSHA Process Safety Management of Highly Hazardous Chemicals

7-12. Federal Standard (FEDSTD) 313, Material Safety Data Sheets, Transportation Data, and Disposal Data for Hazardous Materials Furnished to Government Activities Series, latest revision

7-13. Defense Federal Acquisition Regulation (DFAR) clause 52-223-3 of Jan 97, Hazardous Material Identification and Material Safety Data

7-14. Public Law 94-499 of 17 Oct 86, Emergency Planning and Community Right to Know Act (EPCRA)

7-15. Defense Federal Acquisition Regulation (DFAR) clause 252.227-7013 of Nov 95, Rights in Technical Data-Non-Commercial Items

Appendix 7-A
Hazardous Material Information System (HMIS)

0701. Background

1. Background and Discussion

a. The Department of Defense (DoD) established HMIS to store and disseminate manufacturer's data and supplemental related information on hazardous material (HM). The system provides a means to share and communicate information on HM procured by a DoD activity with other commands, activities and units within DoD. The overall operation of HMIS is prescribed in reference 7-8. This appendix discusses the Navy's implementation and operation of HMIS.

b. The Defense Logistics Agency (DLA) manages the DoD HMIS and maintains a computerized central repository of information on HM purchased for use within DoD. Local users receive MSDSs via vendors or suppliers who are required to supply them per references 7-12 and 7-13. MSDSs sent by local users to a service focal point are the means by which HMIS is populated and updated.

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 sale of that material may be regulated by the Consumer Product Safety Commission or other regulatory agencies; or

(2) The acquisition of laboratory quantities of chemicals or other HM when used by qualified professions in Navy laboratories as defined in reference 7-4. 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 per the procurement contract. Instructions for completing the MSDS forms are contained in reference 7-12. Note, per reference 7-12, the preferred MSDS format is the American National Standards Institute (ANSI) Z400. This format should be used for Navy manufactured HM.

b. Commands and Activities

(1) Contracting officers for Navy shore activities and 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 references 7-12 and 7-13, for all HM and shall attach a copy of documentation which 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 activity) to the MSDS.

(2) Upon award and per reference 7-14, the contracting officer shall forward the MSDS (and the manufacturer's current hazard communication standard compliant hazard warning label) to the Navy Environmental Health Center

(NAVENVIRHLTHCEN), which is the Navy (service) focal point for MSDS submission. Submissions should be addressed to:

Navy Environmental Health Center
(NAVENVIRHLTHCEN)
Attn: IH (HMIS)
2510 Walmer Avenue
Norfolk, VA 23513-2617

(3) For HM locally acquired (blanket purchases, direct buys or "off-the-shelf" purchases) by a Navy shore activity or ship, that activity shall ensure an MSDS is obtained from the vendor and is available at the activity. Note, there may be more than one MSDS for a given stock number (LSN or NSN) due to formulation changes or different manufacturers. The local activity shall then determine whether the MSDS is present in the HMIS. If it is not, the activity shall forward the MSDS to the NAVENVIRHLTHCEN, as specified above, for inclusion in the HMIS.

(4) Each activity shall retain either the HMIS MSDS or copies of the manufacturer's MSDSs for all HM received by that activity in order to fulfill the requirements of References 7-1 and 7-14.

c. Navy Environmental Health Center. The NAVENVIRHLTHCEN shall review each MSDS for completeness and prepare, or oversee the preparation of, an MSDS information package. The NAVENVIRHLTHCEN shall send the MSDS information package, via floppy disk or electronic format, to DLA for input into the DOD HMIS. For each MSDS that has a corresponding NSN or LSN, NAVENVIRHLTHCEN shall send a complete MSDS information package to the Naval Transportation Support Center (NAVTRANS), Norfolk, VA, and notify NAVTRANS that HMIS transportation data is required for the item.

d. Navy Transportation Support Center (NAVTRANSUPPCEN) Upon receipt of an MSDS information package and notification from NAVENVIRHLTHCEN, NAVTRANS shall prepare and add transportation data, including specific technical information concerning the transport of regulated items, by any mode of transportation used by DoD shippers. NAVTRANS shall then send the information package, via floppy disk or electronic format, to DLA for input into the DOD HMIS database.

e. DLA DLA consolidates MSDS information submitted by service and agency HMIS focal points, maintains the HMIS database and provides the data to the Naval Computer and Telecommunications Area Master Station Atlantic (NCTAMS LANT). NCTAMS LANT produces the HMIS on Compact Disks - Read Only Memory (CD-ROMs) and distributes them to recipients designated by the Naval Supply Systems Command (COMNAVSUPSYSCOM).

3. Outputs

The Hazardous Material Control and Management (HMC&M) CD-ROM Program Disk contains the complete HMIS database of MSDSs, the Ships Hazardous Materials List (SHML), and the Hazardous Material Users Guide (HMUG), described below. Applicable sections of the HMIS, SHML and HMUG can be copied and posted in areas where specific HM or HM groups are used, handled or stored. This information may also be electronically exported to other storage media or imported into distinct software systems. Distribution additions or changes should be forwarded to:

COMNAVSUPSYSCOM
Attn: Code 4241
5450 Carlisle Pike
P.O. Box 2050
Mechanicsburg, PA 17055-0791

a. Hazardous Material Information System (HMIS) DLA manages HMIS, which is a repository of MSDS and related information for HM used or purchased within the DOD system.

b. Ships Hazardous Material List (SHML) COMNAVSUPSYSCOM manages the SHML, and the Naval Inventory Control Point (NAVICP) in Mechanicsburg, PA maintains it. The SHML provides ships and contracting officers with the capability to identify HM authorized for use aboard ships and to preclude the stocking of HM for which ships have no operational need.

c. Hazardous Material User's Guide (HMUG) The Commander, Naval Safety Center (COMNAVSAFCEN) manages the HMUG, which provides easily understandable safety and occupational health information to supplement the technical data found in the MSDSs. The contents of the HMUG include HM control measures, precautions, health hazards, spill control guidance and disposal guidelines. It also provides a personal protective equipment (PPE) shopping guide.

4. Proprietary Information

The HMIS outputs (i.e., reference 7-8) and MSDSs may contain information which 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 which 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 Occupational Safety and Health (NAVOSH) Program is to ensure a safe and healthful work environment for all Navy personnel. The occupational 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 cooperation of all NAVOSH personnel.

b. Two major specialties comprise the occupational health program: industrial hygiene and occupational medicine (OM). Each of these specialties has, as one of its major functional components, a long-term surveillance program. Industrial hygiene involves the identification and evaluation of occupational health hazards and the recommendation of practical controls to lower workplace health risk. OM focuses on the medical surveillance of employees potentially exposed to the hazards identified during the industrial hygiene workplace evaluation, and the diagnosis and treatment of occupational injuries and illnesses. These two specialties, working together, form the basis for an active occupational health care program. Their integration at the local level provides a valuable tool in identifying and treating acute occupational illnesses and preventing chronic occupational illnesses.

c. This chapter applies to occupational health efforts at all naval shore activities including those which 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. The first priority for occupational health (OH) support is Department of the Navy (DON) operational commands. The next priority is other DON activities. 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

Navy industrial hygiene personnel recognize, evaluate and make recommendations to control potential workplace hazards. Evaluation of Navy workplaces requires a sound, logical workplace exposure assessment strategy. The purpose of such a strategy is to accomplish at least three goals:

a. To assess potential health risk faced by Navy personnel, to differentiate between acceptable and unacceptable exposures, and to control unacceptable exposures

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

c. To ensure and demonstrate compliance with NAVOSH exposure criteria.

0803. Occupational Exposure Assessment

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

(1) Basic characterization

(2) Qualitative risk assessment and setting of priorities

(3) Exposure monitoring

(4) Interpretation and decision-making

(5) Recommendations and reporting

(6) Reevaluation.

Chief, Bureau of Medicine and Surgery (BUMED) shall provide all Navy shore activities with a current, thorough evaluation of each workplace per reference 8-2. This evaluation will accurately recognize, identify and quantify all potential health hazards. BUMED shall routinely update the evaluation during the subsequent periodic surveys and, if indicated, conduct specific workplace assessments to assure the validity of the previous exposure determinations. The following subparagraphs outline the basic requirements for occupational exposure assessment.

b. Basic Characterization of the Workplace (Walk-through Survey). The first step in the Navy's exposure assessment strategy is to characterize the workplace. 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.

NOTE:

IH's shall have access to a copy of the Authorized Use List for the workplaces being surveyed from the activity occupational safety and health (OSH) office and/or first line supervisor.

(3) A list of physical hazards (e.g., noise, 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)

(5) Groups of workers expected to have the same or similar exposure.

c. Qualitative Risk Assessment and the Setting of Priorities. Considering all the information available, the next step is to assess if there are significant personal exposures to toxic chemicals and/or harmful physical agents. The BUMED IH shall make this assessment, and shall maintain a written record of the assessment. The record shall include the rationale for any negative determination. When the IH identifies

a task or operation that has a significant exposure, he or she will prioritize the task or operation for subsequent monitoring and evaluation.

d. Exposure Monitoring. Monitoring the workplace for toxic substances and/or harmful physical agents is the primary means of assessing:

(1) Personnel exposures

(2) The need to control exposures

(3) 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.

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 9-day industrial hygiene techniques and exposure monitoring course and a period of on-the-job training as determined and documented by the supervising BUMED IH.

Qualifications are mandatory unless specified differently elsewhere in this instruction.

e. Interpretation and Decision Making. An IH shall evaluate all qualitative and quantitative data collected to determine:

(1) The degree of personnel exposure and whether exposures are acceptable or unacceptable. The IH shall document the basis for this decision.

(2) Recommendations for placement of personnel in medical surveillance programs

(3) Whether existing controls are adequate, the need for controls, and if needed, what they should be. This will apply to both interim and permanent measures, where indicated.

(4) Whether periodic exposure monitoring is necessary, and if so, the nature of the monitoring (what, where, how often, etc.).

(5) The relative abatement priority assigned to the workplace.

f. Recommendations and Reporting. The cognizant IH shall provide a survey report, as outlined in reference 8-3, to the surveyed activity.

The cognizant BUMED IH shall prepare and implement an exposure monitoring plan to:

(1) Fulfill regulatory sampling requirements

(2) Collect sufficient data to allow statistically valid exposure assessments

(3) Track workplace exposures to determine trends

(4) 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. NAVOSH 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.

g. Reevaluation. The BUMED IH shall, at a minimum, periodically reevaluate the activity's' workspaces per appendix 8-B. Regardless of any activity's category, the BUMED IH may specify more frequent evaluations for a specific workspace or process, depending upon the industrial hygiene exposure assessment. For example, an isolated moderate or high hazard space within a primarily administrative Category III activity may require reevaluation more frequently than every 4 years. Additionally, the IH can evaluate all administrative workspaces and tasks at the Category III periodicity, i.e., every 4 years, regardless of their activity's category. The cognizant IH shall determine the survey periodicity for operations governed by a regulation in references 8-5 through 8-7. 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.

0804. Retention and Access Sampling Records (Disposition)

a. The BUMED IH shall forward individual exposure monitoring information for placement into the individual's medical record. (Section 0808 discusses medical records.)

b. BUMED shall retain survey, evaluation and sampling records (section 0803) for a minimum of 40 years (except where specific applicable standards require retention for a longer time).

c. The supporting medical activity shall provide employees and their representatives access to those records pertinent to their individual exposures, upon reasonable request per reference 8-8.

0805. Occupational Exposure Registry and Data Bank

The Navy requires standardization of industrial hygiene data. 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, specifically Navy Environmental Health Center (NEHC) forms 5100/13 (IH Air Sample Survey), 5100/17 (IH Noise Survey Form) and 5100/18 (IH Noise Dosimetry Form) contained in reference 8-3 can be obtained by writing to NEHC, 2510 Walmer Avenue, Norfolk, VA 23513 or via the internet http://www-nehc.med.navy.mil /ih/index.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 the Navy Environmental Health Center.

0806. Consultative Assistance Teams

To facilitate OH support, consultative assistance teams (CATs) 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, OM/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 24 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-Navy Occupational Safety and Health Oversight Inspection 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. Occupational Medicine Service Program Elements

a. Elements of a comprehensive OM program include:

(1) Diagnosis, treatment, and referral (as indicated) for acute and chronic occupational illnesses and injuries, and care of non-occupational, non-urgent conditions to allow a worker to complete his/her work shift

(2) Medical surveillance program management including:

(a) Validation of personnel assignment to medical surveillance programs based on industrial hygiene data

(b) Medical surveillance examinations per reference 8-9

(c) Ongoing assessment of aggregate population data to identify trends

(3) Fitness for duty medical evaluations (e.g., pre-placement, return-to-work, etc.)

(4) Medical certification examinations per reference 8-9

(5) Work area consultation

(6) Epidemiological assessment of injury and illness data to focus prevention efforts

(7) Occupational illness and injury case management to restore workers to optimal function as soon as feasible

(8) Occupational audiology services in support of the hearing conservation program

(9) Occupational optometry services in support of the sight conservation program

(10) Clinical consultative services

(11) Preventive services (e.g., appropriate immunizations to prevent disease due to occupational exposure)

(12) Work area health promotion programs

(13) Training and education of workers and professionals and support staff

(14) Occupational medicine program management (e.g., blood-borne pathogens, hearing conservation, ergonomics, reproductive hazards, etc.).

0808. Medical Records

Maintenance, retention and disposition of personnel medical records shall follow existing directives. The medical records custodian shall provide workers (or their representatives) access to occupational medical records upon reasonable request per reference 8-8. The medical records custodian shall make a worker's medical record available to a physician or other person of the individual's choice after execution of proper release documents (i.e., compliance with provisions of the Privacy Act).

0809. 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 program as defined in section 0803 including:

(a) Initial and periodic evaluation 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 9-day industrial hygiene techniques and exposure monitoring course

(2) A comprehensive occupational medical program as defined in Section 0807 above

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

(4) Other consultative occupational health support, as requested by the activity commanding officer to meet the requirements of this instruction

(5) Custody of all medical records if not handled by the medical department.

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 5100.19C of 14 Jan 94, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

8-2. DOD Instruction 6055.5 of 10 Jan 89, Industrial Hygiene and Occupational Health (NOTAL)

8-3. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision

8-4. AIHA “A Strategy for Occupational Exposure Assessment”, latest revision

8-5. Title 29 CFR 1910, Occupational Safety and Health Standards (NOTAL)

8-6. Title 29 CFR 1915, Occupational Safety and Health Standards for Shipyards (NOTAL)

8-7. Title 29 CFR 1926, Occupational Safety and Health Standards for Construction (NOTAL)

8-8. Title 29 CFR 1910.1020, Subpart Z, Toxic and Hazardous Substances (NOTAL)

8-9. NEHC Technical Manual, Medical Surveillance Procedure Manual and Medical Matrix, latest revision

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:			
Potential Hazard	Intermittent or Continuous	Workers Involved	Controls

EXPOSURE ASSESSMENT	
Comments:	
Signed: Title:	Date:

OPNAV 5100/14 (10/91)

MONITORING PLAN					
Potential Hazard	No. of Measurements	Method of Measurement[1]	Location of Measurement[2]	Frequency (per year)	Man-Hours (Per Year)

[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)

OPNAV 5100/14 (10/91) BACK

Appendix 8-B
Periodic Industrial Hygiene Reevaluation Frequency Categories

CATEGORY	REQUIRED IH SURVEY 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, SHIPS AND SUBMARINES, AVIATION SQUADRONS, SUBTRAFAC, FLTIMAGING, NAVFAC EFD, NCIS, NAVBASE, EXCHANGE, EOD, NAVCOMMSTA, NAVCOMMU, FLETRACEN, FASO, NAVTRA, FACSFAC, NAVDENCEN, NOSTRA
III Low Hazard	Every 4 years	ALL OTHER ACTIVITIES WITH PRIMARILY OFFICE OR CLASSROOM WORK, SUCH AS ADMINISTRATIVE HEADQUARTERS STAFFS AND ADMINISTRATIVE SUPPORT COMMANDS

CHAPTER 9

NAVOSH INSPECTION PROGRAM

0901. Discussion

The Navy Occupational Safety and Health (NAVOSH) 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 NAVOSH inspection program consists of three levels of inspection, each fulfilling different objectives:

a. Workplace Inspections. Activity commands shall inspect for hazardous conditions, unsafe work practices and violations of standards. They shall follow up on accident reports and abatement actions. Activity commands shall also determine medical surveillance and exposure monitoring requirements.

b. Command Inspections. Cognizant headquarters commands shall perform command inspections of their subordinate activities. Per reference 9-1, headquarter commands shall conduct on-site evaluations of the effectiveness of OSH programs at least once every 3 years. The objective of these evaluations is to ensure that subordinate commands and field activities have effective NAVOSH programs.

c. Oversight Inspections. The Naval Inspector General (NAVINSGEN) shall conduct oversight inspections to evaluate compliance with all requirements of the NAVOSH Program. Appendix 9-A lists Naval Inspector General Oversight Inspections Unit (NOIU) organizational relationships.

d. President, Board of Inspections and Survey (PRESINSURV). President, Board of Inspection and Survey (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 NAVOSH program.

0902. Qualifications for Inspectors

a. A successful inspection program requires trained, qualified, and competent inspectors. Inspectors shall thoroughly familiarize themselves with the equipment at the workplace and work practices. 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. A fully qualified journeyman safety inspector (e.g., GS-018, 019 or 803 classification series) shall take the following classroom courses (or equivalent training as determined by the OSH Manager). The courses are available through the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN).

(1) Introduction to NAVOSH Ashore, course number A-493-0050

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

(3) Safety Appraisal, course number A-493-0043

(4) Introduction to Industrial Hygiene for Safety Professionals, course number A-493-0035

(5) Electrical - Standards, course number A-493-0033

(6) Introduction to Hazardous Materials (Ashore), course number A-493-0031.

0903. Workplace Inspections - Shore Activity Level

The activity's commanding officer shall ensure routine workplace OSH inspections are conducted, and the cognizant medical activities provide occupational health support as necessary. Line managers/ supervisors are responsible for day-to-day inspections and corrective actions.

a. Safety and health 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. Major commands, installations or the local activity shall establish guidelines for increased frequency of inspections.

b. Section 0902 outlines qualifi-cations for inspectors. In the event activities do not have the required expertise, they shall make arrangements with the appropriate echelon commander to obtain assistance.

c. Activities shall provide inspectors with appropriate technical test equipment, where required.

d. Activities shall conduct inspec-tions 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. 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 activity). Activities shall initiate immediate abatement action or terminate the operation.

h. Inspectors shall provide NAVOSH Deficiency Notices for all 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, NAVOSH Deficiency Notice (appendix 9-B), or a computer-generated form which 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. Activities shall correct violations of NAVOSH standards and other deficiencies found during inspection per chapter 12.

j. 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, they shall use section C of OPNAV 5100/12 to document follow-up inspections. Activities 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. Activities shall retain inspection records for a minimum of 5 years.

0904. Command Inspections

Headquarters commands shall ensure that appropriate evaluations of NAVOSH program effectiveness are conducted at subordinate commands and field activities at a minimum of every 3 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) Review the activity self-evaluation and the quality, effectiveness and implementation of the activity self-assessment improvement plan.

(3) Review compliance with NAVOSH program requirements, including this manual.

(4) Evaluate the results of Federal Employees' Compensation Act (FECA) cost reduction efforts.

b. The command inspection evaluations shall be of sufficient depth to enable the appropriate echelon commanders and the Navy's designated OSH officials to monitor the effectiveness of respective command or activity programs. Commands shall tailor their evaluations to the size, mission, organization and mishap experience of the activity.

0905. Oversight Inspections

a. A strong oversight inspection covering the total NAVOSH Program is central to the success of an OSH program. The oversight inspection program evaluates all aspects of the NAVOSH Program. NAVINSGEN shall conduct the inspection ashore using NOIU.

b. The NOIU shall conduct oversight inspections at the activity level, under the direction of NAVINSGEN using either Process Review and Measurement or Regulatory Compliance inspection processes. The Oversight Inspection Unit shall also evaluate regional occupational health support while conducting oversight inspections at major medical facilities. They shall use OSH professionals and prioritize locations for inspections based on the significance of safety and health problems. To the maximum extent possible, the Oversight Inspection Unit should coordinate scheduling of their inspections so as to avoid conflicts with triennial headquarters command inspections. Headquarters commands should inform the Director, Oversight Inspection Unit of command inspection schedules as they become available. The Naval Safety Center (COMNAVSAFECEN) shall provide management information system (MIS) and automatic data processing (ADP) assistance and support to the NAVINSGEN and the NOIU. Appendix 9-A provides the organizational and functional relationship between the NAVINSGEN and the NOIU.

c. NAVINSGEN shall provide the CNO with semi-annual reports that include analyses of NAVOSH inspection results, and a summary of inspections performed during the reporting period.

Chapter 9

References

9-1. DODI 6055.1 of 26 Oct 84, DoD Occupational Safety and Health Program

Appendix 9-A
Naval Occupational Safety and Health Inspection Program
Organizational Relationships

NAVINSGEN

a. Serves as designated focal point for Navy (less Marine Corps) inspections ashore

b. Maintains overview of inspection aspects of the program

c. Issues oversight inspection schedule and activity visit announcements

d. Signs and forwards formal reports to appropriate higher authority

e. Maintains automatic data processing database relationship with COMNAVSAFECEN

f. Determines and directs inspection follow-up as required.

OVERSIGHT INSPECTION UNIT (NOIU)

a. Specifies details of inspection requirements

b. Develops inspection procedures

c. Schedules and prepares for physical inspection of activities

d. Conducts inspections in the name of NAVINSGEN. Prepares reports thereof and forwards to NAVINSGEN.

e. Provides NAVOSH deficiency data for inclusion in ADP database

f. Performs inspection follow-up as required by NAVINSGEN.

Appendix 9-B
NAVOSH Deficiency Notice

OPNAV 5100-26

NAVOSH DEFICIENCY NOTICE		
SECTION A - DEFICIENCY INFORMATION	I.D. NO.:	
Organization:	Location:	
Description of Hazard:		
Standard Violated:	RAC:	
OSH 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 (9-92)

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 NAVOSH program. Naval activities shall use the following procedures for submission of employee reports of unsafe or unhealthful conditions in the workplace:

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 supervisor who shall promptly investigate the situation and take appropriate corrective actions. Supervisors shall contact the activity occupational safety and health (OSH) 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 OSH office. OPNAV 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, 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 report to the OSH Office instead of a written report. In these cases, the OSH Office will transcribe the information into a written report.

c. Maintain records of all reports filed. The OSH 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 OSH 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 OSH office shall investigate all reports brought to its attention (alleged imminent danger situations within 24 hours and potentially serious situations within 3 days). If the reported situation involves a health hazard, as opposed to a safety hazard, the OSH office shall refer the report to the cognizant medical activity for investigation as necessary.

e. Provide an interim response to the report originator. The OSH office shall provide an interim or complete response in

writing to the originator of a written report within 10 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 OSH 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 OSH 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 an OSH 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 activity OSH office of the alleged hazard or with action taken to abate a confirmed hazard, the activity OSH office shall encourage the employee to confer with it to discuss the matter further. If the originator remains dissatisfied after such discussion, he/she may appeal to the activity commanding officer. 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 activity commander, or his/her representative, shall respond to the originator of the appeal within 10 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, 2, the Chief of Naval Operations (CNO) (N454), the Assistant Secretary of the Navy (Installations and Environment) (ASN(I&E)), and the Assistant Deputy Under Secretary of Defense (Safety and Occupational Health Policy) (ADUSD(SH)). 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 (Environmental Security) DUSD(ES). In the event that a civilian employee is not satisfied with the response from DUSD(ES); 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

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 activity's OSH 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 5 years following the end of the calendar year in which final action on a report was undertaken

Appendix 10-A

Navy Employee Report of Unsafe or Unhealthful Working Condition

OPNAV 5100-27

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/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 OU 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 TO 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
9. EMPLOYEE ADDRESS	10. EMPLOYEE PHONE NUMBER
11. MAY YOUR NAME BE REVEALED? NO YES	12. ARE YOU A REPRESENTATIVE OF EMPLOYEES? NO YES (List organization name)
13. DATE FILED:	

OPNAV 5100/11 (11-92)

NAVY EMPLOYEE REPORT
OF UNSAFE OR UNHEALTHY 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/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 ANY ONE YOU KNOW) OTHERWISE CALLED IT TO THE ATTENTION OF, OR DISCUSSED IT WITH, THE GOVERNMENT SUPERVISOR

☐ NO ☐ YES (List results, including any efforts by management to correct violation)

7. EMPLOYEE TYPED OR PRINTED NAME	8. EMPLOYEE SIGNATURE
9. EMPLOYEE ADDRESS	10. EMPLOYEE PHONE NUMBER
11. MAY YOUR NAME BE REVEALED? ☐ NO ☐ YES	12. ARE YOU A REPRESENTATIVE OF EMPLOYEES? ☐ NO ☐ YES

13. DATE FILED:

OPNAV 5100/11 (Rev. NOV 1992)

CLEAR

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 g.

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 OSH 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 rele-

vant 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. Installation 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 (COMNAV-SEASYSCOM) with a copy to CNO (N4). 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 COMNAV-SEASYSCOM reply. COMNAVSEASYS-COM 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 OSH 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 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 commander and the ACO (if appropriate), may 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.

m. When the cognizant engineering field division (EFD) of the Naval Facilities Engineering Command (COMNAVFAC-ENGCOM) has defined the boundaries, Navy shore installation commanders should advise the applicable state OSHA office in writing of any areas on the installation which are located within an area of exclusive Federal jurisdiction.

n. Navy shore installation 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 shall send a copy to CNO (N45).

o. 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 OSH standards.

p. Installation commanders shall advise CNO (N4), 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 (N4).

(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 (N4). 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 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, installation 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 aboard ship in writing to the CNO (N4) with a copy to COMNAVSEASYSCOM.

1104. <u>Federal Occupational Safety and Health Inspections of Navy Civilian Workplaces</u>

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 OSH 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 activities employing civilians shall designate a coordinator with whom Federal OSHA officials may interface for inspection purposes. Activity commanders shall provide the name, address and phone number of each activity coordinator by letter to the appropriate OSHA Regional Office. Activity commanders shall provide copies of such letters to CNO (N45) and the chain of command having management cognizance.

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. 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, installation commanders shall withhold permission for immediate access and forward a request for access by message and by telephone to CNO (N45) with copies to the appropriate chain of command having management cognizance. All requests shall identify the exclusion under consideration, and CNO (N45) 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/Marine Corps personnel shall take any photographs these officials request in these areas. Navy installation commanders shall tentatively classify such photographs CONFIDENTIAL and shall not deliver them to Federal officials until higher authority (i.e., Echelon 3 commanders) have screened/classified all film, negatives and photographs as appropriate, in the interest of national security

f. Representatives of the activity commander shall accompany Federal OSHA inspectors at all times.

g. Upon request, Navy 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. 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, Naval Safety Center (COMNAVSAFECEN) (Code 03), per Chapter 14.

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 forward a summary report with a copy of such notices immediately to CNO (N45) and COMNAVSAFECEN (Code 41). 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. 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 CNO (N45) 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 will 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. Activities may use activity 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 and to CNO (N45). Targeted activities shall notify the chain of command and CNO (N45) 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 occu

pational safety and health will periodically visit Navy activities. 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 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 11-2.

Chapter 11

References

11-1. DOD Instruction 6055.1 of 26 Oct 84, Department of Defense Occupational Safety and Health (OSH) Program (NOTAL)

11-2. OPNAVINST 5510.1H, Department of The Navy Information and Personnel Security Program Regulations

Appendix 11-A
Inspection of Department of the Navy Workplaces by Federal and State OSH Representatives

	SHORE			AFLOAT		
	Contractor Workplaces	Civilian Employees' Workplaces	Exclusively Military Workplaces	Contractor Workplaces	Civilian Workplaces	Exclusively Military 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 OSH 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 develop and maintain programs to eliminate or control all identified hazards in a systematic manner.

b. Navy 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 here 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) describes 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. Regardless of the hazard identification method, activities shall process the hazard as follows:

a. Risk Assessment. The 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. 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 Occupational Safety and Health (NAVOSH) 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 Activities 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) Risk Assessment Code. 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. NAVOSH Deficiency Notice. The activity OSH office shall describe workplace hazards with a RAC of 1, 2, or 3 that cannot be corrected immediately, in Section A of a NAVOSH 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:

1. Activities may distribute and post a computer generated form that includes all the information required by OPNAV 5100/12.

2. The activity OSH office shall transcribe RAC 1, 2 and 3 hazards reported by higher echelon OSH personnel (Oversight Inspec-

tions and Command Inspections) or the Occupational Safety and Health Administration (OSHA) to NAVOSH Deficiency Notices. The activity 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 NAVOSH Deficiency Notice and return a copy to the activity OSH office. 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. Activities 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) Close-out statement, indicating: completed abatement action and actual cost, with date of completed action; or process discontinued or worksite vacated.

The OSH office shall make the HA plan available for review locally by recognized employee organizations, where applicable.

NOTE:

Activities may use a file of NAVOSH Deficiency Notices, appropriately completed, as the abatement plan. Activities with fewer than 50 annual deficiencies or projects that will take more than 30 days to correct, may use this approach. Activities 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. A threshold of $500.00 (labor and materials) is established for the cost recording of each identified hazard.

1203. Interim Controls

Activities may be unable to immediately abate deficiencies under normal working conditions, and some hazards may require temporary deviation from NAVOSH stan

dards. Therefore, activities shall establish appropriate interim controls as soon as they identify the deficiency. OSH Offices shall document such controls on the NAVOSH 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 requires the close cooperation of the activity's facilities management and OSH personnel. Shore activities can obtain specific engineering assistance from the cognizant Naval Facilities Engineering Command (COMNAVFACENGCOM) 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. Activity budgets shall include items for correction of OSH deficiencies within the local commanding officer's funding authority.

b. Centrally Managed NAVOSH Funding. Activities shall submit projects to correct hazards that are beyond the funding capability of the local commander directly to COMNAVFACENGCOM.

(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, ranges for centrally managed HA funds are as follows:

1. Minor construction: $25,000 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."

2. Repair: >$25,000

(b) 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. 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) Activities can submit upgrading projects if they are to alleviate se-

vere hazardous conditions. For example, projects that provide guard rails, exit signs, etc., where none exist may be submitted. Projects to raise guard rails from 30 to 42 inches or enlarge letters on exit signs to meet NAVOSH 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 maintenance or repair or have been expanded beyond NAVOSH scope to include such elements. Activities shall fund the abatement of hazards developed due to wear and tear of facilities and equipment from appropriate activity or claimant funds,

(b) Projects for environmental cleanup, compliance or protection

(c) Projects to provide accommodation for the handicapped. These are covered under other programs.

(d) Projects for U.S. Marine Corps facilities

(e) Projects for Government-Owned, Contractor-Operated (GOCO) facilities.

(3) Project Submissions

(a) Activity OSH offices shall request projects using the format in appendix 12-B. They may reproduce this format and expand the fields as needed. Alternatively, activities may use continuation sheets.

(b) Prior to submitting an application, OSH offices 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 which 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 NAVOSH standards in their project descriptions and cite the standards violated.

(d) The OSH Manager shall transmit the application by fax, electronic mail or surface mail to the COMNAVFACENGCOM HA Program Manager for the activity's region. COMNAVFACENGCOM shall provide a list of program managers annually to Echelon 2 commands.

1205. Prioritization of Hazard Abatement Projects

In any given year, the backlog of deficiencies may exceed the funds available for NAVOSH 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. Activity OSH offices shall prioritize projects that do not meet the criteria for centrally managed funding under the NAVOSH 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 Public Works Center (PWC) 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 assign an Abatement Priority Number (APN) per reference 12-3 for all proposed NAVOSH Hazard HA projects submitted. Project funding shall be per the APN that comprises the RAC and Cost Effectiveness Index.

1206. Responsibilities

a. Shore activity commanding officers shall:

(1) Identify and correct hazards and maintain a current HA Plan with priorities established for each project listed.

(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 (N45), by 15 November each year, a proposed NAVOSH HA Program project execution plan per Section 1204.

(2) Develop, prepare and submit, via the chain of command, budget documentation for the NAVOSH HA Program.

(3) Provide to CNO, major claimants, subclaimants and activities, management information, as may be necessary, relative to the NAVOSH HA Program.

(4) Provide engineering review of all NAVOSH HA projects approved by major claimants.

(5) Manage the design and construction of NAVOSH HA projects per established procedures.

Chapter 12

References

12-1. Title 41 CFR 101, Federal Property Management Regulations, 1 July 1997

12-2. OPNAVINST 11010.20F of 7 June 96, Facilities Projects Manual (NOTAL)

12-3. DOD Instruction 6055.1 of 26 Oct 84, Department of Defense Occupational Safety and Health Program (NOTAL)

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 26 October 1984.

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**: determine 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 are 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:
	Major claimant:

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)* **1 2 3**	Probability _____	Severity _____

5. Problem: No. of people regularly exposed to the hazard: _____

6. Proposed Corrective Action:

7. Applicable Standards/Regulations:

8. Citations (*OSHA, STATE AGENCIES, NOIU, ETC.):*

9. Interim Controls:

10. Points Of Contact (*Enter All Applicable*):

Function	Name	Phone	Fax	Internet E-mail
a. NAVOSH	_____	_____	_____	_____
b. Facilities:	_____	_____	_____	_____
c. Claimant:	_____	_____	_____	_____

OPNAV 5100/18

Instruction for Preparation of Hazard Abatement Project Request Form

All Navy 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. If necessary, use additional blank sheets of paper with the project title, activity name and UIC at the top. You may duplicate this form with any word processor. Items that require additional explanation are outlined below:

1. Project Title: Enter a short phrase (up to 50 characters) that describes the proposed action to abate/eliminate the hazard. e.g., “Eliminate fall hazards from ladder on water tower” or “Remove hazardous paint solvent vapors in <LOCATIONS>”. 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 OPNAVINST 5100.23E. In addition to circling the RAC, enter the Mishap Probability and Hazard Severity. (For asbestos projects refer to Attachment B of Enclosure (1): “Risk Assessment Code Methodology - Asbestos”).

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 people 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 Major Claimant Actions will abate the hazard. Enter one Echelon 2 person contacted in block 10.

11. Submit one or more photographs with the request form. Digital photos in .jpg format are preferred but other formats are acceptable. If on paper, please make the photos 4X6 or 5X7 inches.

12. Submit applications by electronic mail, surface mail, or fax to the program manager for your area indicated on the attached HA Program Contacts List. For additional information call your area HA program manager.

CHAPTER 13

NAVY OCCUPATIONAL SAFETY AND HEALTH COST DATA (SHORE ONLY)

1301. Discussion

a. The Navy is required to maintain occupational safety and health (OSH) program cost data for the Department of Defense (DoD), Congress and the Occupational Safety and Health Administration (OSHA).

b. The current Navy accounting system does not provide for the collection of some of the specific data required. Until the system is modified, each Navy activity must rely on its own ability to track the Navy Occupational Safety and Health (NAVOSH) program costs.

1302. Applicability

The requirements in this chapter apply to Navy headquarters commands. The following activities are excluded:

a. Reserve Officer Training Corps (ROTC) Units

b. Industrial and/or research plants operated by private contractors (civil works)

c. Petroleum reserves

d. Military Assistance Advisory Groups and Defense Attache Offices

e. All ships and aircraft

f. All squadrons, wings, groups and other operational commands.

1303. Data Requirements

Each headquarters command shall submit the cost data described below to Chief of Naval Operations (CNO) (N45) by 15 January of each year and use OPNAV 5100/13 (Appendix 13-A) format for this purpose. The Navy requires a separate submission for each appropriation (e.g., Operations and Maintenance, Navy (O&M,N); research, test, development and evaluation (RTD&E); Navy Working Capital Fund (NWCF), etc.) to which activities charge NAVOSH expenditures. The Navy requires cost information for the past fiscal year. For those items where actual data is not available, activities shall provide estimates and indicate all estimates by an asterisk on the form. The Commander, Naval Facilities Engineering Command (COMNAVFACENG-COM) shall provide to CNO (N45), by 1 January each year, a summary of centrally-managed NAVOSH hazard abat-ement funds expended for the past fiscal year.

a. Personnel. Headquarters commands shall submit the manpower costs required to operate the NAVOSH program. They shall report the data in terms of the number of full-time equivalents (FTE's) and salary costs for both military and civilian employees considered to be part of the OSH office staff. The salary and FTEs of OSH personnel are subdivided into four categories: professional safety; occupational health professionals; clerical support personnel; and other. Activities must show the amounts for each of these categories in the appropriate columns. Include only full-time personnel charged to OSH. For collateral duty personnel, include the number of personnel, but do not include labor costs unless they are charged to an OSH account. Echelon 1 and 2 commands shall consolidate data to include headquarters OSH personnel. Activities shall include medical technicians (laboratory technicians, X-ray technicians, etc.) who are involved in employee medical examination programs in this cost data if they support occupational health programs full-time. The activities to whom these employees belong will report the costs.

b. Training. Each year, headquarters commands shall report the total cost of all OSH-related training, attended by OSH staff (for example, tuition costs and course material charges), and any costs incurred by the headquarters command resulting from safety training for instructors/contractors teaching safety.

NOTE:

Report personnel costs (labor) and travel costs associated with training under "Personnel" and "Travel/Per Diem", respectively.

c. Travel/Per Diem. This item includes all travel and per diem costs that activities associate with attending OSH training, conducting inspections or visits, and attending meetings.

d. Supplies/Materials. This item includes the cost of all supplies and materials activities use in the NAVOSH program (whether purchased by the OSH office or not). Items are subdivided into two categories - personal protective equipment (PPE) and other. The PPE category includes the cost of items such as respirators, face shields, eye protectors, and ear plugs. The "other" category includes the cost of signs, posters, publications, consumables, etc.

e. Equipment. This category includes the cost of all equipment, exclusive of equipment used to abate deficiencies, that the OSH staff requires and charges to safety accounts. Activities shall include costs for items such as an air sampling pump, sound level meter, computer software, etc. in this category.

NOTE:

Activities can purchase equipment via alternative appropriations (e.g., equipment with a unit cost of $25,000 or more) such as Other Procurement, Navy (OPN) funds. Activities shall ensure that they provide reports for alternative appropriations.

f. Other Operating Expenses. This item includes any other charges to OSH accounts. Activities shall also report in this category any significant expenditures they normally budget separately at the Echelon 2 command level. Some examples are gas free engineering, systems safety, laser safety, asbestos control, respiratory protection, hearing conservation, contractor support, hazardous material control, hazard abatement, etc. If activities use this line item, they shall ensure that these same expenditures are not already accounted for elsewhere.

g. Totals. The sum of each cost item indicated on lines 1 through 10 for the fiscal year.

1304. Responsibilities

Commanders of Echelon 1 and 2 commands shall:

a. Develop and issue procedures to collect the required cost data from subordinate activities

b. Consolidate by appropriation the cost data submissions they receive from subordinate activities and forward to CNO (N45).

Appendix 13-A

Navy Occupational Safety and Health (NAVOSH) Program Costs

OPNAV 5100-21

NAVY OCCUPATIONAL SAFETY AND HEALTH (NAVOSH) PROGRAM COSTS
APPROPRIATION (Circle One): O&M, N OPN MILCON NCWF RDT&E

COST ELEMENT	PAST FISCAL YEAR						
		FTE			COLLATERAL DUTY		
	$(000)	# CIV	# MIL	#CONTR	# CIV	# MIL	CONTR
1. PERSONNEL a. Professional Safety							
b. Occupational Health Professionals							
c. Clerical Personnel							
d. Others on Staff							
2. TRAINING							
3. TRAVEL/PER DIEM							
4. SUPPLIES/MATERIALS							
a. PPE							
b. Other							
5. EQUIPMENT							
6. DEFICIENCY ABATEMENT (Local Funding)							
7. OTHER OPERATING EXPENSES							
TOTALS							

NAME OF PERSON SUBMITTING THIS DATA:

DSN PHONE: COMM PHONE:

OPNAV 5100/13 (9-92)

CHAPTER 14

MISHAP INVESTIGATION, REPORTING, AND RECORDKEEPING

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 recordkeeping, are essential to the success of the Navy Occupational Safety and Health (NAVOSH) 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, conduct analyses, and to assess the effectiveness of the overall NAVOSH Program. Certain records are necessary to comply with Department of Labor (DOL) Federal agency recordkeeping 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 recordkeeping program.

b. This chapter includes procedures that apply to Navy mishap investigation, reporting and recordkeeping requirements for shore on-duty Navy personnel and Navy shore operational mishaps per reference 14-1. This chapter does not apply to the investigation or reporting of mishaps involving recreation, athletic and home safety; military off-duty; motor vehicles; and explosives. Mishap investigations and reporting in these areas will follow the procedures outlined in reference 14-2. Reference 14-3 includes procedures for investigating and reporting diving mishaps. Reference 14-4 provides procedures for investigating and reporting aircraft mishaps. The following areas are within the scope of this chapter:

(1) On-duty shore occupational injuries, occupational illnesses and occupational fatalities to:

(a) Navy military personnel (includes personnel attached to service craft and small boats that have a shore unit identification code (UIC))

(b) Navy and non-deployed Military Sealift Command (COMSC) civilian employees when resulting from the course of their employment. Reference 14-3 covers deployed COMSC civilians

(c) Other Department of Defense (DoD) and non-DoD component personnel assigned to the Navy.

(2) Accidental damage to government material (property) or equipment throughout the Navy and COMSC unless paragraphs 1408e(1-6) provide exemptions

(3) Navy operational mishaps

(4) Identification of hazardous conditions that may cause death, damage, injury or occupational illness as listed above.

1402. Types of Mishap Investigations

A complete comprehensive mishap investigation is an essential tool in identifying the causes of a mishap and thereby preventing recurrence. The reports required by this chapter 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. General Use Shore Safety Investigation Reports. Reporting activities shall use these reports for all safety mishaps required by this chapter. Although the primary purpose of these reports is mishap prevention, COMNAVSAFECEN may release them under Occupational Safety and Health Administration regulations or in response to Freedom of Information Act (FOIA) requests. Advise individuals providing information in connection with a general use shore safety investigation report (SIR) of the purpose and use of such information. Sample general use Advice to Witness statements are included in appendix 14-A.

b. Judge Advocate General (JAG) Manual Investigations. Conduct Judge Advocate General (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 this chapter prevents JAG Manual investigator(s) from access to the same nonprivileged 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. Headquarters Command Investigations. The cognizant headquarters command shall initiate a mishap investigation when a Class A mishap or a mishap involving the inpatient hospitalization of three or more people occurs as the result of an operational mishap. If a fatality related to the mishap occurs within 6 months of the date of the mishap, headquarters shall determine on a case-by-case basis whether a headquarters investigation is required. In addition, CNO, COMNAVSAFECEN or the cognizant headquarters command may require a headquarters command investigation of other mishaps as appropriate. Refer to paragraph 1408b.

d. 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 activities shall conduct a safety investigation of every mishap, major or minor, and handle the investigation as a search for facts. The severity or significance of the mishap determines the extent of the investigation. The activity shall establish guidelines delineating roles and responsibilities for reporting and investigating all classes of mishaps. Military or civilian occupational safety and health (OSH) professionals trained per Section 1405 shall conduct mishap investigations of Class A and B mishaps. The OSH office shall ensure proper investigation of all mishaps and review all investigation reports. Management personnel may assist in mishap investigations; however, activities shall not use information they obtain through the safety investigation for administrative or disciplinary action. The investigator shall complete a written report with firm, factual findings and recommendations for specific corrective action to be taken to prevent recurrence.

b. Activities shall report all mishaps meeting the reportable criteria in section 1408 directly to COMNAVSAFECEN using

the appropriate format and shall place the notation, "GENERAL USE SHORE SAFETY INVESTIGATION REPORT" at the beginning of the report.

1404. Requirements to Ensure Reporting of All Mishaps

At all levels, the immediate supervisor has the greatest influence on mishap reporting. Activities shall take the following action to ensure that they report all mishaps:

a. Indoctrinate all subordinates, especially new arrivals, to report all mishaps no matter how small, as well as the "near misses" where only chance prevented a mishap. Ensure personnel fully appreciate that activities cannot correct hazardous conditions unless personnel conscientiously report them. For operational activities and forces afloat, references 14-3 and 14-5 contain internal reporting procedures.

b. Ensure supervisors report all mishaps to the activity OSH office immediately so the OSH office can initiate the appropriate action for the investigation.

1405. Mishap Investigation Training

Personnel who conduct Class A, B and C mishap investigations shall complete formal training in mishap investigation procedures and techniques. OSH professionals responsible for investigating 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 supervisor). Individual Development Plans (IDPs) for OSH professionals shall include provisions for providing this training, as necessary. OSH professionals with formal mishap investigation training may provide formal classroom training to others in the activity (e.g. supervisors) who may perform Class C and D mishap investigations.

1406. Collection/Dissemination of Mishap Information for SIRs

a. The Concept of Privilege. Military and Federal courts recognize information given under promises of confidentiality and the findings, conclusions and recommendations of mishap investigations and endorsers are protected under Executive Privilege. Although witnesses' names may be released, witness statements and the deliberative analyses of the mishap investigation are privileged. Any information that would not have been discovered but for the promise of confidentiality is likewise privileged. Promises of confidentiality may be given by members of the Mishap Investigation Board. Members must judge whether confidentiality is necessary to ensure that witness' full cooperation. Confidentiality must explicitly be given. When granted, the protected witness must sign an "Advice to Witness" (Promise of Confidentiality)" form provided in appendix 14-A. When the witness' signature is impracticable, draft a Mishap Investigation Memorandum to File. Maintain all witness statement related documents and records with other mishap documents. Mishap Investigation Board members have long granted blanket promises of confidentiality to strengthen the interview process to learn mishap causes. Follow the restrictions on the use and release of unprotected testimony per this instruction. Any information directly calculated by the Mishap Investigation Board, or developed at the specific request of the Investigation Board, is privileged when disclosing that information would reveal the mishap investigation's deliberative process. Individual promises of confidentiality guarantee the information provided by witnesses will be used only for safety purposes.

(1) Privileged Information shall not be used:

(a) In any determination affecting the interest of an individual making a statement under assurances of confidentiality or involved in a mishap

(b) As evidence or to get evidence in determining the misconduct or line-of-duty status

(c) As evidence to determine the susceptibility of personnel to discipline

(d) As evidence in claims on behalf of the government

(e) As evidence to determine the liability of the government for property damage caused by a mishap

(f) As evidence before administrative bodies, such as Officer Evaluation Boards (USN) or Field Performance Boards (USMC)

(g) As evidence before, or as any part of, a Judge Advocate General (JAG) Manual Investigation Report

(h) In any other punitive or administrative action taken by the Department of the Navy

(i) In any investigation or report other than the Mishap Investigation Report

(j) As evidence in any court.

(2) The Purpose of Designating Information as Privileged. The purpose is to explain what designated information becomes privileged, understand privilege concepts and to conform with standardized Navy mishap investigation reporting processes with or without privileged information. Headquarters Command Safety Investigation Reports will normally not contain privileged information. However, the mishap investigation process must:

(a) Overcome an individual's reluctance to reveal complete and candid information pertinent to the circumstances surrounding a mishap.

(b) Encourage mishap investigations and endorsers of SIRs to provide complete, open and forthright information, opinions and recommendations about a mishap.

b. Rationale. This is necessary because witnesses believe certain uses of the information could be detrimental to themselves, others involved in the mishap, or their command. They may also elect to withhold information by exercising their constitutional right to avoid self-incrimination. Activities must assure individuals that they may confide in safety investigators for the mutual benefit of fellow service members without incurring personal jeopardy within the Department of the Navy in the process. Witnesses are not sworn. Requiring them to do so is prohibited. Mishap investigators shall advise witnesses, in writing, why they are providing their statement and of the limitations placed on its release. Witnesses need not limit their statements to matters to which they could testify in court. Encourage witnesses to express opinions and speculate on possible causes of the mishap.

c. Witness Statements/Identities. Mishap investigation personnel shall not provide witness statements to any other activity except as authorized in this chapter. They shall advise individuals providing information in connection with a mishap investigation of the purpose and use of such information and provide the Safety Investigation Report Advice to Witness statement in appendix 14-A. Shore activities shall protect witness identities to the maximum

extent permissible under exemption (b)(6) of the Freedom of Information Act (FOIA).

d. Photographs. Photographs of human injuries or remains may be exempt from disclosure under exemption b(6) of the FOIA.

e. Investigations. Mishap investigators shall thoroughly understand the distinction between safety mishap investigations and other investigations. Only in cases of a joint DoD investigation (for example, a U.S. Army and U.S. Navy mishap), that COMNAVSAFECEN or higher authority authorizes, shall any exchange of information and opinion outside Navy mishap investigation personnel occur. In such cases, cooperation between investigators may include division of labor, joint review of evidence, exchange of witness statements, and joint deliberations. In all cases, safety mishap investigations shall be independent and separate from all other investigations.

f. Investigators. Commanding officers shall not assign mishap investigation personnel to any other investigation of the same mishap such as a JAG Manual investigation, an Officer Evaluation Board (USN) or a Field Performance Board (USMC). Members of any Mishap Investigation Board shall not, nor may they be requested to, divulge their own opinion or any information which they arrived at, or to which they became privy, in their capacity as a member of a Mishap Investigation Board.

g. Independence of Mishap Investigation Reports. Do not append mishap investigation reports or extracts to, or include in, JAG Manual Investigation Reports or any other type of investigations. Likewise, to prevent any inference of association with disciplinary action, do not append reports of JAG Manual Investigation Reports or any other type of investigation report to any mishap investigation report.

h. Administrative Safeguards.

(1) Mishap investigators shall handle mishap investigation reports as General Use Safety Investigation Reports and shall include the following narrative at the beginning of the report:

"NARR/FOR OFFICIAL USE ONLY. THIS IS A GENERAL USE SAFETY INVESTIGATION REPORT TO BE USED FOR SAFETY PURPOSES AS DEFINED IN OPNAVINST 5100.23E."

(2) Mishap investigators and endorsers shall not send SIRs and SIR endorsements to non-naval activities. Only the CNO, Commandant of the Marine Corps (CMC), or COMNAVSAFECEN shall send SIRs or endorsements to non-naval activities.

(3) Endorsers of an SIR can forward the SIR to commands outside the original recipients only if it requires further endorsement or corrective action.

(4) Special Handling. The term "special handling" means that the Navy restricts circulation of SIRs and SIR endorsements to limit their use to the furtherance of safety. Recipients shall apply common sense to determine exactly what handling actions are appropriate. Uncontrolled distribution of SIRs (such as placement in reading racks, message boards or on bulletin boards) is inappropriate. Routing SIRs in file folders, which ensures only those who need to know their content for safety purposes, would be appropriate. Closely control addresses on Collective Address Designator (CAD) and Address Indicating Groups (AIG) messages. Include only commands or agencies routinely involved in the endorsing chain for mishaps.

(5) For Official Use Only. The Navy designates all reports required by this chapter For Official Use Only (FOUO). Refer to Department of Defense Freedom of Information Act (FOIA) Program of Sep 98 (DoD 5400.7-R) for instructions on handling material designated FOUO.

i. Dissemination of Essential Safety Information. When appropriate, COMNAVSAFECEN will share safety information gleaned from SIRs received under this chapter. COMNAVSAFECEN will extract essential safety information from the SIR and disseminate only that information to a particular media (e.g., lessons learned, Ashore article, safety advisory message, newsletter, correspondence concerning recommended corrective action, etc.). Expunge ("scrub" or "sanitize") from the SIRs all identifying data which could reveal the identify of any person, organization or event, then show the essential safety information which remains. When appropriate, COMNAVSAFECEN will readdress the SIR. The distribution of lessons learned depends on the subject. Activities may use general information to disseminate lessons learned.

j. Release of Information. Release of mishap information from SIRs shall be per this section unless otherwise authorized by CNO. Only COMNAVSAFECEN can release copies of SIRs submitted per this chapter. A violation of these provisions by military personnel is punishable under the Uniform Code of Military Justice (UCMJ) and forms the basis for disciplinary action against civilian employees.

(1) Release Based on the Freedom of Information Act (FOIA). Forward requests for information that either expresses or implies that they are based on the FOIA to COMNAVSAFECEN, Attention: Code 03.

(2) Release by an Individual Having Knowledge of SIRs. It is forbidden for anyone with knowledge of the contents of an SIR to release that information, except as this chapter permits. If an individual having knowledge of SIR contents receives a request for information, he/she shall forward the request to his/her commanding officer, who shall refer the requester to COMNAVSAFECEN, Attention: Code 03.

(3) Release to U.S. Navy, U.S. Marine Corps and other Department of the Navy (DON) Activities. Commands shall forward requests for SIR information from Navy, Marine Corps, and other DON activities to COMNAVSAFECEN, Attention: Code 03.

(4) Release to Other U.S. Military Services. The Navy limits the exchange of safety program information between U.S. military services to their respective safety centers.

(5) Release to the News Media. DON Public Affairs Regulations (SECNAVINST 5720.44A) contain information on releasing mishap information to the media. The Navy shall, however, preserve the information in SIRs when dealing with the press, which is not releasable to the media.

(6) Release to Congress. Forward requests for information from Congress, Congressional committees or subcommittees, or staff members to CNO, CMC, or Commander, Military Sealift Command (COMSC), as appropriate.

(7) Release to Relatives of Persons Involved in Shore Mishaps. In discussing a mishap with relatives of people involved in the mishap, personnel shall make no inference to causal factors. Commands shall not show, discuss with or give copies of an SIR to the next of kin or

their agents or representatives without a proper FOIA request per paragraph 1406j(1).

(8) Subpoenas for Information. Commands shall refer any subpoenas for mishap information to the Office of the Judge Advocate General (Code 34), 200 Stovall Street, Alexandria, VA 22332-2400 with copy to COMNAVSAFECEN, Attn: Code 03.

(9) Release to Technical Representatives, Defense Contract Administration Services (DCAS) Representatives and Contractors. Commands shall forward requests for mishap information from technical representatives, manufacturers, DCAS representatives, and contractors or their agents to COMNAVSAFECEN via the appropriate headquarters command. The endorsement of the headquarters command shall certify whether the requester requires the requested information for safety purposes with respect to product design or improvement. Any response shall include a warning to ensure the recipient uses the information for safety purposes only. The recipient shall not disclose the information to any other individual or entity.

(10) Release to Other Foreign Nations. Commands shall forward requests for mishap information from foreign governments to COMNAVSAFECEN, Attention: Code 03.

(11) Release of Privacy Information. Handle the names of individuals not involved in the mishap and the Social Security Numbers of all individuals in the report as directed by the applicable sections of Secretary of the Navy's (SECNAV) Privacy Act Instruction (SECNAVINST 5211.5D). To protect the privacy rights of surviving family members, do not release photographs of human remains or the autopsy report.

(12) Unspecified Cases. Commands shall forward requests other than above to COMNAVSAFECEN, Attention: Code 03.

1407. Safety Report Review

a. COMNAVSAFECEN shall provide a repository for shore safety investigation reports. COMNAVSAFECEN shall review each mishap report to:

(1) Ensure adequacy of information for providing a reasonable representation of the mishap.

(2) Ensure personnel identify the causes of the mishap.

(3) Ensure that any local corrective action taken is appropriate.

(4) Consider the applicability of the included hazards to other commands for possible dissemination.

(5) Select those mishaps that are candidates for management review due to the severity of the mishap.

b. Management Review. COMNAVSAFECEN shall require the review of SIRs by appropriate levels of management where the severity or significance of the mishap warrants. Activities shall provide available information concerning the mishap and associated information from all sources to the appropriate manager for consideration and recommendation. The activity will provide recommended actions when appropriate.

c. Corrective Action Management. COMNAVSAFECEN will maintain current status information on significant recommendations for corrective action in safety and mishap prevention matters and initiate recommendations for corrective actions to competent authority.

1408. Mishap Reporting Procedures

a. General. As paragraph 1401a discusses, commands investigate mishaps to identify causes and preventive actions. The goal of mishap investigations is to determine how and why the event occurred to prevent future occurrence of similar events. In many cases, mishap investigations do not teach us anything new; they simply reinforce lessons learned many times before. The summary mishap reporting requirements of paragraph 1409 will capture data related to these mishaps so there is no need for individual mishap reporting. However, other cases do require individual mishap reports given the loss (or the potential for loss). Specifically, any case involving the following will require submission of a shore safety investigation report:

(1) Fatality

(2) Permanent Total Disability

(3) Hospitalization. Any occupational (on-duty) or operational mishap which results in the inpatient hospitalization of three or more personnel

(4) Weight Handling Equipment (WHE) Accident. Weight handling equipment (WHE) includes cranes and crane rigging gear. A WHE accident occurs when any one or more of the six elements (the crane; the operator; the riggers and crane walker; the rigging gear between the hook and the load; the load; and the crane's supporting structure) in the crane operating envelope fails to perform correctly during crane operation, including operation during maintenance or testing resulting in personnel injury or death, material or equipment damage, dropped load, derailment, two blocking, overload; or collision, including unplanned contact between the load, crane and/or other objects. A component failure is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components. The activity shall report WHE accidents to the Navy Crane Center per reference 14-6. The Navy Crane Center will provide a quarterly summary of WHE mishaps to COMNAVSAFECEN. WHE accidents need not be directly reported to COMNAVSAFECEN unless they involve a fatality, permanent total disability, hospitalization or other cases described in paragraph 1408.

(5) Confined Space Mishap. Any mishap occurring in any confined space per chapter 27 of this manual or NAVSEA S6470-AA-SAF-010, Gas Free Engineering Program, where personnel fail to follow confined space program elements. This includes any fatality, injury or material (property) damage that results from a fire in a confined space.

(6) Laser Exposure Incident. Any incident meeting the definition in appendix 22-A of this instruction

(7) RF Exposure Incident. Any incident meeting the explanation in appendix 22-C of this instruction

(8) Lockout/Tagout Mishaps. Any mishap involving the repair or maintenance of equipment or energy distribution systems attributed to a failure to use or follow lockout/tagout procedures as chapter 24 of this instruction requires

(9) Near Misses. Any near miss involving an industrial work process where activities avoid a fatality or catastrophic loss merely by chance; i.e., if someone says, "Boy, we're lucky we didn't kill somebody." Activities should report other "near miss" incidents by informal correspondence or by SAFETYGRAM (OPNAV 5102/4) shown in appendix 14-B. They may use either of these methods to describe any situation

having mishap potential or as a vehicle to make recommendations to improve safety or occupational health. To provide anonymity, personnel may submit SAFETY-GRAMs directly to COMNAVSAFECEN without normal chain of command routing. COMNAVSAFECEN requires the name of the activity, but not the name of the person originating the correspondence.

(10) Contractor Mishaps. The activity to which the injured is assigned shall report when contractor operations cause a mishap that results in death, injury or occupational illness to military or on-duty DOD civilian personnel. Activities need not record or report mishaps involving contractor personnel caused solely by contractor operations under this instruction**.** Report accidents involving WHE (including cranes and crane rigging gear) to the Navy Crane Center per section 1 of reference 14-6. Contractor mishaps may be reportable under the requirements of Reference 14-7. Report, per this chapter, any mishap caused by contractor operations that result in reportable Navy material (property) damage. The Navy shore activity having custody of the property shall file the report.

(11) Special Situations. Report, per this chapter, any Navy operational mishap causing permanent total disability, permanent partial disability or death to any person not otherwise defined, on or off a Navy installation or aboard Navy service craft or small boats.

(12) Material (Property) Damage. Activities shall investigate and report any material (property) damage, including release of materials which are damaging to the environment, occurring ashore involving a repair, replacement, or cleanup cost of $200,000 or more as a result of a mishap per this chapter. Malfunction or failure of component parts that are normally subject to wear and tear and have a fixed useful life less than the complete system or unit of equipment are not reportable. However, if the malfunction or failure of a component results in damage of $200,000 or more to another component or the entire system, then the subsequent damage is reportable. Cost of repair or replacement includes cost of labor. Examples of reportable mishaps are those involving the improper operation or maintenance of equipment, improper materials handling, equipment casualties from electrical faults and hazardous material spills. Damage to Navy service craft or small boats assigned to a shore activity is also reportable. When a mishap involves both injury or death and material (property) damage, activities shall submit one consolidated report per appendix 14-C (SIR).

NOTE:

For military personnel, activities shall report the above categories for on-duty mishaps only. For civilian personnel, the above categories are for occupationally related mishaps.

b. Investigation of Class A and Certain Class B Mishaps. If any Class A mishap or mishap involving the inpatient hospitalization of three or more people occurs, the cognizant headquarters command shall initiate an investigation consistent with this chapter, and shall initiate the investigation within 48 hours of notification of the mishap. The activity where the mishap occurred (or activity employing the Navy personnel involved if off station) shall report this type of mishap by telephone within 8 hours to COMNAVSAFECEN and the cognizant headquarters command**.** COMNAVSAFECEN shall make notification to SECNAV and CNO. To comply with OSHA notification requirements, the activity shall also notify the local OSHA office within 8 hours of the mishap when civilian personnel are involved. The requirement for this special investigation does not apply to mis-

haps exclusively involving contractor personnel. The headquarters command may terminate any headquarters command investigation if the fatality is determined a natural cause, foul play, homicide or suicide. For on-duty military physical readiness test/physical test (PRT/PT) fatalities, headquarters command need not perform an investigation. The activity to which a person is assigned shall conduct the investigation and complete required reports. For explosives, diving, motor vehicle, and off-duty mishaps, COMNAVSAFECEN shall determine the need for this type of investigation and the team composition on a case-by-case basis (refer to reference 14-2 or 14-3). The following additional requirements apply:

(1) The cognizant headquarters command shall establish an investigative board to examine the cause(s) of the mishap and recommend corrective action. It shall assign a board leader from its headquarters or any command or activity other than the activity at which the mishap occurred. The board leader shall be a senior line officer (O-5 and above) or OSH professional. An OSH professional shall be a board member. If a mishap occurs on a Navy vessel, a person with ship expertise shall be a team member. The remaining team composition should include appropriate technical experts. Technical specialists, including contractors providing assistance to mishap investigations, are not members of the team. The team shall not give them access to the team's deliberations and conclusions or mishap information not related to their area of expertise. The cognizant headquarters command is responsible for determining the need for and coordinating the assignment of a medical representative to the team. COMNAVSAFECEN will provide a representative to every headquarters safety investigative board. Activities shall ensure that all OSH members of the team have formal training in mishap investigation and reporting procedures per paragraph 1405. The cognizant headquarters command shall arrange funding of the investigation.

(2) The mishap investigation board shall complete an SIR using the format of appendix 14-C. The team leader shall draft, release, and mail the SIR, attaching all supporting documentation, to COMNAVSAFECEN (Code 49) via the activity, its chain of command and any other activity addressed in the findings or recommendations. If a mishap involves an activity the findings or recommendations do not address, then team leaders shall include the activity and its chain of command as “Copy To” addressees of the report. If the mishap occurred on board a ship, board leaders shall include the ship as an endorser. The mishap investigation board leader shall forward the original SIR to the first endorser within 45 days of the board convening, and mail an advance copy of the SIR to COMNAVSAFECEN (Code 49) and CNO (N45), when mailing the original to the first endorser. If the 45-day period cannot be met, the board leader shall request an extension from COMNAVSAFECEN in writing.

(3) The chain of command shall endorse the SIR within 30 days of receipt. If the 30 days cannot be met, the endorsing activity must request an extension from COMNAVSAFECEN, Code 49. Endorsements shall be by letter and shall state whether the endorser agrees or disagrees with each conclusion and recommendation and the rationale for disagreement. Endorsers shall forward a copy of their endorsement to COMNAVSAFECEN (Code 49) and CNO (N45). Disagreement is not a reason for delay. COMNAV-SAFECEN will review the remarks of each endorser and request additional information when necessary.

(4) The activity shall maintain custody of all relevant board members' personal

notes, original copies of all statements, photographs, negatives, and tape recordings (whether the SIR refers to them or not). The activity shall also maintain custody of physical evidence for 5 years, when practical. Endorsers and other authorized recipients shall retain a copy of the SIR and its endorsements for 2 years from the date of the mishap, at which time activities shall destroy them. COMNAVSAFECEN, as the custodian of mishap information and releasing authority, shall retain custody of the SIRs and their endorsements for 5 years at which time they may destroy them. Endorsers can review the factual evidence by requesting it from the custodian if needed to prepare their endorsement. Upon completion of the endorsement, endorsers shall return factual evidence to the custodian.

(5) COMNAVSAFECEN shall track SIR recommendations for compliance and provide status reports to CNO (N45) and the cognizant headquarters command.

(6) Except to the extent necessary to protect employees and public, the commander, commanding officer or officer in charge of the activity or location where the mishap occurred shall ensure that employees do not disturb or remove evidence from the mishap scene. Do not release the scene until authorized by the Headquarters' Mishap Investigation Board leader who will coordinate with other investigating bodies (e.g., OSHA, JAG).

(7) Headquarters' Mishap Investigation Boards shall compile a 72-hour pre-mishap profile of any dead or injured person who had influence on the occurrence or outcome of any fatal mishap. The profile shall include:

(a) Travel completed in the 72 hours immediately preceding the mishap

(b) Type of work performed and work schedule (hours) for the 72 hours immediately preceding the mishap

(c) Periods of rest and sleep for the 72 hours immediately preceding the mishap

(d) Medications prescribed

(e) Alcohol and other drugs (prescription, nonprescription, and illegal) taken during the 72 hours immediately preceding the mishap

(f) General physical condition, including illnesses

(g) Individual's mental, emotional, and physical state, including perceived stress and behavior changes, (based on comments or observations that the supervisor, next-of-kin, co-workers, and/or friends wish to make related to the individual's condition or pre-mishap activities)

(h) Other comments the supervisor, next-of-kin, co-workers, and/or friends wish to make related to the individual's condition or pre-mishap activities

(i) Other factors prior to the mishap that could have affected the mishap occurrence or its outcome

(j) Non-judicial punishment (NJP)/Uniform Code of Military Justice (UCMJ) record (military only) or any other behavior infractions for the past 3 years.

(8) For cases involving fatalities, the Headquarters Safety Investigation Board shall obtain a copy of the autopsy report if an autopsy was conducted. Since rules may vary locally, the board should contact the Decedent Affairs Division of the closest Naval Medical Treatment Facility for

assistance in obtaining the autopsy report from the local authority having jurisdiction.

c. Other DoD Component Personnel Assigned to the Navy. To avoid duplicate reporting of other DoD component personnel assigned to the Navy, the Navy organization of assignment shall report occupational injuries and illnesses rather than the parent DoD component command.

d. Navy Personnel Assigned to Other DOD Components. To avoid duplicate reporting of Navy military personnel regularly assigned to another DoD component, the organization of assignment shall report occupational injuries and illnesses rather than the parent Navy command.

e. Exceptions

(1) Material (Property) Damage. Activities need not report injuries/deaths nor damage as a result of vandalism, riots, civil disorders, or felonious acts, such as arson, sabotage or terrorist acts per this chapter.

(2) Acts of God. Activities need not report injuries/death nor material (property) damage as a result of acts of God under this chapter unless the activity did not adequately prepare for extreme weather conditions.

(3) Hostile Action. Activities shall report damage, injuries or death as a direct result of hostile enemy action per NWP-1-03-1 and reference 14-7.

(4) Nuclear Weapons. Activities shall report mishaps or incidents per reference 14-7 and JCS Publication 1-03.7 (NOTAL).

(5) Naval Nuclear Propulsion Plants. Activities shall report associated mishaps per OPNAVINST 3040.5B (NOTAL), reference 14-7, and NAVSEA Manuals 389-0152 (NOTAL) and 389-0153 (NOTAL). (Mishaps associated with the secondary side of the propulsion plant or non-nuclear components are reportable under this instruction or reference 14-3 as appropriate).

(6) Other Exceptions. The following occurrences are not reportable under this chapter but are reportable as appropriate in the case of military personnel under MILPERSMAN 4210100 and in the case of on-duty civilian deaths under CMMI 790 (NOTAL):

(a) Adverse medical reactions resulting directly from the use of medications

(b) Injuries personnel sustain prior to employment or preexisting disorders unless current employment specifically aggravates them

(c) Poisoning caused by specific organisms or toxins and confirmed by competent medical authority as Class 1 infectious or parasitic diseases (contact the local preventive medicine office for determination)

(d) Hospitalization for observation or administrative reasons not related to the immediate injury

(e) Attempted or consummated suicide or intentionally self-inflicted injuries

(f) Injuries or death caused by attempted or consummated homicide or other criminal act

(g) Injuries that result from:

1. Preexisting musculoskeletal disorders

2. Minimum stress and strain (simple, natural non-violent body positions or actions as in dressing, sleeping, coughing or sneezing). They are injuries unrelated to mishap-producing agents or environments normally separate from active participation in daily work or recreation.

(h) Death from natural causes that competent medical authority deems unrelated to the work environment

(i) Injuries or fatalities to persons in the act of escaping from or eluding military or civilian custody or arrest.

f. Reporting Procedures

(1) Responsibility. The Commanding Officer or Officer in Charge of shore activities, service craft and small boats shall require the investigation and reporting of all operational reportable injuries, fatalities, occupational illnesses or material (property) damage occurring within the command or involving personnel attached to the command. When a person is injured or killed at a location remote from his or her activity, the naval activity nearest the scene will notify the parent command. If a fatality occurs, the cognizant headquarters command of the activity where the person is employed shall initiate the investigation. For injuries, the two commands shall determine which one conducts the investigation. The final responsibility for submitting the report rests with the parent activity. Whichever command investigates the mishap, activities shall report it per this chapter.

(2) Submission of Reports

(a) General. Activities shall mark reports as unclassified and FOR OFFICIAL USE ONLY, unless the report includes classified information. See SECNAVINST 5720.42E for the proper marking of FOR OFFICIAL USE ONLY documents. Activities shall include classified information only when essential to the determination of causal factors, or otherwise necessary to understand the circumstances of the mishap.

(b) Safety Investigation Reports (SIR)

1. Board leaders shall use the SIR report format of Appendix 14-C to report investigations required by paragraphs 1408a and 1408b. Since the same format is used for reporting personnel injury and material (property) damage, it may be necessary to omit some sections depending on the type of report activities submit. Activities shall mail SIRs for other than headquarters investigations to COMNAVSAFECEN, Code 41, within 30 calendar days of the mishap. If the mishap occurred on board a ship, the reporting activity shall forward a copy of the SIR to the ship. If the Commanding Officer of the ship finds errors in the report or wishes to comment on the report, he/she may send a message or letter to COMNAVSAFECEN, Code 41, with an information copy to the command submitting the report.

2. Reporting activities shall include their chain of command as information addressees on any Class B mishap report for which a headquarters command investigation is not conducted. Information addressees shall ensure that they use the information in the reports for mishap prevention efforts per Section 1402. Activities will handle requests for release of mishap information per 1406.

(3) Priority Reports

(a) Reporting activities shall make a priority report via telephone within 8 hours to COMNAVSAFECEN and the cognizant headquarters command when any of the following occurs:

1. Any Class A mishap, or any occupational or Navy operational mishap which is fatal to one or more Navy personnel up to 6 months after the date of occurrence

2. Any occupational or Navy operational mishap involving Navy or non-Navy personnel which results in the inpatient hospitalization of three or more personnel.

(b) As a minimum, reporting activities shall furnish the date and time of mishap; name and social security number of injured personnel; location of mishap; description of evolution or operation; extent of damage or injury; and description of the mishap. COMNAVSAFECEN telephone numbers are: Defense Switched Network (DSN) 564-3520 or Commercial (757) 444-3520.

(c) Due to the length of time it may take to complete the SIR, activities shall complete a priority message and forward it to CNO (N45), COMNAV-SAFECEN (Code 49) and the chain of command within 48 hours of the mishap. The priority message shall confirm information in the initial telephone notification and provide as much additional information as possible. Completion of the telephone notification does not relieve the activity of this responsibility. Activities shall use the format of Appendix 14-D for submission of the priority message.

(4) Additional Information. If additional information on a mishap that requires an SIR becomes available, or information originally submitted changes, activities shall submit a follow-up report referencing the local time and date of mishap and name of injured person stated on the original report. Activities should state only those items they add or change, mark the report "Modified" and forward it to COMNAVSAFECEN, Code 50. If necessary, COMNAVSAFECEN may also request additional information.

1409. Recording of Occupational Injuries and Illnesses of Navy Personnel

a. Recording Procedures (Civilian). All Navy commands, offices, and activities employing civilian personnel (Navy Federal civilians, Navy non-appropriated fund (NAF) civilians, and Navy foreign national civilians) and having a unit identification code (UIC) per NAVCOMPT Manual Volume 2, Chapter 5 (NAVSO-P-1000-25) shall:

(1) Maintain a log of occupational injuries and illnesses. COMNAVSAFECEN will provide a computerized database and spreadsheet that may be used to maintain the log. Regardless of the method used to maintain the log, activities shall record the following data elements for every on-duty occupational injury and illness meeting the definitions in this chapter and involving Navy Federal civilian personnel, Navy NAF civilian personnel, and Navy foreign national civilian personnel. The log shall contain:

(a) Civilian/Military Indicator

(b) Event Reference Number

(c) Case or File Number

(d) Unit identification Code (UIC)

(e) Activity name

(f) Major Command Code

(g) Last Name, First Name and Middle Initial

(h) Department

(i) Sex

(j) Age

(k) Job Title

(l) Rank/Rate/Grade

(m) Date of Mishap

(n) Time of Mishap

(o) General Location of Mishap

(p) Lost Workday Count

(q) Injury Type

(r) OSHA Code

(s) Body Part

(t) Mishap Type

(u) Object Involved (Injury Source)

(v) Process Control Number (Job/Activity at Time of Mishap)

(w) Chemical Involved

(x) Chemical Comments

(y) Formal Training Involved? If so, list CIN.

(z) Case Type (Fatality, Lost Time, No Lost Time, First Aid)

(aa) Mishap Class

(bb) Date of Death

(cc) Short Narrative

(dd) Start Date

(ee) Sent Date.

NOTE:

The computerized spreadsheet provided by COMNAVSAFECEN will provide codes for use with items f, k, l, o, q, r, s, t, u, v, z and aa.

Within 6 working days after receiving information or upon receipt of the appropriate Office of Workers' Compensation Programs (OWCP) compensation form on a recordable occupational injury or illness, activities shall enter appropriate information concerning such injury or illness on the log. Activities shall also record any mishap reported for Navy civilian employees who are covered by the Longshoreman and Harbor Workers' Compensation Act on the log. Activities shall record compensation claims resulting in permanent transfer or termination of employment as lost time cases and log and treat compensation claims they controvert or otherwise challenge as work-related until adjudication of the claim. Controversion adjudication resulting in upholding the Navy position may be lined out on the log, but not if the adjudication does not affirm the controversion.

NOTE:

Activities shall only record personnel who are on their employment rolls for the fiscal year of the log on that year's log. If the mishap occurred in the previous fiscal year, activities shall make an entry on that fiscal year's log.

Activities shall not log incidents that result in no medical treatment unless they receive an OWCP or equivalent form. When they receive a report form for such a case as well as a case in which an employee submits a notice of injury or illness solely to

document an incident or exposure and, which are retained at the activity, they will log it as a "no lost time" case.

(2) In addition to the log of occupational injuries and illnesses, each activity shall maintain a supplementary record for each occupational injury, illness or fatality they enter on the log. They shall complete the record within 6 working days after the receipt of information that an occupational injury or illness has occurred. Activities may use the applicable compensation form as the supplementary record. In those cases where Federal Employee's Compensation Act (FECA) or Longshoreman and Harbor Workers' Compensation Act does not cover the injured employee, the activity's local mishap report will suffice as the supplementary record. Activities can use Appendix 14-E, Department of the Navy Report of Traumatic Injury, as their activity's local mishap report. It provides the information activities need to maintain the log of occupational injuries and illnesses paragraph 1409a(1) discusses. If an occupational injury or illness meets the individual mishap reporting requirements of this chapter, activities shall include a copy of the mishap report submitted to COMNAVSAFECEN as part of the supplementary record. Activities shall retain logs and supplementary records for 5 years following the end of the fiscal year to which they relate.

NOTE:

Activity OSH managers shall coordinate with the Human Resources Office (HRO), or equivalent for Non-Appropriated Funds (NAF) and Navy foreign national civilians, to ensure they receive a copy of applicable compensation forms (OWCP, Longshoreman and Harbor Workers' Compensation Act, etc.) filed with the HRO or equivalent office. Where activities use compensation forms as supplementary records, they shall maintain copies in the OSH office.

(3) Activities with Navy civilian personnel shall complete and post a copy of Appendix 14-F, "Annual Report of Navy Civilian Occupational Injuries and Illnesses," within 45 calendar days following the close of the fiscal year. The report is a summary of the information recorded on the Log of Navy Injuries and Occupational Illnesses for the fiscal year. The report shall always indicate population and total hours worked (exposure data) even though assigned personnel may have experienced no occupational injury or illness during the reporting period. Post the report in conspicuous places throughout the command no later than 45 days after the close of the fiscal year. It shall remain there for at least 30 days. **Do not** submit this report to COMNAVSAFECEN.

NOTE:

When completing the annual report for a Unit Identification Code (UIC), activities shall combine Navy civilian personnel (appropriated fund, NAF, and foreign nationals) in the one report for the UIC. **Do not** prepare separate reports for different categories of Navy civilian personnel.

b. Recording Procedures (Military). Navy shore activities with military personnel attached shall maintain a log per paragraph 1409a(1) for on-duty military personnel mishaps.

c. Each activity with a UIC shall submit a copy of its respective civilian and military Logs of Occupational Injury and Illness to COMNAVSAFECEN (Code 41) semi-annually. Activities shall submit the logs for the first 6 months of the current fiscal year by 15 April. Submit the log for the entire fiscal year by 15 October. The second submission covers the entire fiscal year to allow submission of the most current data available for the year. Activities can submit forms electronically to COMNAVSAFECEN as an e-mail attachment sent to shore@safecen.navy.mil or via disk. Hard copies are acceptable for activities that do not have electronic capability. The mailing address is: Commander, Naval Safety Center, ATTN: Code 41, 375 A Street, Norfolk, VA 23511-4399. COMNAVSAFECEN does not require negative reports.

1410. Injury/Illness Treatment (Civilian Employees Only)

a. Reporting Procedures. Employees shall report immediately to their supervisor any occupational injury or illness. The supervisor shall furnish OPNAV 5100/9, Dispensary Permit (Appendix 14-G) or equivalent to civilian employees who need treatment. 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. Activities shall record any injury or occupational illness at work at the dispensary or medical department of the activity.

NOTE:

The Navy uses the terms "dispensary" and "medical treatment facility" generically to denote the site and provider of medical treatment at Navy activities. Individual activities may use different terms.

b. Injury Report Control. The OSH office may use appendix 14-G 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 OSH office may use other tracking systems if they allow activity OSH offices to track MTF visits. Regardless of the tracking system used, all injured civilian personnel shall first report to the MTF per paragraph 1410c(6).

c. Preparation Procedure. Personnel shall observe the following instructions regarding the preparation and disposition of Dispensary Permits, appendix 14-G:

(1) The supervisor shall complete the upper half of the Dispensary Permit 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. If this block is checked, give further details under "Reason for Referral-Other".

(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) All personnel, except where necessary to avoid delay in treatment to the detriment of an employee, shall first report to the MTF for administrative purposes. The employee may then choose treatment at the MTF, a private hospital or by a private physician. Those Navy civilians cov-

ered by Federal Employees' Compensation Act (FECA) who elect treatment by a qualified local physician or hospital shall meet this administrative requirement.

1411. 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 activity head or his or her designee with the OSH manager shall decide which mishaps to review. At a minimum, activities shall review any mishap that requires submission of an SIR per paragraph 1408. 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 NAVOSH standards and procedures, identify the underlying cause(s) of the mishap and take corrective action to prevent recurrence.

1412. Shore Major Mishap Review Board

The purpose of a Shore Major Mishap Review Board 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 (N454) shall chair this board which shall include representatives of COMNAVSAFECEN (Code 40), NAVENVIRHLTHCEN (Code 00 and 05), headquarters commands experiencing mishaps under review and others the chair selects.

1413. Mishap Analyses

Activities shall conduct detailed analyses of their mishap experiences and develop annual fiscal year (FY) mishap reduction goals. They shall include these goals in command goals and specific strategies, measurement standards and develop actions for goal attainment. (See chapter 5, paragraph 0505 for further guidance.)

1414. Records Disposition

a. The records and reports this chapter requires will be retained for 5 years following the end of the fiscal year to which they relate.

b. Activities shall destroy general correspondence and records they accumulate in connection with the routine administration and operation of mishap investigation and reporting after 2 years.

c. Records shall not be destroyed if they address corrective actions that are not yet complete.

Chapter 14

References

14-1. DOD Instruction 6055.7 of 10 Apr 89, Mishap Investigation, Reporting and Recordkeeping, latest edition (NOTAL)

14-2. OPNAVINST 5102.1C of 3 Mar 89, Mishap Investigation and Reporting

14-3. OPNAVINST 5100.19C of 14 Jan 94, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

14-4. OPNAVINST 3750.6Q of 28 Aug 89, Naval Aviation Safety Program (NOTAL)

14-5. OPNAVINST 3120.32C of 11 Apr 94, Standard Organization and Regulations of the U.S. Navy (NOTAL)

14-6. NAVFAC P-307 Management of Weight Handling Equipment, latest edition

14-7 OPNAVINST 3100.6G of 1 Jun 95, Special Incident Reporting (OPREP 3, Navy Blue and Unit SITREP) Procedures (NOTAL)s

Appendix 14-A

SAFETY INVESTIGATION REPORT (SIR) ENCLOSURE

ADVICE TO WITNESS

(PROMISE OF CONFIDENTIALITY) **OPNAV 5102-11**

THIS IS PART OF A LIMITED USE NAVY SHORE MISHAP INVESTIGATION REPORT
LIMITED DISTRIBUTION AND SPECIAL HANDLING REQUIRED BY OPNAVINST 5100.23E
THIS STATEMENT IS PRIVILEGED AND IS EXEMPT FROM DISCLOSURE

PLEASE READ THIS STATEMENT CAREFULLY
CERTIFY THAT YOU UNDERSTAND IT BY YOUR SIGNATURE AT THE BOTTOM

I understand that:

a. I have been requested to voluntarily provide information to a SIR Board conducting an investigation of a defined Navy shore mishap.

b. I AM NOT being requested to provide statement under oath or affirmation.

c. Disclosure of personal information by me is voluntary, and that failure to provide such information will have no direct effect on me.

d. The purpose of the information provided by me is to determine the cause of a mishap and/or the damage and/or injury occurring in connection with that mishap.

e. All information provided by me to the Mishap Board will be used ONLY for safety purposes.

f. The information provided by me shall NOT be used:

(1) In any determination affecting my interests.
(2) As evidence to obtain evidence in determining misconduct or line of duty status of killed or injured personnel.
(3) As evidence to determine my responsibility or that of other personnel from the standpoint of discipline.
(4) As evidence to assert affirmative claims on behalf of the government.
(5) As evidence to determine the liability of the government for property damage caused by the mishap.
(6) As evidence before administrative bodies, such as Officer/Enlisted Separation Boards, Judge Advocate General Manual investigations/inquiries, Naval Aviator/Naval Flight Officer Evaluation Boards (FNAEB) or Marine Corps Field Flight Performance Boards (FFPB).
(7) In any other punitive or administrative action taken by the Department of the Navy.
(8) In any other investigation or report of the mishap about which I have been asked to provide information.

g My signature acknowledges that I do not need a full Promise of Confidentiality as a condition on my willingness to provide testimony to the Board and I understand that statements given without a Promise of Confidentiality may be released. (**If the witness has any reservations about their statement being released to anyone outside the board itself, entitled persons in the safety endorsement process, or the public under FOIA, a Promise of Confidentiality should be offered to ensure forthright, candid testimony).**

1. STATEMENT (Continue on reverse and/or attach separate sheet(s) as necessary)

2. PRINTED NAME (First, Middle, Last)	3. SIGNATURE

4. DATE	5. RANK/RATE	6. SERVICE	7. TELEPHONE NUMBER

8. ADDRESS WHERE YOU MAY BE LOCATED

OPNAV 5102/11 (2-98)

Appendix 14-A (Con't)
SAFETY INVESTIGATION REPORT (SIR) ENCLOSURE
ADVICE TO WITNESS

THIS IS PART OF A NAVY SHORE MISHAP INVESTIGATION REPORT
LIMITED DISTRIBUTION AND SPECIAL HANDLING REQUIRED BY OPNAVINST 5100.23E
THIS STATEMENT IS NOT PRIVILEGED AND MAY BE DISCLOSED

PLEASE READ THIS STATEMENT CAREFULLY
CERTIFY THAT YOU UNDERSTAND IT BY YOUR SIGNATURE AT THE BOTTOM

I understand that:

a. I have been requested to voluntarily provide information to a SIR Board conducting an investigation of a defined Navy shore mishap.

b. I AM NOT being requested to provide statement under oath or affirmation.

c. Disclosure of personal information by me is voluntary, and that failure to provide such information will have no direct effect on me.

d. The purpose of the information provided by me is to determine the cause of a mishap and/or the damage and/or injury occurring in connection with that mishap.

e. All information provided by me to the Mishap Board will be used ONLY for safety purposes. It is further understood, however, that the information provided by me or contained in this report may be released in response to a Freedom of Information Act (FOIA) or Department of Labor/OSHA request.

f. Although releasable, the information provided by me shall NOT be used by the Government:
(1) In any determination affecting my interests.
(2) As evidence to obtain evidence in determining misconduct or line of duty status of killed or injured personnel.
(3) As evidence to determine my responsibility or that of other personnel from the standpoint of discipline.
(4) As evidence to assert affirmative claims on behalf of the government.
(5) As evidence to determine the liability of the government for property damage caused by the mishap.
(6) As evidence before administrative bodies, such as Officer/Enlisted Separation Boards, Judge Advocate General Manual investigations/inquiries, Naval Aviator/Naval Flight Officer Evaluation Boards (FNAEB) or Marine Corps Field Flight Performance Boards (FFPB).
(7) In any other punitive or administrative action taken by the Department of the Navy.
(8) In any other investigation or report of the mishap about which I have been asked to provide information.

1. STATEMENT (Continue on reverse and/or attach separate sheet(s) as necessary)

2. PRINTED NAME (First, Middle, Last)	3. SIGNATURE		
4. DATE	5. RANK/RATE	6. SERVICE	7. TELEPHONE NUMBER
8. ADDRESS WHERE YOU MAY BE LOCATED			

OPNAV 5102/10 (2-98)

Appendix 14-B

SAFETYGRAM

OPNAV 5100-29

(Mark X in appropriate box to indicate type of Command)

☐ Surface Ship ☐ Submarine ☐ Diving/Salvage ☐ Aviation ☐ Shore

Command, Ship or Ship Class

References: (Plan No/Tech Manual/etc.)

STATE: What, where, why; how it can be prevented or corrected.

SIGNATURE (NOT REQUIRED)

Instructions: (1) Send original to Commander NAVSAFECEN, and copies as appropriate. Retain file copy. (2) May use pencil longhand; attach additional sheets as necessary. (3) If classified information included, follow appropriate marking and mailing.

OPNAV 5102/4 (07/94) S/N 0107-LF-015-8400

DEPARTMENT OF THE NAVY
SAFETYGRAM

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

FIRST CLASS

COMMANDER NAVAL SAFETY CENTER
375 A STREET
NORFOLK, VA 23511-4399

Appendix 14-C
Format for Safety Investigation Report (SIR)

General. The format and content shown below are to be used for reporting personnel injuries, death, or material (property) damage mishaps required by paragraph 1408a and 1408b. WHEN REQUESTED DATA DOES NOT APPLY OR IS NOT RELEVANT TO THE ANALYSIS OF THE Mishap, INSERT THE WORDS "NOT APPLICABLE" OR "NA."

From: **Activity Name (reports submitted per 1408a)**
Board Leader (reports submitted per 1408b)

To: Commander, Naval Safety Center (Code 41)

USE VIA LINE FOR REPORTS SUBMITTED PER 1408b

Via: (1) Command Experiencing Mishap

(2) Operational Chain of Command

(3) Other Endorsers

SUBJ: SAFETY INVESTIGATION REPORT (SIR)

Ref: (a)

Encl: (1)

FOR OFFICIAL USE ONLY. THIS IS A GENERAL USE SHORE SAFETY INVESTIGATION REPORT (SIR) TO BE USED FOR SAFETY PURPOSES AS DEFINED IN OPNAVINST 5100.23E.

1. For headquarters investigations, state if Class A or B mishap; the name and UIC of the activity where mishap occurred; local date, time of mishap and result of mishap.

2. Mishap Investigator/Investigation Board: State name, job title, activity, and telephone number of each member, including the board Leader.

3. Sequence of Events (include chain of events leading up to, through, and subsequent to the mishap). State the location where the mishap occurred, the evolution at the time of the mishap and weather conditions if applicable.

4. Injury or Material (Property) Damage:

a. Injuries - for each person injured provide the following:

(1) Name:

(2) Age/Sex/SSN:

(3) UIC of Duty Station:

(4) Employment Status: (USN, USNR, NROTC, USMC, USAF, US Army, Navy Federal Civilian, Navy Non-Appropriated Fund Civilian, Navy Foreign National Civilian, Navy Federal Marine Civilian, Military Dependent, Non-DOD, Other (Specify))

(5) Civilian - Series, job title, and grade:

(6) Military - Rank and designator or rate and NEC:

(7) Duty status - (On or off duty)

(8) Did injury result from formal Navy training? If so, state Course Identification Number (CIN):

(9) Was the job/activity related to the person's rating or job position:

(10) State the specific job/activity the person was performing at the time of the mishap:

(11) Extent of injury or illness: fatality, permanent total disability, permanent partial disability, temporary disability, missing, or no disability likely:

(12) Medical diagnosis - state part of body and nature of the injury or illness:

(13) Estimation of lost time:

(a) Total of lost workdays away from job (actual number of lost workdays including workdays hospitalized):

(b) Total of days hospitalized (actual number of days hospitalized including weekends):

(14) 72 hour profile (complete only if mishap involves a fatality):

(a) Travel completed in the 72 hours immediately preceding the mishap.

(b) Type of work performed and work schedule (hours) for the 72 hours immediately preceding the mishap,

(c) Periods of rest and sleep for the 72 hours immediately preceding the mishap.

(d) Medications prescribed.

(e) Alcohol and other drugs (prescription, nonprescription, and illegal) taken during the 72 hours immediately preceding the mishap.

(f) General physical condition, including illnesses.

(g) Individual's mental, emotional, and physical state including perceived stress and behavior changes (based on supervisor, next-of-kin (if available), co-workers, and friends.

(h) Other comments the supervisor, next-of-kin, co-workers, and friends wish to make related to the individual's condition or pre-mishap activities.

(i) Other factors prior to the mishap that could have effected the mishap occurrence or its outcome.

(j) Non-judicial punishment (NJP)/Uniform Code of Military Justice (UCMJ) record (military only) or any other behavior infractions for the past three years.

b. Material (Property) Damage - provide the following information for property or equipment damaged or destroyed:

(1) Property or equipment (EIC, TEC, NSN -- if none of these are available, state manufacturer, specific type of property or equipment, and model and serial numbers, as applicable):

(2) Describe damage:

(3) UIC of activity owning material:

(4) Estimated cost to repair or replace DoD property (provide the total cost including man-hours plus cost of material or equipment):

(5) Estimate cost to repair or replace Non-DOD property:

(6) Number of operating days lost (also applies to service craft and small boats):

5. Discussion and Findings (Address the following areas, as applicable):

a. Adequacy and use of approved procedures:

b. Qualifications and training of people involved:

c. Effectiveness of supervision:

d. Effectiveness of Quality Assurance/Inspection Program:

e. Human error:

f. Material deficiencies or shortcomings:

g. Violation of OSHA standards or NAVOSH Program requirements and effects:

6. Conclusions

a. State probable cause(s) of the mishap, injury, and damage with a short rationale:

b. Other causes considered but rejected with a short rationale:

7. Recommendations (State recommendations for changes in procedures, equipment, or training to prevent recurrence and the boards recommendations to prevent recurrence):

8. Other comments, as applicable.

Signature of Board Chairman _____

NOTE:

Copy to: (If mishap involves an activity the findings or recommendations do not address, include the activity and its chain of command as “copy to” addressees.)

Appendix 14-D
Sample Priority Message for Interim Reporting of Mishaps Requiring a Headquarters Command Investigation

1. General. The format and content shown below are to be used for initial reporting of personnel injuries/deaths or material (property) damage mishaps requiring a headquarters command investigation. Submit as much of the information as is available.

2. Content and Format:

(Precedence - Priority)

FROM: REPORTING ACTIVITY

TO: COMNAVSAFECEN NORFOLK VA//02/40/50/70/054//
CNO WASHINGTON DC//N45//
INFO: CHAIN OF COMMAND
AS DESIRED

UNCLAS//N05100//FOUO (Normally UNCLAS unless classified information must be included.)

SUBJ: CLASS A OR B (STATE WHICH) MISHAP

MSGID/GENADMIN/MSG ORIG/SER NO/MONTH//

A. (Reference telephone call to COMNAVSAFECEN of initial notification)

FORMAT IN ACCORDANCE WITH GENADMIN PROCEDURES.

NARR/THIS IS A GENERAL USE SHORE SAFETY INVESTIGATION REPORT TO BE USED ONLY FOR SAFETY PURPOSES PER OPNAVINST 5100.23E

RMKS/GENERAL MISHAP INFORMATION:

1. UIC OF INJURED PERSON'S COMMAND OR REPORTING ACTIVITY IF PROPERTY DAMAGE

2. TYPE OF MISHAP (Flooding, fire, injury/death, equipment casualty, etc)

3. LOCAL TIME AND DATE OF MISHAP

4. LOCATION WHERE MISHAP OCCURRED (If at duty station, give workcenter or description, e.g., torpedo room, main deck frame, base/station facility. If other, so indicate, e.g., ball field, etc. Indicate if MWR facility.)

5. EVOLUTION/JOB BEING PERFORMED AT TIME OF MISHAP, (refit, ISE, maintenance, UNREP, material handling production, etc.) If at training command, insert course identification number (CIN) only - do not provide evolution in those cases.

6. POINT OF CONTACT AND COMPLETE TELEPHONE NUMBER

MATERIAL (PROPERTY) DAMAGE:

1. EQUIPMENT DAMAGED OR DESTROYED BY THE MISHAP (Include EIC, TEC, or NSN, if applicable; describe damage)

2. ESTIMATED COST TO REPAIR OR REPLACE DOD PROPERTY (Provide a total cost including labor plus cost of material and equipment.)

3. ESTIMATED COST OF NON-DOD PROPERTY DAMAGE

4. NUMBER OF REPORTING ACTIVITY OPERATING DAYS LOST

REPORTABLE INJURIES:

1. NAME/SSN/AGE/SEX (If more than one person involved, information in this section must be explicit as to which individual is being described. Repeat items 1 through 7 for each individual.)

2. RANK/DESIGNATOR/RATE/GRADE, JOB AND EMPLOYMENT STATUS (For employment status, specify USN, USNR, Navy Federal Civilian, Navy Non-Appropriated Fund Civilian, Navy Foreign National Civilian, etc.)

3. DUTY STATUS (on or off duty)

4. SPECIFIC JOB OR ACTIVITY INDIVIDUAL ENGAGED IN AT TIME OF MISHAP (PMS, PFT, training, watchstanding, woodworking, material handling, etc.)

5. NUMBER OF MONTHS EXPERIENCE AT THE JOB OR ACTIVITY (The experience the person possessed for the activity engaged in, e.g., swimming mishap indicate swimming qualification and applicable training course.)

6. MEDICAL DIAGNOSIS (Include parts of body and type of injury or illness).

7. FATALITY OR EXTENT OF INJURIES OR OCCUPATIONAL ILLNESSES (Specify fatality, missing, permanent total disability, permanent partial disability, temporary partial disability, or no disability likely)

NARRATIVE: State as much amplifying information available. Chain of events leading up to, through, and subsequent to mishap (Elaborate with remarks so that <u>who</u>, <u>where</u>, <u>how</u>, and <u>why</u> of the mishap are known.)

Appendix 14-E
FOR OFFICIAL USE ONLY
Department of the Navy

Report of Traumatic Injury

For use by military personnel, non-appropriated fund civilian personnel and foreign nationals only.

Employee Data

1. Name of employee (Last, First, Middle)			2. Social Security No.
3. Date of birth Mo. Day Yr.	4. Sex ☐ Male ☐ Female	5. Home Telephone ( )	6. Rank/Grade on date of injury:
7. Employee's home mailing address(include city, state, and zip code)			8. Dependents ☐ Wife, Husband ☐ Children under 18 years ☐ Other

Description of Injury

9. Place where injury occurred (e.g. 2nd floor, Main Post Office Bldg., 12th & Pine)

10. Date of Injury Mo. Day Yr.	Time: ☐ a.m. ☐ p.m.	10. Date of notice Mo. Day Yr.	12. Employee's Occupation

13. Cause of Injury (Describe what happened and why)

14. Nature of Injury(identify both the injury and part of body, e.g., fracture of left leg)	a. Type code	b. Source code

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

Employee Signature

15. I certify that the injury described above was sustained in performance of duty as an employee of the United States Navy and that it was not caused by my willful misconduct, intent to injure myself or another person, nor by my intoxication.

Signature of employee or person acting on his/her behalf

End of Employee Report

Witness

Note: Witness Statements, when available, should be attached to this report for use by the mishap investigator during the investigation of this injury.

16. Witnesses to the injury.(If additional witnesses are available who may provide more information, attach a separate sheet of paper with the below information)

Name of Witness	City	State	Zip Code	Daytime Telephone Number ( )
Name of Witness	City	State	Zip Code	Daytime Telephone Number ( )
Name of Witness	City	State	Zip Code	Daytime Telephone Number ( )

Supervisor's Report

17. UIC of activity reporting mishap:

18. UIC of activity where mishap occurred:

19. Employee's duty station (Street address and zip code)

20. Date of Injury Mo. Day Yr.	21. Days of Restricted Work beyond date of injury.	22. Number of lost work days.

23. Was the employee injured in performance of duty? ☐ Yes ☐ No (If no, explain)	24. Do medical reports show employee is disabled for work? ☐ Yes ☐ No

25. Does your knowledge of the facts about this injury agree with statements of the employee and/or witnesses? ☐ Yes ☐ No (If no, explain)

Signature of Supervisor and Filing Instructions.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

26. I certify that the information given above and that furnished by the employee is true to the best of my knowledge with the following exception:

Name of Supervisor (Type or print)

Signature of Supervisor Date

Supervisor's Title Office Phone

27. Filing instructions:
- ☐ No lost time and no medical expenses incurred. Provide to activity Safety Office for recordkeeping.
- ☐ No lost time, medical expense incurred or expected. Provide to activity Safety Office for recordkeeping
- ☐ Lost Time. Provide to activity Safety Office for recordkeeping

Appendix 14-F

ANNUAL REPORT OF NAVY CIVILIAN OCCUPATIONAL INJURIES AND ILLNESSES

A. UIC _____
(List all UICs included on this report with ISIC first)

B. Reporting Period ☐☐ ☐☐ ☐☐
Month Day (FY Ending) Year

C. _____
(Complete mailing address of activity)

D. _____
(City, State, Zip)

E. _____
(Immediate Superior in Command)

F. _____
(Date Prepared)

CODE	INJURY AND ILLNESS CATEGORY	TOTAL CASES (1)	DEATHS (2)	LOST TIME CASES (3)	NO LOST TIME CASES (4)	FIRST AID CASES (5)
10	Occupational Injuries					
	Occupational Illnesses					
21	Occupational skin diseases or disorders					
22	Dust diseases of the lungs (pneumoconio-ses)					
23	Respiratory conditions due to toxic agents					
24	Poisoning (systemic effects of toxic materi-als)					
25	Disorders due to physical agents (other than toxic materials)					
26	Disorders due to repeated trauma or stress					
29	All other occupational illnesses					
	TOTAL CIVILIAN OCCUPATIONAL INJURIES AND ILLNESS					
30	Total occupational illnesses (21-29)					
31	Total occupational injuries and illnesses (10 + 30)					
40	Total hours worked by personnel (This reporting period)					
50	Average number of personnel (This reporting period)					

OPNAV 5102/8 (10/94)

PERSON PREPARING REPORT _____ LOCAL PHONE _____

Appendix 14-G
Dispensary Permit

OPNAV 5100-28

DISPENSARY PERMIT
OPNAV 5100/9 REV.
S/N 0107-LF-005-2600

PRIVACY ACT STATEMENT BELOW

CASE NUMBER

SUPERVISOR'S REPORT	TO DISPENSARY (Location)	DATE OF REPORT	
EMPLOYEE'S NAME	TIME & DATE OF INJURY	TIME LEFT JOB	TIME RETURNED
SOCIAL SECURITY NO.	GRADE, RATE, JOB TITLE	OCCUPATIONAL ☐ YES ☐ NO ☐ QUESTIONABLE	
REASON FOR REFERRAL ☐ INJURY ☐ ILLNESS ☐ EMPLOYEE'S REQUEST ☐ OTHER (Specify)			
REMARKS			
SUPERVISOR'S SIGNATURE	SHOP/OFFICE	TELEPHONE NUMBER	
MEDICAL OFFICER'S REPORT	TIME REPORTED	TIME RELEASED	
OCCUPATIONAL ☐ YES ☐ NO ☐ QUESTIONABLE	DEGREE OF INJURY ☐ FIRST AID ☐ MEDICAL TREATMENT ☐ OTHER (Explain)		
DISPOSITION OF EMPLOYEE ☐ RETURN TO PERM. JOB _____ ☐ TEMP. TRANSFER TO ANOTHER JOB ☐ TERMINATION OF EMPLOYMENT ☐ RESTRICT ACTIVITY UNTIL _____ ☐ PERM. TRANSFER TO ANOTHER JOB ☐ SENT HOME BY DISPENSARY ☐ REFERRED TO PRIVATE PHYSICIAN/HOSPITAL ☐ OTHER (Explain)			
REMARKS/DIAGNOSIS			
MEDICAL OFFICER'S SIGNATURE	INITIAL TREATMENT DETERMINATION ☐ DISCHARGED, TREATMENT COMPLETED ☐ RE-TREATMENT REQUIRED		

PRIVACY ACT STATEMENT

Authority: 5 U.S.C. 301, Departmental Regulations and E.O. 9397

Principal Purpose: To ensure prompt investigation of occupational injuries, and to initiate any necessary immediate corrective action.

Routine Use: Routinely used by the activity Occupational Safety and Health Office to perform official duties in the investigation of mishaps which may have caused occupational injury or illness.

Disclosure: Voluntary. Treatment will be provided without regard to employee's willingness to divulge all or part of the requested information.
OPNAV 5100/9 (10/92)

Dispensary Permit

PRIVACY ACT STATEMENT BELOW

CASE NUMBER

SUPERVISOR'S REPORT	TO DISPENSARY (Location)	DATE OF REPORT	
EMPLOYEE'S NAME	TIME & DATE OF INJURY	TIME LEFT JOB	TIME RETURNED
SOCIAL SECURITY NO.	GRADE, RATE, JOB TITLE	OCCUPATIONAL ☐ YES ☐ NO ☐ QUESTIONABLE	
REASON FOR REFERRAL ☐ INJURY ☐ ILLNESS ☐ EMPLOYEE'S REQUEST ☐ OTHER (Specify)			
REMARKS			
SUPERVISOR'S SIGNATURE	SHOP/OFFICE	TELEPHONE NUMBER	

MEDICAL OFFICER'S REPORT	TIME REPORTED	TIME RELEASED
OCCUPATIONAL ☐ YES ☐ NO ☐ QUESTIONABLE	DEGREE OF INJURY ☐ FIRST AID ☐ MEDICAL TREATMENT ☐ OTHER (Explain)	
DISPOSITION OF EMPLOYEE ☐ RETURN TO PERM. JOB_____ ☐ TEMP. TRANSFER TO ANOTHER JOB ☐ TERMINATION OF EMPLOYMENT ☐ RESTRICT ACTIVITY UNTIL _____ ☐ PERM. TRANSFER TO ANOTHER JOB ☐ SENT HOME BY DISPENSARY ☐ REFERRED TO PRIVATE PHYSICIAN/HOSPITAL ☐ OTHER (Explain)		
REMARKS/DIAGNOSIS		
MEDICAL OFFICER'S SIGNATURE	INITIAL TREATMENT DETERMINATION ☐ DISCHARGED, TREATMENT COMPLETED ☐ RE-TREATMENT REQUIRED	

OPNAV 5100/9 (Rev. OCT 1992)

CLEAR

PRIVACY ACT STATEMENT

Authority: SECNAVINST 5100.10E and OPNAVINST 5100.23C

Principal Purpose: To ensure prompt investigation of occupational injuries, and to initiate any necessary immediate corrective action.

Routine Use: Routinely used by the activity Occupational Safety and Health Office to perform official duties in the investigation of mishaps which may have caused occupational injury or illness.

Disclosure: Voluntary. Treatment will be provided without regard to employee's willingness to divulge all or part of the requested information.

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 which 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, 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 only exception is for escape-only respirators. 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 that require respiratory protection and shall authorize those employees to wear respiratory protective equipment. The activity shall provide appropriate respiratory protection equipment to these individuals.

e. Per reference 15-3,

"The employer shall not permit respirators with tight-fitting facepieces to be worn by employees who have:

(A) Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or

(B) Any condition that interferes with the face-to-facepiece seal or valve function.

(C) If any employee wears corrective glasses or goggles or other personal protective equipment, 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 (e.g., humanitarian or morale use).

g. Voluntary Respirator Use Program. Navy policy is that activities shall not establish voluntary respiratory use programs as provided for by reference 15-3.

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 acci-

dents when used according to DoD 5100.52-M of September 1990 (NOTAL).

b. Supplied-Air Respirators. These respirators provide breathing air independent of the environment. Personnel shall use these respirators when the contaminant has insufficient odor, taste or irritating warning properties, or when 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.

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.

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.

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 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.

(2) Change chemical canisters/cartridges according to manufacturer's directions, or based on objective data obtained as indicated in reference 15-4.

(3) Identify respirator cartridges and canisters by the information provided on the approval labels in lieu of color coding.

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 15-5.

b. Activities shall conduct monitoring of the breathing air quality at least quarterly.

NOTE:

Monitoring does not apply to ambient air breathing apparatuses.

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 manufacturers instructions.

d. Activities purchasing breathing air from outside sources shall comply with reference 15-3.

1507. <u>Respirator Selection Considerations</u>

a. Activities shall only use respirators which are currently approved by the National Institute for Occupational Safety and Health (NIOSH) or NIOSH/Mine Safety and Health Administration (MSHA). References 15-6 and 15-7 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 General Supply Center (DGSC) issues specific national stock numbers (NSNs) for NIOSH or NIOSH/MSHA-approved respirators (see reference 15-8). 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 reference 15-8 from DGSC.

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) Permissible exposure limit (PEL) 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 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 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 (and 29 CFR 1910.139 for protection against tuberculosis (TB) until the OSHA TB Standard is issued).

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 references 15-3 and 15-9.

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 reference 15-3.

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, air purifying respirators in atmospheres up to their assigned protection factor of 50, as required by references 15-10 and 15-11, 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. Recordkeeping. 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 15-6. 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. 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 222 or 222A

(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, 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, lense fogging, communication)

(l) Standard Operating Procedures.

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. Those assisting with respirator program training, fit testing or other program implementation, however, should 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.

1513. <u>Responsibilities</u>

a. <u>Commanders, Commanding Officers and Officers in Charge</u> 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 standard operating procedures (SOPs) governing the selection, care, issue and use of respirators. Activities shall develop and post worksite SOPs in the general area. SOPs shall include emergency and rescue guidance, as necessary.

(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 reference 15-3 and section 1508

(5) A completed appendix 15-A for each 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

(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.

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

(1) Ensure the medical qualification requirements of the Respiratory Protection Program agree with reference 15-3. A physician or a nurse practitioner, occupational health nurse, physician's assistant, preventive medicine technician or an independent duty hospital corpsman under the supervision of a physician may conduct the medical evaluation. 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 an annual written evaluation on the effectiveness of their program based on occupational medicine and industrial hygiene reviews.

(b) Make occupational health professionals available to the RPPM for consultation on all aspects of the Respiratory Protection Program.

(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.

Chapter 15

References

15-1. OPNAVINST 5100.19C of 19 Jan 94, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

15-2. NAVSHIPS 389-0288, Radiological Controls for Shipyards

15-3. 29 CFR 1910.134 Respiratory Protection (as amended) (NOTAL)

15-4. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision

15-5. Compressed Gas Association, Inc. Commodity Specification for Air, Pamphlet G-7.1-1989 (American National Standard Commodity Specification for Air, ANSI/ CGA G-7.1-1989)

15-6. American National Standards Institute (ANSI), American National Standard, Practices for Respiratory Protection, Z88.2-1992 (NOTAL)

15-7. NIOSH Respirator Decision Logic, NIOSH Publication 87-108, May 1987 (NOTAL)

15-8. Defense General Supply Center (DGSC) Paperless Order Placement System (POPS) Commercial Item Catalog (NOTAL)

15-9. NEHC Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, latest revision

15-10. 29 CFR 1910.1025 Lead, (as amended) (NOTAL)

15-11. 29 CFR 1910.1001 Asbestos, (as amended) (NOTAL)

FOR OFFICIAL USE ONLY

Appendix 15-A
REQUEST FOR MEDICAL CLEARANCE
FOR RESPIRATOR USE QUESTIONNAIRE

_____ _____ _____
EMPLOYEE SSN POSITION

_____ _____ _____
SUPERVISOR PHONE CODE DEPARTMENT

CIRCLE THE TYPE OF RESPIRATOR(S) TO BE USED:
AIR-SUPPLIED (tight-fitting) AIR-PURIFYING (powered) (tight-fitting)
AIR-SUPPLIED (hooded) AIR-PURIFYING (powered) (hooded)
OPEN-CIRCUIT SCBA COMBINATION AIRLINE/SCBA
CLOSED-CIRCUIT 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., high places, temperature/humidity extremes, hazardous materials, other protective clothing worn, climbing, etc.)

_____

_____

_____

MEDICAL WRITTEN EVALUATION
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 (NAVOSH) Program.

1602. NAVOSH Standards

NAVOSH standards consist of the following:

a. OPNAV instructions and Chief of Naval Operations (CNO) (N45)-approved instructions issued by commands having specific technical cognizance or assigned technical responsibility in reference 16-2. NAVOSH 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 CNO 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 NAVOSH standards not elsewhere invoked. See reference 16-3 for NAVOSH 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, activities shall use the more stringent of the two.

c. Navy Occupational Exposure Limits (OEL) for chemical contaminants which include:

(1) 1989 OSHA permissible exposure limits (PELs) found in 29 CFR 1910.1000 Tables Z-1, Z-2 and Z-3

(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 occupational exposure limit (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 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

The cognizant headquarters command must make the determination to modify a NAVOSH standard for application to its operations. The headquarters command shall submit proposed alternate standards to CNO (N45), who in turn, shall submit the alternate standard to DUSD(ES) for approval, through the Assistant Secretary of the Navy (Installations and Environment) (ASN(I&E)).

NOTE:

Activities shall not submit NAVOSH standards developed according to section 1602e to DUSD(ES) for approval.

The proposed alternate standard must provide protection at least equivalent to the NAVOSH standard it replaces. The following procedures apply:

a. Prior to forwarding to DUSD(ES), CNO (N45) shall forward alternate standards proposals to the Deputy Assistant Secretary of the Navy (DASN) (CP/EEO). DASN will forward the standards to civilian employee organizations having national consultation rights with the Navy for review and comment.

b. After receipt of comments from employee organizations, or after a 45-day response period has elapsed, CNO (N45) will forward the alternate standard to DUSD(ES) through ASN(I&E). The alternate standard shall include a summary statement that delineates the differences between the applicable NAVOSH standard and the proposed alternate standard, a justification for the change and a summary of comments from civilian em-ployee organizations.

1604. Application

Activities shall apply NAVOSH standards in Navy workplaces, worldwide, with the following exceptions:

a. In the case of uniquely military equipment, systems and operations, 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 NAVOSH 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 NAVOSH standards which 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 NAVOSH 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. DOD Instruction 6055.1 of 26 Oct 1984, DOD Occupational Safety and Health Program (NOTAL)

16-2. OPNAVINST 5100.8G of 2 July 1986, Navy Safety and Occupational Safety and Health Program

16-3. OPNAVINST 5100.19C of 19 Jan 1994, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

Appendix 16-A
Approved NAVOSH Standards from Headquarters Commands Having Technical Cognizance

Document	Governing Area
SPAWARINST 5100.9D	Electronic Safety Ashore
SPAWARINST 5100.12B	Navy Laser Hazards Control Program
NAVFAC P-1060	Electrical Transmission and Distribution Safety

Approved NAVOSH Alternative Standards

NAVSEA S6740-AA-SAF-010	Alternative standard for certification of gas-free engineering used in maintenance operations.
NAVFAC P-307	Alternative standard for third party certification cranes used in longshoring.

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 which 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 which 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 which 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/ripout 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, and has been approved by the cognizant industrial hygienist (IH). Prohibit routine recirculation 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 which 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 production process or control change that results in changes to employee exposure. Maintain test records indefinitely. Log the gauge readings each day the system is used where devices such as pressure taps, manometers, pitot tubes, etc. are used to continuously monitor the ventilation system. 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. <u>Personal Protective Clothing and Related Facilities</u>

(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 light weight 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 worksuits 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 facepiece 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.

(b) Reference 17-10 and NIOSH 7400 method provides technical guidance for sampling and analysis.

(c) Personnel who are not 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 heavy duty 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 Surveillance

a. Exposure Monitoring Plan. Establish a 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 IH's, 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) 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 (NAVENVIR-HLTHCEN) 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 NAVENVIRHLTHCEN 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 NAVENVIRHLTHCEN 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 Navy Environmental Health Center (NAVENVIRHLTHCEN) 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 reinspection for ACM by an asbestos inspector qualified per appendix 17-B.

(b) Spray application of materials containing one 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 (N45) 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, operations and maintenance (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, (NOTAL)

17-2. Title 29 Code of Federal Regulations (CFR) section 1926.1101, OSHA Asbestos Construction Standard, latest revision, (NOTAL)

17-3. Title 29 Code of Federal Regulations (CFR) section 1915.1001, Asbestos Exposure in all Shipyard Employment Work, latest revision, (NOTAL)

17-4. OPNAVINST 5100.19C of 14 Jan 94, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

17-5. Title 40 Code of Federal Regulations (CFR) 763 Chapter I-EPA Appendix C Subpart E, Asbestos Model Accreditation Plan, latest revision

17-6. American Society for Testing and Materials (ASTM) Standard Practices for Visual Inspection of Asbestos Abatement Projects (E1368-90).

17-7. American Conference of Governmental Industrial Hygienists, Inc., Committee on Industrial Ventilation, Industrial Ventilation A Manual of Recommended Practice (NOTAL)

17-8. American National Standards Institute, American National Standard, Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1979 (NOTAL)

17-9. Title 40 Code of Federal Regulations (CFR) Part 61 of July 1997, Subpart M, (NOTAL)

17-10. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision.

17-11. Title 5 Code of Federal Regulations (CFR) 339.205 and 339.301, Medical Qualification Determination, (NOTAL)

17-12. NEHC Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, latest revision.

17-13. NEHC Technical Manual, Occupational Medicine Field Operations Manual, latest revision.

17-14. NAVMEDCOM 6320.3B Medical and Dental Care for Eligible Persons at Navy Medical Department Facilities.

17-15. NAVMED Publication P-117, Manual of the Medical Department (NOTAL)

17-16. SECNAVINST 5212.5 (Series)

17-17. Title 29 Code of Federal Regulations (CFR) 1910.1020 Subpart Z, Access to Employee Exposure and Medical Records, (NOTAL)

17-18. SECNAVINST 5211.5D of 17 July 92, Department of the Navy Privacy Act (PA) Program

17-19. Naval Facilities Engineering Command Guide Specifications (NFGS) -13281

17-20. NAVSEA STANDARD ITEM NO 009-10 of 2 July 1993, Control of Shipboard Asbestos Containing Material (ACM)

17-21. 42 U.S.C. Section 7401 et seq. of Nov 25 1990 (PL 101-549), Clean Air Act, (NOTAL)

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, ROICC PERSONNEL	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
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 (INSPECTOR ACCREDITATION REQUIRED AS PREREQUISITE)	YES 1 DAY	** 40 CFR 763.92
LABORATORY ANALYSIS OF	INDUSTRIAL HYGIENE,	PROFICIENCY ANALYTICAL	5-DAY NIOSH 582 COURSE OR	ES	29 CFR 1910.1001 APP. A 29 CFR 1915.1001 APP. A

* 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
AIRBORNE SAMPLE	SAFETY PERSONNEL	TESTING (PAT) ROUNDS	EQUIVALENT	(PAT)	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 WORK ONLY	ABATEMENT WORKERS	NONE	8-HOUR ASBESTOS TRAINING. REQUIREMENTS ARE RELAXED WHEN ONLY ONE GENERIC CATEGORY OF BUILDING MATERIAL IN CLASS II WORK IS DONE.	YES NOT SPECIFIED	29 CFR 1915.1001(k)(9) 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 ENGAGE IN CLASS IV OPERATIONS ONLY AND HOUSEKEEPING WHERE ACM OR PACM IS PRESENT	MAINTENANCE & CUSTODIAL WORKERS	NONE	2-HOUR ASBESTOS AWARENESS TRAINING	YES 2 HOURS	29 CFR 1910.1001 (j)(7) 29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9)
RESPONSIBLE FOR OVERALL ASBESTOS PROGRAM	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 ACCREDITATION REQUIRED AS PREREQUISITE)	YES 1 DAY	RECOMMENDED TRAINING
AIR SAMPLING	ASBESTOS	NONE	2 DAYS AND ON THE	NONE	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
	WORKPLACE MONITORS AND CLEARANCE SAMPLERS		JOB 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 as-sessment, 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 provides the framework for an activity to manage and document all asbestos actions. An active and aggressive O&M program protects personnel by ensuring that any ACM or presumed asbestos containing material (PACM) is tested before maintenance or repair operation disturbs it, and that proper work practices are employed whenever ACM is disturbed. An O&M program includes: notification, work requests and controls, inventory and periodic surveillance, work practices, recordkeeping, 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 (PWC), 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 inspec-tors 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, PWC, other Navy sources, or contract. Forward DAP/ MIS project formats to the EFDs, via chain of command outlined in NAVFAC-INST 5100.14A (NOTAL), for entry into the hazard abatement database.

e. Funding Source. Major claimant 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.

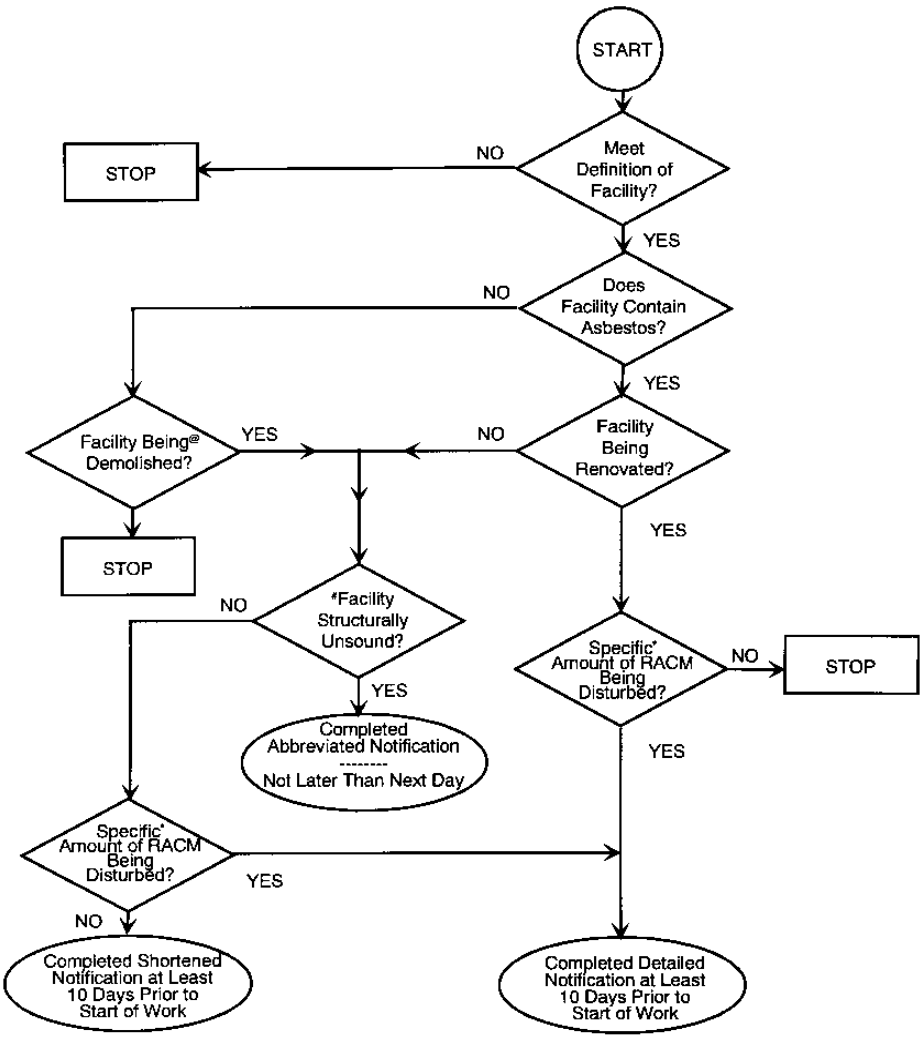
d. Method. In-house, PWC, other Navy sources, or contract.

e. Funding Source. COMNAVFACENGCOM centrally managed hazard abatement account, major claimant, 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
(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. Nonfriable asbestos material.

6. Enter the number of containers used to transport the asbestos materials listed in Item 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.

NOTE:

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 the hearing conservation program for forces afloat.

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, 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 activities 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, 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. <u>Navy Permissible Exposure Limit (NPEL)</u>

The following section gives the NPEL for occupational exposure to noise:

a. For an 8-hour time-weighted average (TWA) - greater than 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 NPEL 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 NPEL.

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \ldots \frac{C_n}{T_n}$$

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), activities shall include personnel in the Navy's Hearing Conservation Program.

1804. <u>Noise Measurements and Exposure Assessments</u>

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 industrial hygienist (IH), industrial hygiene technician, exposure monitor or occupational audiologist 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 conduct personal dosimetry. Personal noise dosi-meters 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 which 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 num-ber 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 made the study.

(7) Personnel may record noise survey data on NEHC Forms 5100/17 and 5100/18.

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 instru-mentation 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.

(3) In the absence of a qualified professional's assessment and documentation to the contrary, activities shall consider personnel exposed to sound levels greater than 84 dB(A) or 140 dB peak sound pressure level for impact or impulse noise at risk. 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, 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. 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 disenroll 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 activities disenroll individuals already included in a program based upon exposure assessment alone without concurrence from an audiologist or physician trained in occupational hearing loss. Such con-currence 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 otola-ryngologist on a case by case basis.

(5) Activity follow-up of ex-posure 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 indivi-duals exposed to hazardous levels of noise, updating this roster at least semi-annually

(c) Identification of the med-ical facility responsible for audiometric monitoring

(d) Identification of those responsible for training personnel in the elements of the hearing conservation program.

(6) Activities shall notify each employee exposed to an 8-hour time weighted average of greater than 84 decibels of the results of the exposure assessment.

1805. <u>Labeling of Hazardous Noise Areas and Equipment</u>

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.

a. 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. 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. <u>Hearing Testing and Medical Evaluation</u>

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 con-servation program. Hearing conservation measures and medical evaluations of hearing tests shall be per the detailed procedures set forth in reference 18-2.

a. <u>(Baseline) Hearing Tests</u>.

(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. <u>Monitoring Hearing Tests</u>

(1) All personnel exposed to noise in excess of the NPEL, and others determined to be at risk, shall be included in the hearing conservation program, have a reference (DD 2215) hearing test in their record and receive periodic monitoring hearing tests. 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 under-standing 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. Activities shall consider individuals who exhibit a progressive series of permanent threshold shifts to be at high risk for further hearing deterioration. Accordingly, such per-sonnel 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.

(2) If such clearance is in-appropriate, 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 to be 15dB or greater in any frequency 1000 to 4000 Hz in either ear. In addition, a change in hearing of an average of 10dB or more at 2000, 3000 and 4000 Hz in either ear shall be considered a significant threshold shift. Significant threshold shifts are considered recordable and shall be reported to the Occupational Safety and Health (OSH) office for entry on the "Log of Navy Injuries and Occupational Illnesses" when an audiologist, otologist, or occupational medicine physician confirms the positive threshold shift is permanent (See chapter 14 paragraph 1409 for additional details). Additionally, the individual and their supervisor shall be notified per 18-2.

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 type hearing protective devices (double protection) shall be worn in all areas where noise levels exceed 104 dB(A).

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 hear-ing protective devices or 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 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 Chief, Bureau of Medicine and Surgery (BUMED) may approve alternates if they meet minimum Navy specifications. Activities desiring to use hearing protective devices not specified in appendix 18-A shall submit a sample of the device with a request for evaluation to BUMED. BUMED shall review manufacturers' test data and determine suitability for Navy 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 ear-plugs only if they cannot be properly fitted with approved hearing protectors or if special circumstances require a custom hearing device. 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.

1808. Training

a. Personnel identified for inclusion in the hearing conservation program must receive initial and refresher training per appendix 6-A. 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 notifi-cation to the OSH office. The 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 main-tenance 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. Activities shall provide instruction to all personnel upon reassignment to a new job that is noise hazardous.

1809. Recordkeeping

a. 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 appro-priate. The medical department shall place the original in the health record, send the first copy to the Navy Environmental Health Center (NAVENVIR-HLTHCEN) on paper or magnetic media, and retain the second copy in local files until no longer needed, at which time it may be destroyed.

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 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 ac-tivity 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. 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 activities determine that the methods outlined above are infeasible shall they consider the utilization of personal hearing protective devices a permanent means of control. 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 consult with activities concerning hearing conservation training.

(4) Provide appropriate professional and technical hearing conservation guidance and assistance to the Chief of Naval Education and Training (CNET).

(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 mea-sure 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 CNET.

c. Commanding Officers for shore activities shall ensure that:

(1) All Navy areas, worksites, and equipment under their cognizance, identified as noise hazardous are labeled and where necessary, suitably trained personnel shall conduct surveys and assessments.

(2) Activities 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) Activities, in cooperation with the cognizant medical treatment facility, annually evaluate hearing conservation program effectiveness as specified in 18-2.

(4) Activities eliminate or reduce hazardous noise levels through the use of engineering controls.

(5) Activities provide personal hearing protective devices, and ensure proper usage by personnel where administrative or engineering controls are infeasible or ineffective.

(6) All military and civilian personnel, whose duties entail exposure to potentially hazardous noise, receive instruction per this chapter.

(7) Emphasis is placed upon leadership by example regarding the wearing of hearing protective devices. Activities shall enforce policy, including the initiation of disciplinary measures for repeated failure to comply with the requirements of the hearing conservation program.

Chapter 18

References

18-1. OPNAVINST 5100.19C of 14 Jan 94, Navy Occupational Safety & Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

18-2. DODI 6055.12 of 22 Apr 96 Hearing Conservation Program

18-3. NAVFAC P-970 of 15 Jun 78, Environmental Protection Planning in the Noise Environment

18-4. NAVFACENGCOM Design Manual 1.03 of 01 May 85, Architectural Acoustics (NOTAL)

18-5. MIL HDBK-1008 (C) of 10 June 1997, Fire Protection for Facilities for Engineering Design and Construction (NOTAL)

18-6. Army TM-5-805-4 of May 95, Noise and Vibration Control

18-7. NIOSH Pub. No. 79-117, Industrial Noise Control, latest edition, (NOTAL)

18-8. MIL-STD-1472D, Human Engineering Design Criteria for Military Systems, Equipment and Facilities, latest edition, (NOTAL)

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. 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 workshift, 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 (se 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 an 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, 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(A)	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)

Intermediate values may be interpolated by adding or subtracting the decibel difference to the appropriate column.

CHAPTER 19

SIGHT CONSERVATION

1901. Discussion

All Navy 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 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

a. Emergency Eyewash Facilities. 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. Activities shall locate all such emergency facilities where they are easily accessible to those in need. Workcenters shall activate plumbed eyewash units weekly, for a minimum of 3 minutes, to flush the line and to verify proper operation.

Activities shall service pressurized and non-pressurized self-contained eyewash units quarterly or per the manufacturer's recommendations, whichever is more frequent. Quarterly maintenance shall include cleaning of the unit, replacement of water, and checking for proper operation. Where an additive is used in a self-contained eyewash unit, 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.

Activities shall 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. Activities shall not use personal eyewash units.

b. Special Precautions for Visually Impaired Employees. Activities shall consider any employee who reports vision in one eye which is 20/200 (corrected) or worse, to be visually impaired. Activities shall not assign such an employee to duties which would present a hazard to his/her remaining eye.

1903. Occupational Eye Care Services and Equipment

The 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. 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, 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, Emergency Eyewash and Shower Equipment, latest revision, (NOTAL)

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. It is Navy policy 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 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. 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 Navy Occupational Safety and Health (NAVOSH) 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 hard hat area.

2008. Foot Protection

a. Foot Hazardous Operations. Foot and toe hazardous operations are those which 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 for protection while handling molten metal. The design prevents hazardous materials from falling inside the shoes and also allows quick removal of the shoes from feet, if necessary, to minimize injury. (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 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 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.

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. 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 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.

2012. 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, 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 NAVOSH standards.

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 which 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 which 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, (NOTAL)

20-2. American National Standards Institute (ANSI) Z87.1, American National Standard for Eye and Face Protection, latest revision, (NOTAL)

20-3. American National Standards Institute (ANSI) Z89.1, American National Standard for Head Protection, latest revision, (NOTAL)

20-4. American National Standards Institute (ANSI) Z41, American National Standard for Foot Protection, latest revision, (NOTAL)

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 activities 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 which 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 "Occupational Safety and Health (OSH) 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) 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 and at high levels leads to anemia. 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 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. <u>Permissible Exposure Limit (PEL) and Action Level Triggering Requirements</u>

a. <u>PEL</u>. 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 work day, the PEL shall be determined by the following formula.

$$PEL(\frac{mg}{m^3}) = \frac{400}{No.\ Hours\ Worked\ Per\ Day}$$

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 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, activities shall use engineering controls to reduce exposures 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. <u>Action Level (AL)</u>. 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% lead by dry weight unless the cognizant headquarters command specifically approves higher lead content paint.

(2) Before proceeding with work involving paint, the 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 OSH Professional or Industrial Hygienist 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, 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) 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. Activities shall not use compressed air to clean work surfaces or work floors.

(5) 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, 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) Activities shall design, construct and maintain local exhaust ventilation and dust collection systems per references 21-4 through 21-7.

(3) 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, 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) Activities using ventilation systems to control occupational exposures or emissions shall not directly exhaust into any work space or to the atmosphere. They shall not recirculate air from operations generating lead. The 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. 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 prefilter housing is located outdoors, they shall use a bag-in, bag-out style access housing.

c. <u>Personal Protective Clothing and Related Control Facilities.</u>

(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) Activities shall provide slip-resistant shoe covers or lightweight rubber boots and may also use disposable shoe covers.

(d) Activities shall provide face shields, vented goggles, or other appropriate protective equipment for use whenever the possibility of eye hazard exists.

NOTES:

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) 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) 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. Activities shall locate shower facilities between the clean and dirty change rooms for employees to shower at the end of their work shift. 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. 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) Activities shall transport lead contaminated clothing in sealed containers to which are affixed the standard "caution label" (see paragraph 2104e). 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

(1) Limits of Respirator Usage

(a) 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, 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) 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) 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) Activities shall provide and display warning signs at each location where airborne lead concentrations may exceed the PEL. 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) 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) 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 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) 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 and Waste Disposal Procedures

a. Navy 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. 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. 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

Exposure Monitoring Plan. For any lead operation with the potential to cause employee exposure at or above the action level (without regard to the use of respiratory protection), activities shall conduct initial and periodic industrial hygiene evaluation and exposure monitoring (under the guidance of the cognizant industrial hygienist) per reference 21-1 and 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.

2109. Medical Surveillance Program

a. General. This program consists of three basic elements:

(1) Preplacement medical evaluation

(2) Semi-annual blood lead monitoring

(3) Follow-up medical evaluations based on the results of blood lead analysis and physician opinion.

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 overabsorption. Refer also to reference 21-9 for medical protocols and guidance. 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) Preplacement Evaluation. All Navy personnel shall receive a preplacement 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 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. 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. 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), 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 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. Activities shall conduct a medical evaluation identical to the preplacement 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. Activities shall conduct a medical evaluation identical to the preplacement 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 preplacement 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. An 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 which 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) 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. Use references 21-10 and 21-11 to design lead contract specifications in Navy facilities.

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 this 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 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, child care 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) (NOTAL)

21-2. Title 29 CFR 1926.62, Lead in Construction (NOTAL)

21-3. OPNAVINST 5100.19C of 14 Jan 94, Navy Occupational Safety and Health Program Manual for Forces Afloat (NOTAL)

21-4. Title 29 CFR 1910.94, Ventilation (NOTAL)

21-5. American Conference of Governmental Industrial Hygienists Pub. No. 2092, Industrial Ventilation: A manual of Recommended Practice, 23rd Edition (NOTAL)

21-6. American National Standards Institute Z9.2 of 29 March 1979, Fundamentals Governing the Design and Operation of Local Exhaust Systems (NOTAL)

21-7. MIL-HDBK-1003/17C of 29 Feb 96, Industrial Ventilation Systems (NOTAL)

21-8. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision

21-9. NEHC Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, latest revision

21-10. NFGS 13282, Removal and Disposal of Material Containing Lead (NOTAL)

21-11. NFGS 13283, Lead Based Paint Removal (NOTAL)

21-12. Title 29 CFR 1910.134, Respiratory Protection (NOTAL)

Appendix 21-A
Required Respirator

Airborne Concentration of Lead or Condition of Use	Required Respirator
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	Full face piece, air purifying respirator (50xPEL) 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. The equivalent NIOSH 42 CFR 84 particulate filters are P100 filters.

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 policy of the Department of Navy (DON) is to preserve and maintain the health of its personnel by adopting practices which 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

Commander, Naval Air Systems Command (COMNAVAIRSYSCOM) 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. 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 inventory all military exempt lasers each year. Commands wishing to dispose of lasers shall obtain approval from COMNAVAIRSYSCOM as specified in references 22-6 and 22-1.

2209. Laser Safety Review Board (LSRB)

Military laser systems are reviewed by the LSRB during their development to assure 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 procedures for obtaining an LSRB review.

2210. Laser Safety Hazard Control Program

Commands operating Class III or Class IV commercial or military exempt lasers shall establish a laser safety program and designate a Laser System Safety Officer (LSSO) per reference 22-6 to ensure personnel are not exposed in excess of the PEL 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.

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 preplacement 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. <u>Laser Safety Training</u>

a. Commands shall provide LSSO laser safety training through the completion of a Laser System Safety Officer Course at the Naval Occupational Safety and Health and Environmental Training Center. COMNAVAIRSYSCOM may approve equivalent training. LSSOs are classified as either a Category I LSSO, who is qualified to manage a laser safety program and to perform laser safety calculations, or as a Category II LSSO, who is qualified to manage a laser safety program. Commanding officers should determine which category of LSSO is appropriate for their activity considering their mission, types of lasers being used and scope 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.

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, blacklights, 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, photo-keratitis, cataracts or retinal burns. Exposure guidance can be found in references 22-2 and 22-3. 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. Radio Frequency (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. Radio Frequency 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)

a. Reference 22-10 contains RF PELs adopted from reference 22-11 for the frequency range of 3 kilohertz to 300 Gigahertz. Limited information on the RF PELs is provided in the Tables in appendix 22-B. Those persons conducting RF hazard analysis and evaluations should consult the more extensive technical guidance contained in references 22-11, 22-12, and 22-13.

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 stan-

dards 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. <u>RF Measurement and Evaluation</u>

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-C.

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. 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. <u>Safety Certification</u>

a. Activities identified in paragraph 2218(c) shall obtain a survey certification from the technical activities listed in appendix 22-C 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-C 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 a baseline certification. The certifying agency will determine resurvey/recertification requirements of the facility. Schedule resurvey/recertification as follows:

(1) Three Year Resurvey. Major COMNAVCOMTELCOM transmitter facilities are included within this group.

(2) Five Year Resurvey. Sites with a large numbers 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. Sites having a moderate and stable number of RF and 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-C. 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 also appendix 22-C 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 references 22-2, 22-14, and 22-15 have been established to limit induced current densities in body tissues so as to not be greater than levels naturally occurring as a result of the body's physiological processes. 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 technical lead agency for laser safety and laser safety hazard analysis in the Navy, and for RF radiation safety and hazard analysis as a component of the Navy's Electromagnetic Environmental Effects (E3) Program for shore facilities.

(2) Chair the LSRB and ensure laser safety design standards, safety documentation and training and laser protective devices are developed for military laser systems.

(3) Ensure a capability exists to conduct laser hazard surveys of military laser systems, laser installations and firing ranges.

(4) Provide information to COMNAVSEASYSCOM for updating information on the Hazards of Electromagnetic Radiation to Personnel and Fuels in reference 22-10.

(5) Serve as the lead agency for RF radiation safety and hazard analysis for the Navy's Electromagnetic Environmental Effects (E3) Program.

(6) 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, Naval Air Systems Command (COMNAVAIRSYSCOM) shall maintain the Navy inventory for all Class IIIb, Class IV, and all classes of military exempt lasers.

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

(1) Serve as the lead agency for guidance on personnel exposure limits for lasers, RF and other electromagnetic sources.

(2) Provide technical assistance to Navy commands addressing electromagnetic exposures or human health effects issues with local governments or state agencies.

(3) Maintain the Navy repository of laser and RF investigative reports involving personnel injuries from lasers and RF overexposures.

(4) Provide assistance through the Navy Environmental Health Center for laser and RF hazard evaluations at industrial and medical activities.

(5) 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 in accordance with 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 approved by the LSSO as safe for each specific laser in use.

(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-C for RF safety.

(6) Investigate, document and report results of laser or RF exposure incidents per chapter 14 of this document. Refer also to Appendix 22-A for laser incidence, 22-C for RF incidence, and reference 22-7.

(7) Ensure that the use and disposal of exempt lasers are per reference 22-1.

(8) Prepare 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 5100.14B of 9 Jul 87, Military Exempt Lasers (NOTAL)

22-2. American Council of Government Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices

22-3. American National Standards Institute, American National Standard for the Safe Use of Lasers, ANSI Z136.1-1993

22-4. 21 CFR 1040 (as amended) (NOTAL)

22-5. MIL-STD 1425A, Safety Design Requirements for Military Lasers and Assorted Support Equipment

22-6. SPAWARINST 5100.12B, Navy Laser Hazards Control Program (NOTAL)

22-7. NAVMEDCOM 6470.2A of 28 Mar 89, Laser Radiation Medical Surveillance Program (NOTAL)

22-8. BUMEDINST 6470.19 of 24 Aug 90, Laser Safety for Medical Facilities (NOTAL)

22-9. E0410-BA-GYD-010, Technical Manual, Laser Safety (NOTAL)

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 Radio Frequency Radiation and Military Exempt Lasers (NOTAL)

22-12. American National Standards Institute/Institute of Electrical and Electronics Engineers, ANSI/IEEE Standard for Safety Levels with Respect to Human Exposure to Radiofrequency Electromagnetic Fields, 3 kHz to 3 GHz, ANSI/IEEE C95.1-1992 and addendum

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

22-14. International Radiation Protection Association, International Non-Ionizing Radiation Committee, Interim Guidelines on limits of Exposure to 50/60 Hz Electric and Magnetic Fields, May 1989

22-15. International Radiation Protection Association, International Non-Ionizing Radiation Committee, Guidelines on Limits of Exposure to Static Magnetic Fields, May 1993

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 which 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 which 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 which 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 which 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 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 can 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. 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 (MED 212), with copies to appropriate headquarters and systems commands. 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 medical and industrial laser operations, contact the Navy Environmental Health Center, (NAVENVIRHLTHCEN), 2510 Walmer Avenue, Norfolk, VA 23513-2617, DSN 864-5500, commercial (757) 363-5500, fax (757) 444-3672.

b. For laser-related weapon systems 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, Dahlgren, VA 22448, DSN 249-1060/1149, commercial (540) 653-1060/1149, fax (540) 653-8453
http://safety.nswc.navy.mil/las_saf/

Laser Range Surveys:

Naval Weapons Assessment Station (Code SE41), Corona, CA 91718-5000, DSN 933-4139, commercial (714) 273-4139.

c. For laser bioeffects and medical research issues, or assistance in evaluating laser-induced injuries, contact the Naval Health Research Center-Detachment Brooks AFB 8301 Navy Road, Brooks AFB, TX 78235-5365, DSN 240-4699/6552, commercial (210) 536-4699/6552, fax (210) 536-6439/6528.

d. For guidance on laser exposure limits and health issues, contact the Non-Ionizing Radiation Health Branch, Bureau of Medicine and Surgery (MED 212), 2300 E Street NW, Washington DC 20372-5300, DSN 762-3444, commercial (202) 762-3444, fax (202) 762-0931.

Appendix 22-B
Table 1
RF Permissible Exposure Limits For Controlled Environments

A. Radio Frequency Fields

Frequency Range (*f*) (MHz)	Electric Field (E) (V/m)	Magnetic Field (H) (A/m)	Power Density (S) (mW/cm^2) (E, H Fields)	Averaging Time(T_{avg}) (minutes) E^2, H^2, S
.003 - 0.1	614	163	(10^2, 10^6)	6
.1 - 3.0	614	16.3/*f*	(10^2, $10^4/f^2$)	6
3 - 30	1842/*f*	16.3/*f*	($900/f^2$, $10^4/f^2$)	6
30 - 100	61.4	16.3/*f*	(1.0, $10^4/f^2$)	6
100 - 300	61.4	0.163	1.0	6
300 - 3000			*f*/300	6
3000 - 15000			10	6
15000 - 300000			10	$616000/f^{1.2}$

B. Induced and Contact Current Restrictions

Frequency Range (*f*) (MHz)	Maximum Current Through Both Feet (mA)	Maximum Current Through Each Foot (mA)	Contact Current (mA)
0.003 - 0.1	2000*f*	1000*f*	1000*f*
0.1 - 100	200	100	100

C. Pulsed Radio Frequency Fields

Frequency Range (*f*) (MHz)	Peak Electric Field (E) (kV/m)	Peak Power Density/Pulse for Pulse Duration < 100 msec (mW/cm^2)
0.1-300000	100	(PEL)(T_{avg})/(5)(pulse width)

D. Partial- Body Exposures

Frequency Range (*f*) (MHz)	Peak Value of Mean Squared Field (V^2/m^2 or A^2/m^2)	Equivalent Power Density (mW/cm^2)
0.1 - 300	<20 E^2 or 20 H^2	-
300 - 6000	-	<20
6000-96000	-	$<20(f/6000)^{0.25}$
96000 - 300000	-	40

Table 2
RF Permissible Exposure Limits For Uncontrolled Environments

A. Radio Frequency Fields

Frequency Range (*f*) (MHz)	Electric Field (E) (V/m)	Magnetic Field (H) (A/m)	Power Density (S) (mW/cm^2) (E, H Fields)	Averaging Time(T_{avg}) (minutes) E^2, S or H^2	
.003 - 0.1	614	163	(10^2, 10^6)	6	6
.1 - 1.34	614	16.3/*f*	(10^2, $10^4/f^2$)	6	6
1.34 - 3.0	823.8/*f*	16.3/*f*	($180/f^2$, $10^4/f^2$)	$f^2/0.3$	6
3 - 30	823.8/*f*	16.3/*f*	($180/f^2$, $10^4/f^2$)	30	6
30 - 100	27.5	$158.3/f^{1.668}$	($.2$, $9.4\times10^5/f^{3.336}$)	30	$.0636f^{1.337}$
				$0636f^{1.337}$	
100 - 300	27.5	0.0729	0.2	30	30
300 - 3000			*f*/1500	30	-
3000 - 15000			*f*/1500	900000/*f*	-
15000 - 300000			10	$616000/f^{1.2}$	-

B. Induced and Contact Current Restrictions

Frequency Range (f) (MHz)	Maximum Current Through Both Feet (mA)	Maximum Current Through Each Foot (mA)	Contact Current (mA)
0.003 - 0.1	900*f*	450*f*	450*f*
0.1 - 100	90	45	45

C. Pulsed Radio Frequency Fields

Frequency Range (f) (MHz)	Peak Electric Field (E) (kV/m)	Peak Power Density/Pulse for Pulse Duration < 100 msec (mW/cm^2)
0.1-300000	100	(PEL)(T_{avg})/(5)(pulse width)

D. Partial- Body Exposures

Frequency Range (*f*) (MHz)	Peak Value of Mean Squared Field (V^2/m^2 or A^2/m^2)	Equivalent Power Density (mW/cm^2)
0.1 - 300	<20 E^2 or 20 H^2	
300 - 6000		4
6000-30000		*f*/1500
30000 - 300000		20

Application and Measurement Notes

Guidance on measuring procedures and techniques for evaluating hazards from RF sources are in the following Institute of Electrical and Electronics Engineers (IEEE) standards that are available for purchase from Customer Service, 445 Hoes Lane, Piscataway, NJ 08854-1331, telephone (800) 678-IEEE:

IEEE C95.1-1991 and addendum Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz (order number SH-14878).

IEEE C95.3-1991 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave (order number SH-14886).

Sections 1A and 2A

- The PELs refer to time-averaged exposure values obtained by spatial averaging RF measurements over an area equivalent to the vertical cross-section of the human body.

- At frequencies less than 100 MHz, the applicable exposure limit is given in terms of rms E or H values. Exposure limits can be expressed in terms of plane-wave-equivalent power density values as shown by the S values in parentheses for the E and H fields.

- In nonuniform fields, spatial peak values can exceed the exposure limits even though the spatially averaged value does not exceed the exposure limit. Spatial peak values are limited by the partial-body exposure limits given in section 1D and 2D.

- For exposure duration less than the averaging period, the maximum exposure limit, in any time interval equal to the averaging period is, exposure limit = exposure limit [T_{avg}/T_{exp}], where T_{exp} is the exposure duration in that interval expressed in the same time units as T_{avg}, and the exposure limit is expressed in terms of power density.

- Measurements to determine adherence to the exposure limit should be made at distances of at least 20 centimeters (cm) or greater from any re-radiating objects or reflective surfaces.

- Low-power RF devices, such as hand-held, mobile and marine transmitters, are excluded from compliance with the exposure limits in sections 1A and 2A under the following conditions in which the radiating antenna or structure is not maintained within 2.5 cm of the body:

  Controlled environment low-power device exclusion pertains to devices that emit RF energy under the control of an aware use: at frequencies between 100 kHz and 450 MHz if the radiated power is 7 watts, or less; at frequencies between 450 and 1500 MHz, if the radiated power is (7)(450/f) watts, or less, where f is in MHz.

Uncontrolled environment low-power device exclusion pertains to devices that emit RF energy without control or knowledge of the user: at frequencies between 100 kHz and 450 MHz, if the radiated power is 1.4 watts, or less; at frequencies between 450 and 1500 MHz, if the radiated power is (1.4)(450/f) watts or less, where f is in MHz.

- Additional RF exposure limits or exposure restrictions are not imposed in case of pregnancy.

Sections 1B and 2B

- Guidance is provided for limiting the RF induced currents in the human body for free-standing conditions (no skin contact with metallic objects); and under conditions of grasping contact with metallic bodies to limit the maximum RF current through an impedance equivalent to that of the human body. Special measuring equipment is required, and revised rules have been adopted for time averaging at frequencies greater than 100kHz. Obtain assistance from the technical centers listed in this appendix.

Sections 1C and 2C

- Peak power exposure limitations are provided for pulsed conditions where each pulse is less than 100 milliseconds (msec) and there are no more than 5 pulses in the time averaging period. Those limits are given to prevent unintentionally high exposure from decreasingly short averaging times.

Sections 1D and 2D

- In the case of partial-body exposure conditions from highly directional sources or from substantially nonuniform fields over an area equivalent to the body, relaxation of the whole-body PELs of Sections 1A and 2A is allowed for exposures limited to a portion of the body. Partial-body limits do not apply in the case of direct exposure to the eyes.

Appendix 22-C

RFR Hazard Warning Sign, Labels, Exposure Incidents and Technical Assistance

Sign Title: Radio Frequency 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: Radio Frequency 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: Radio Frequency 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: Radio Frequency 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: Radio Frequency 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: Radio Frequency 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: Radio Frequency 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: Radio Frequency 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: Radio Frequency 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 Chapter 14 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) which 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 which 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 can 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. 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 (MED 212), 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

Commands may obtain site certification, technical assistance and advice as follows:

a. For RF health hazards, personnel exposures and exposure incidents from industrial and medical RF emitting sources, contact the Navy Environmental Health Center (NAVENVIRHLTHCEN), 2510 Walmer Avenue, Norfolk, VA 23513-2617, DSN 864-5500, commercial (757) 363-5500, fax (757) 444-3672.

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) 653-8594, 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 588-5372, or commercial (843) 974-5372. For shore facilities within PACNAVFACENGCOM geographical region, contact Space and Naval Warfare Systems Activity Pacific (SPAWARSYSACT PAC) (Attn: Code J9132), Building 992, 675 Lehua Avenue, Pearl City, HI 96782-3356, DSN 315-471-0620, commercial (808) 471-0620.

d. For RF bioeffects and medical research issues, or assistance in evaluating personnel overexposure incidents, contact the Naval Health Research Center-Detachment Brooks AFB, 8301 Navy Road, Brooks AFB, TX 78235-5365, DSN 240-4699, commercial (210) 536-4699, 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 (MED 212), 2300 E Street NW, Washington DC 20372-5300, DSN 762-3444, commercial (202) 762-3444, fax (202) 762-0931.

CHAPTER 23

ERGONOMICS PROGRAM

2301. Background and Discussion

a. 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). These risk factors are workplace conditions that pose a biomechanical stress to a worker's body as a consequence of posture and force requirements, work/rest regimens, repetition rate or other similar factors. Examples of ergonomic risk factors for WMSDs include:

(1) Tasks involving one or more of the following: repetitive and prolonged static activities, forceful exertions, awkward postures, excessive vibration from power tools or vehicles, and workstations lacking adjustability

(2) Physiological stress induced by heat, cold or other environmental extremes, shift work and extended work schedules.

Injuries can be reduced in Navy workplaces through a systematic application of ergonomic techniques. Ergonomics is the study of work and workplace design in relation to the physiological and psychological capabilities of people. The goal of the ergonomics program is the scientific design of the workplace, machines and work tasks with the capabilities and limitations of the human being in mind.

b. Since the requirements of this chapter affect the conditions of employment of civilian employees, commanding officers have an obligation under the Federal Service Labor-Management Relations Statute, 5 U.S.C., Chapter 71, to advise unions representing civilian employees of changes affecting conditions of employment, and to fulfill any requirement for collective bargaining prior to implementation.

c. Work-related WMSDs are disorders of the musculoskeletal and nervous system occurring in either the upper or lower extremity and the spine. This category of injuries includes both cumulative trauma disorders (CTD) and over exertion injuries (strains and sprains). CTD (micro-trauma) CTD can be defined as any combination of stresses applied to the body over a period of time from which adequate recovery does not occur. There are two types of CTD's. These are repetitive stress and repetitive motion injuries, caused by excessive movement such as typing, using a screw driver, etc. and sustained position injuries caused by sitting or standing in one position for long periods of time. Overexertion Injury (macro-trauma) is divided into two categories, sprains and strains. Sprains and strains are caused by frequent or heavy lifting, pushing, pulling or carrying of heavy objects. Examples of WMSDs include but are not limited to: tendinitis, tenosynovitis, bursitis, hand arm vibration syndrome (HAVS), Raynaud's Syndrome of occupational origin, vibratory white finger (VWF), lower back strain, carpal tunnel syndrome, throacic outel syndrome, disc injuries, tennis elbow, golfers elbow, trigger finger and De Quervain's Disease. The term "WMSDs" refers specifically to:

(1) Musculoskeletal disorders to which the work environment and the performance of work contribute significantly

(2) Musculoskeletal disorders that are aggravated or prolonged by work conditions.

These workplace risk factors, along with personal characteristics (e.g., physical limitations or existing health problems) and societal factors, as well as moral issues, are thought to contribute to the development of WMSDs. They also reduce worker productivity and/or cause worker dissatisfaction.

d. Except for back injuries, workers typically do not associate symptoms of WMSDs with their work. Consequently, injury reports are not a reliable method to identify victims of WMSDs. Therefore, it is necessary to train workers to recognize and report symptoms of excessive fatigue, discomfort and pain before injury occurs. Likewise, supervisors should be trained to recognize risk factors and other certain signals and early warning signs that injury might be occurring. For example, supervisors should be aware that an employee who rubs his or her wrists or eyes periodically, stretches his or her back and shoulders, exhibits other pain gestures, or complains of pains or discomfort of unknown origin might be suffering from WMSDs.

e. The Navy ergonomics program elements are: management commitment and employee involvement, work site analysis, hazard prevention and control, medical and case management, and training. Case management is an important element of ergonomics. Case management is staying closely involved and informed after an employee injury, assisting the employee in the recovery and return to work, both for the well-being of the employee, and to control the costs associated with the injury and recovery (workers' compensation).

2302. <u>Management Commitment and Employee Involvement</u>

a. Aggressive and coordinated management actions are necessary to prevent WMSDs and to control claims and costs related to these injuries. Management commitment provides the organizational resources and motivating force necessary to deal effectively with WMSD risk factors. Employee involvement and feedback are likewise essential, both to the identification of existing and potential hazards, and to the development of an effective means for their abatement. A properly trained worker is the cornerstone of a successful in-house program.

b. Private sector organizations with well-established ergonomics programs report that implementing ergonomics principles into processes increases productivity and reduces medical costs. Expected benefits for the Navy would also include productivity gains and reductions in injury compensation costs.

c. Some projects developed to address ergonomic hazards that exceed the funding capability of local organizations may qualify for centrally-managed Navy occupational safety and health (NAVOSH) funds. Applications for these funds should be submitted per the procedures of chapter 12, Hazard Abatement Program.

d. Methods to involve employees in an ergonomics program include:

(1) Properly training safety and health committees to review and analyze ergonomic problem areas and recommend corrective actions to management

(2) Establishing worker-based ergonomic teams, with proper training. These teams have been demonstrated to successfully identify and assist in correcting ergonomic problems.

e. Implementation of an effective program requires access to a technically qualified staff. The Navy provides ergonomics training to safety and health professionals. When the occupational safety and health (OSH) office or other internally available staff do not have the professional expertise to identify or correct WMSDs, they should obtain outside assistance to evaluate workstations and job tasks for ergonomic stressors causing or capable of causing injury or illness. CNO (N45) will provide guidelines for the selection of an ergonomic consultant.

f. The activity commanding officer should define and approve the parameters selected to measure progress of the command's ergonomics program, together with specific goals for improvement during the remainder of the year and include them in command OSH improvement plans.

g. Each activity shall carry out an aggressive, comprehensive, and integrated program to manage and control compensation claims, ensuring proper review, processing and administration by cognizant personnel offices.

2303. <u>Work Site Analysis</u>

a. Each activity shall conduct an annual analysis of its injury and illness records. This analysis shall include both injury/illness log records (OPNAV 5102/7) and medical injury compensation records. The analysis shall include the identification of WMSDs and ergonomic risk factors. The analysis should identify specific departments, codes, or operations experiencing WMSDs to target them for training, medical surveillance and engineering studies to eliminate hazards. The analysis should also identify:

(1) Body part involved

(2) Nature of injury/illness

(3) Time of day (including work shift) that symptoms developed

(4) Frequency

(5) Severity

(6) Physical location

(7) Description of job(s)

(8) Cost of treatment.

b. An activity shall consider observations made during safety inspections and other factors, such as absenteeism, high personnel turnovers, fitness and age of workers in the identification of WMSDs. The command may also elect to survey personnel in occupations known to have high WMSD risks to determine if they have experienced unreported warning signs or injuries they did not relate to their work. An example survey form is provided in appendix A. The discomfort survey and analysis may identify areas where ergonomic efforts are necessary. The activity should use the survey data to target departments or codes where personnel are at higher risk of WMSDs.

2304. <u>Workplace Analysis</u>

a. Activities shall conduct thorough WMSD analysis of workplaces as part of, or in conjunction with, the workplace inspections required by chapter 9 and industrial hygiene surveys required by chapter 8. The analysis shall include the identification of risk factors such as awkward posture, sustained positions, excessive force, excessive repetition, contact stress, segmental or whole body vibration, and environmental issues such as temperature extremes, poor lighting and excessive noise. Analysis shall also identify unsafe em-

ployee behavior or acts, such as bending, twisting, over reaching, elbows over shoulder level, excessive pinch gripping and overexertion.

b. Activities shall use appendix 23-B during workplace safety and health inspections to identify ergonomic risk factors that they can reduce or eliminate. Activities shall assign Risk Assessment Codes (RAC's) and track actions to reduce WMSD risk factors using the existing hazard abatement tracking methods in chapter 9 and 12 of this manual. If the action(s) necessary to reduce or eliminate WMSD risk factors are not readily apparent, activities may schedule an in-depth ergonomics analysis. Activities should perform this in-depth analysis using guidance provided in appendix 23-C. Activities should also complete detailed analyses for cases where WMSDs have already been observed and work station modification is necessary to prevent similar illness to others and/or allow workers to return to unrestricted status.

c. Activities can use the WMSD analysis process to identify low risk work areas to allow injured workers assigned or permitted to return for light duty early return to work.

d. Activities should consider shift work-related stressors and injuries when determining scheduling policies and implementing other actions to ensure that a safe and healthful workplace is provided (see appendix 23-D).

2305. Hazard Prevention and Control

a. Corrective actions for ergonomic risk factors include (in preferred order of priority): process elimination, engineering controls, substitution of materials/tools/equipment, improved work practices and administrative controls (e.g., lifting restrictions, adjustment of work-rest cycles, slowing work pace, job rotation).

NOTE:

Activities shall not use back support belts or wrist splints as personal protective devices in the prevention of back or wrist injuries. These devices are considered medical appliances, and must be prescribed by a credentialed health care provider who shall assume responsibility for medical clearance, proper fit of the device, and treatment, monitoring and supervision of the wearer.

b. 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 control/eliminate the risk factors. References 23-1 through 23-5 contain detailed guidance on principles/techniques for implementing engineering controls.

(1) Workstation Design. Workstations should be easily adjustable to accommodate the person 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 work space should be large enough to allow the full range of required movements. Anthropometric data and design recommendations for military equipment and facilities can be found in reference 23-2. 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 problems should be corrected using guidance published by the Illuminating Engineering Society in references 23-3 and 23-4.

(2) Design of Work Methods. Traditional work method analysis, which requires consideration of static postures and repetition rate, should be supplemented by addressing the force levels and the hand and arm postures involved to identify tasks that can be altered to reduce the stresses associated with WMSDs. When tasks are modified to reduce WMSD stresses and/or "low risk" tasks are found, information needs to be provided to the cognizant medical command or facility so that medical personnel are aware of light or restricted-duty jobs to which injured workers may be assigned. Where tasks are altered, consideration should be given to possible changes in the time required to perform the tasks. WMSD reduction benefits may not be realized if safety-related steps are added to the process, but sufficient time is not allowed to perform such tasks.

(3) Tool Design and Handles. Properly designed tools and handles increase worker productivity by extending and amplifying manipulative abilities. Activities shall pay proper attention to the selection and design of tools and workstation layouts to minimize WMSD risks and back injuries. Activities shall select or design tools and handles to minimize or eliminate the following stressors in both male and female workers (paying special attention to the size, strength, etc., difference between the two sexes):

(a) High contact forces and static loading

(b) Extreme or awkward joint positions

(c) Repetitive action of the fingers, wrist and arm

(d) Tool vibration

(e) Excessive grip strength requirements.

NOTE:

Activities can accomplish many workstation and job procedure designs using a "common sense" approach to ergonomics based on an understanding of human anatomy and physiology without resorting to time-consuming and expensive measurements (this is the cornerstone of the Navy Program). 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. It is not necessary, in most cases, to actually measure the forces. Another approach is to borrow a variety of equipment, such as ergonomically-designed chairs from prospective suppliers and let the users try them out. The users comfort is often the best guide to proper design.

c. Administrative Controls. Activities shall only consider administrative controls, such as rotating employees to jobs with dissimilar physical requirements, establishing work/rest schedules or training employees to use appropriate work methods when process elimination or engineering controls

are not feasible. Where heavy objects must be handled, activities may calculate an action limit using methods contained in reference 23-6 to specify the maximum lift an unassisted individual should attempt. While some heavy lifts cannot be avoided, many lifting operations can be designed to include the assistance of other personnel or the use of mechanical handling equipment. It is also common sense to label the actual weight of any object that a worker needs to lift or carry. Another control measure is to ensure that material in storage is stacked off the floor and placed at no less than the knuckle height of the 95th percentile male.

d. Planned Facility Modifications and Equipment Purchases. When activities develop plans for new or modified facilities, processes, jobs, tasks, materials and equipment, they should analyze such plans for opportunities to eliminate or reduce ergonomic hazards. For example, when purchasing office furniture and/or data processing equipment to equip new facilities or replace worn-out equipment, activities should consider selecting equipment that allows easy adjustment of chair height, keyboard position and video display screen position. Reference 23-2 provides further information on this topic.

2306. Training

a. A key to establishing an ergonomics program is the proper training of managers, supervisors, professional staff, ergonomic teams and all employees. Much of the ergonomics program training is an attempt at behavior modification. Consequently, activities need to devise techniques to enable supervisors and peers to reinforce and demonstrate behavior modifications learned in the classroom. Activities shall integrate training into existing job training whenever possible, including new employee orientation programs. General ergonomics training includes:

(1) Ergonomics definition and concepts

(2) WMSD and back injury prevention

(3) The varieties of WMSD, causes, early symptoms, warning signs, means of prevention and treatment

(4) Ergonomics of hand tools

(5) Equipment design, adjustability and layout

(6) Proper maintenance of facilities, equipment and tools as a technique to minimize ergonomic stress

(7) Ergonomic risk factors identification and performing an ergonomic analysis through the use of classroom and field studies, learn to perform an Ergonomic Analysis

(8) The importance of an effective case management process

(9) Safe and unsafe ergonomic behaviors of employees

(10)The basic structures of the body, how they work and how they are affected by ergonomically related disorders

(11)The benefits of a team approach to ergonomics.

b. Activities shall target training in back injury prevention and care for personnel at risk for back injury. Training in back injury prevention shall include the following, as a minimum:

(1) Anatomy and physiology to explain how the musculoskeletal system works and early warning signs of back injury and principles of ergonomics

(2) Biomechanics of lifting and lifting techniques

(3) How to avoid back injuries on and off the job

(4) Wellness: weight control (how to lose weight, control weight loss, and its relationship and importance in back injury prevention)

(5) Health and physical fitness.

c. Activities shall determine training requirements for managers, supervisors and affected employees based on the results of the work site analysis conducted per section 2303. Where the need for training is indicated, activities shall incorporate appropriate ergonomics training into the NAVOSH training of these personnel, per Chapter 6. Activities shall consider the following when developing training to support ergonomics programs:

(1) Managers. Managers should receive sufficient training on ergonomic issues to effectively carry out their responsibilities for the health and safety of their employees.

(2) Supervisors. Supervisors who have employees with potential exposure to identified ergonomic risk factors for MSWDs, should receive sufficient training to enable them to recognize hazardous work practices and the symptoms of WMSDs, determine steps needed to remove ergonomic risk factors, and to reinforce the ergonomics program. Supervisors should also understand job hazard analysis and use it as a formal instructional tool. Supervisors should receive specialized training in WMSD and back injury prevention, including the demonstrated benefits of physical fitness, health education and lifestyle modification in reducing back injuries and WMSDs.

(3) Employees. Activites shall pro-vide training and formal education, describing various risk factors associated with their jobs, tools, tasks, processes and equipment to employees potentially exposed to ergonomic risk factors for WMSDs. Activities shall also instruct these employees in the varieties of WMSDs, and the means of prevention, causes, early warning signs and treatment of WMSDs. Activities shall document training provided per the requirements of chapter 6.

(4) Occupational Safety and Health Professional Staff. OSH professional staff responsible for conducting the ergonomics program shall receive formal training on the recognition and control of ergonomic risk factors in Navy work places. Training is available from the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN), course number (A-493-0024 – Ergonomics). Industrial hygiene personnel responsible for performing worksite evaluations shall also receive appropriate training to perform this function.

(5) Healthcare Providers. Cognizant healthcare providers shall be given information on the potential ergonomic risk factors for WMSDs and details of the ergonomics program of each line activity that they support. The activity OSH office shall encourage health care providers to seek special training covering diagnosis, treatment and rehabilitation of WMSD cases.

(6) Facility Engineers. Engineering staffs responsible for planning, designing, or writing specifications for equipment, tools, jobs, tasks and processes shall receive formal training and instructions in

methods of eliminating or reducing ergonomic risk factors for WMSDs in the work place, as well as basic physiology and body mechanics (human factors).

2307. Medical Program

a. Cognizant medical commands shall support line activity initiatives to reduce WMSDs by providing medical preplacement examinations, medical monitoring of employees judged to be at high risk for WMSDs and facilitating rehabilitation of individuals with WMSDs. Health care providers (occupational medicine physicians, physician assistants, nurse practitioners, physical therapists and occupational health nurses) shall conduct work place visits to obtain knowledge of operations, work practices and light-duty jobs, at activities they support to provide ergonomics assessments.

b. Physical Standards Preplacement Examinations. Cognizant medical commands shall perform preplacement examinations to ensure that personnel meet the physical requirements for the position in which they are placed. Where analysis of mishap data identifies positions that involve significant risk of WMSDs, the employing activity and the cognizant medical command shall review the presence and/or adequacy of existing physical standards. When requested, the cognizant medical command shall also review history, e.g., history of back injuries, and/or performance test criteria and strength tests suitable for reducing risk of WMSDs in those positions.

NOTE:

As warranted, consistent with the provisions of Federal Personnel Manual (FPM) Chapter 339, Medical Qualification Determinations, activities may establish physical requirements for civilian positions. Activities may also require personnel who occupy a position with physical or medical standards, physical requirements, or personnel who are under a medical surveillance program, to undergo medical evaluation periodically, or whenever there is a direct question about a person's continued capacity to meet the physical or medical requirements of the position. FPM Chapter 339 also contains requirements related to employees who request changes in working conditions for medical reasons or special treatment, including reasonable accommodation on the basis of full or partial recovery from a medical condition. The Equal Employment Opportunity Commission requires agencies to make reasonable accommodation to the known physical limitations of qualified handicapped applicants unless an activity can demonstrate undue hardship on the operation of its programs.

c. Any employee on injury compensation or assigned to light duty, for whom the activity has identified a position that it reasonably believes the employee can perform, can be required to report for medical evaluation. Reference 23-7 contains suggested guidelines for medical management of WMSDs cases including the following:

(1) Diagnostic tests for initial assessment of WMSDs cases

(2) Conservative treatment protocols using heat or cold, nonsteroidal anti-inflammatory agents, physical therapy, splints and job reassignmen

(3) Follow-up protocols after 2, 6, and 8 days

(4) Requiring second opinion for carpal tunnel release surgery

(5) Rehabilitation after surgery.

d. Health Education for Ergonomic Hazards. Each cognizant medical command shall provide, to the extent possible, health education and lifestyle modification information to individuals with WMSD symptoms. A wellness program supports an ergonomics program. A comprehensive wellness program should include weight control, physical fitness, smoking cessation (very important in WMSD injury prevention efforts) and stress management.

e. Rehabilitation of Injured Employees. The Navy encourages cognizant medical commands to offer medical 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.

f. Monitoring for Trends. Health care providers shall periodically, e.g., monthly, review sign-in logs to monitor WMSD trends. Activity OSH personnel shall perform a similar review as part of their routine analysis of mishaps and Safety Reports of personal injury, death, or occupational illness. Activities shall record most WMSDs on the injury illness log (OPNAV 5102/7) as an occupational illness (disorders associated with repeated trauma).

2308. Responsibilities

a. Echelon 2 and other headquarters commanders shall provide appropriate assistance to subordinate commands to ensure the effectiveness of this program, including the following:

(1) Review injury and compensation data for subordinate activities and, where warranted by data review, direct activities to implement an ergonomics program.

(2) Coordinate program implementation among similar activity types; disseminate information on process improvements to eliminate duplication of effort.

(3) Provide guidance and assistance to subordinate commands on program development and implementation (e.g. identify qualified ergonomists, sponsor technical assistance contracts to address generic requirements within the command, provide manuals on design of workstations, catalogues of ergonomically designed tools and checklists for ergonomic screening surveys).

(4) Include ergonomics program elements (the establishment of ergonomics programs by subordinate commands or the implementation of improved shift work scheduling practices) in command goals and review progress toward achieving these goals during scheduled Occupational Safety and Health Management Evaluations required by chapter 9.

(5) Ensure that ergonomic design criteria are considered during procurement initiatives per reference 23-8.

b. Commander, Naval Supply Systems Command 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 shall:

(1) Perform comprehensive ergonomic risk factors for WMSD analyses 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 facility, equipment and tool maintenance, e.g., by training engineers on ergonomic principles and techniques that can be applied during the design of new facilities.

d. Chief Naval Education and Training (CNET) shall provide ergonomics training through the NAVOSH-ENVTRACEN and incorporate WMSD prevention training in all levels of training.

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

(1) Develop technical and administrative guidance for the medical aspects of the ergonomics program (including medical screening procedures for WMSDs and back injury).

(2) Budget adequate resources for medical facilities to implement this policy.

(3) Provide guidance for the review of medical records for WMSDs information and trends.

(4) Provide medical support by developing, or assisting in developing, therapy and treatment programs. Develop a medical role in the rehabilitation of WMSD cases. 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.

(5) Develop training for Navy medical care providers on diagnosis, treatment and rehabilitation of individuals with WMSDs.

(6) Evaluate ergonomic stressors such as noise, vibration and illumination quality as part of scheduled industrial hygiene surveys.

f. Commander, Naval Safety Center shall:

(1) Conduct a mishap analysis program, reviewing available data for a 5-year period, to identify WMSDs by activity and command, including number, type, injured body part, age group, and operation performed. Arrange for data on WMSD types other than back injury to be coded in FY95 and for 5-year summaries for all types of WMSDs to be available by FY00.

(2) Distribute a quarterly WMSD injury report to Echelon 2 commands. Provide the data supporting this report in elec-

tronic format upon request from Echelon 2 commands

g. Commanding Officers of Medical Commands, activities, and treatment facilities shall:

(1) Monitor WMSD trends using appropriate logs or records.

(2) Verify low risk of light duty assignments.

(3) Provide health education for personnel with a past history or current symptoms of WMSDs.

(4) Assist line activities in the rehabilitation of WMSD cases and the implementation of limited or light duty programs.

(5) Assist, as requested by line activities, 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. Identify the numbers, frequency, type, location and cost of WMSD cases that have occurred during the past 5 years. Additionally, review all screening surveys for ergonomic requirements.

(2) Establish an ergonomics program per this chapter, starting with the appropriate departments/shops/codes within the activity that have the highest potential for WMSDs (as determined by employee discomfort surveys) or the highest incident rate of WMSDs. Identify and budget resources to administer an effective ergonomics program consistent with the guidance in this chapter. The command's ergonomics program shall target those areas, operations or personnel with the highest frequency of WMSD injuries or symptoms.

(3) Where labor organizations are present, discharge bargaining obligation under Federal Labor-Management Relations Statute Chapter 71 of Title 5 U.S.C. prior to implementation of any change in work practice or condition of employment.

Chapter 23

References

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23-7. U.S. Department of Labor, OSHA Ergonomics Program Management Guidelines for Meatpacking Plants, OSHA Publication 3123, U.S. Department of Labor, Occupational Safety and Health Administration, 1990 (NOTAL)

23-8. DoD Ergo Human Factors MILSTD 1088

Appendix 23-A
Occupational Survey

Employee Discomfort Survey

Based on an average day, please inform us about your comfort at work. If you have discomfort not related to your work please explain. Fill in all of the boxes below. Please respond honestly and thoughtfully.

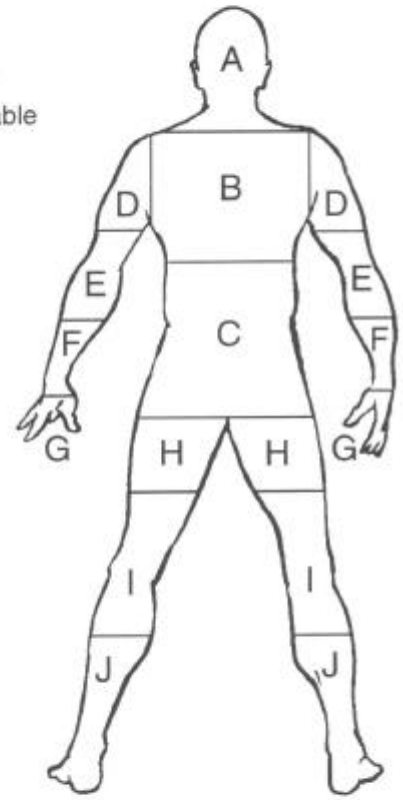
Date _____
Dept. _____
Name _____

Rate your comfort for **each** region (A – J) by writing a number (0 to 10) in the box provided.
(Make no distinction between right and left)

0 - 5 discomfort
6 - 10 pain

DISCOMFORT RATING

		Very Uncomfortable		Very Comfortable
A)	Head / neck / eyes	10	☐	 0
B)	Upper / mid back	10	☐	 0
C)	Low back / pelvis	10	☐	 0
D)	Shoulder / upper arm	10	☐	 0
E)	Elbow / mid arm	10	☐	 0
F)	Forearm / wrist	10	☐	 0
G)	Hand	10	☐	 0
H)	Upper leg / hip	10	☐	 0
I)	Mid leg / knee	10	☐	 0
J)	Lower leg / foot	10	☐	 0



Please respond to each of these questions in the boxes provided.

K)	How hard is your work? (physically or mentally) *Circle One*	10 Very Much	☐	..... 0 Very Little
L)	How much energy do you have left after work?	10 Very Much	☐	..... 0 Very Little
M)	How would you rate your job satisfaction?	10 Very High	☐	..... 0 Very Low

List ways we can help to make your work more comfortable, safe, and more productive:

1. _____

_____

_____

_____

2. _____

_____

_____

_____

3. _____

_____

_____

_____

4. _____

_____

_____

_____

5. _____

_____

_____

ERGONOMICS ANALYSIS WORKSHEET

NAVY

Date:_____Time: _____Analyst Names:_____
Analysis No._____Initial Analysis:_____Follow-Up Analysis: _____

1. Job Description

a. Employee Name:_____

b. Describe Task or Job:_____

c. Work Schedule:_____

d. Work Experience:_____

2. Problem Identification

a. Interview	b. Risk Factors	c. Unsafe Behaviors	d. Unsafe Conditions
☐Fatigue	☐Awkward Position	☐Bending	☐Unnecessary Task
☐Discomfort	☐Sustained Position	☐Twisting	☐Employee Fix
☐Pain	☐Force	☐Overreaching	☐Housekeeping
☐Injury	☐Repetition	☐Wings Up	☐Trip/Fall Hazard
☐Disability	☐Contact Stress	☐Pinch Grip	☐Eyes on Work
☐Pain Gesture	☐Vibration	☐Over Exertion	☐Maintenance/Repair
☐Job Dissatisfaction	☐Physical Condition	☐Improper Tool Use	☐Line of Fire
☐Learned Helplessness	☐Environment	☐Improper Procedure	☐Traditional Safety
☐Other	☐Psychosocial	☐Rushing	☐PPE

Describe Recommendations:

3. Recommendations

Suggestions

☐Eliminate Task	☐Tool	☐Lighting	☐Training
☐Adjustability	☐Mechanical Assist	☐HVAC	☐Policy
☐Work Height	☐Job Rotation	☐Mat/Insoles	☐Procedure
☐Tilt/Re-orient	☐Job Expansion	☐PPE	☐Reward
☐Organize	☐Change Pace	☐Rest Breaks	☐Shut Down
☐Chair	☐Get Help	☐Mini-Breaks	☐Further Study
☐Housekeeping	☐Automate	☐Fitness	☐Other

Describe Recommendations

4. Cost Analysis/Justification (Prioritize)

5. Action Plan (Who, What, When)

Appendix 23-B

Checklist for Evaluation of Ergonomic Stress in Industrial Shops

	Yes	No	N/A
1. Physical Stress:			
1.1 Does the job require contact of fingers or wrist with sharp edges?	____	____	____
1.2 Do hand tools or process equipment vibrate the worker's hands, arms, or whole body?	____	____	____
2. Force:			
2.1 Does the job require more than 10 pounds of force?	____	____	____
2.2 Does the job require using a pinch grip (between thumb and finger)?	____	____	____
2.3 Are gloves used, increasing the force needed for motion of the fingers?	____	____	____
2.4 Does the job require frequent heavy lifting (> 18 kg or 40 lb, 2 hours per day)?	____	____	____
2.5 Does the job require occasional very heavy lifting (> 23 kg or 50 lb)?	____	____	____
2.6 Does the job require handling items that are difficult to grasp?	____	____	____
3. Posture:			
3.1 Does the job require flexion or extension (bending up or down) of the wrist?	____	____	____
3.2 Does the job require deviating the wrist side to side (ulnar or radial deviation)?	____	____	____
3.3 Is the worker seated while performing the job?	____	____	____
3.4 Does the job require "clothes wringing" motion?	____	____	____
3.5 Does the job require extended reaches, beyond normal arm reach?	____	____	____
3.6 Does the job require awkward lifts or carries that are near the floor, above the shoulders, or far in front of the body?	____	____	____
3.7 Does the job require exertion of pushing, pulling, lifting, or lowering forces in awkward positions to the side, overhead, or at extended reaches?	____	____	____
3.8 Do workers sit on the front edge of their chairs?	____	____	____
3.9 Is the worker required to maintain the same posture, either sitting or standing, all of the time?	____	____	____
4. Workstation hardware:			
4.1 Is the orientation of the work surface non-adjustable?	____	____	____
4.2 Does the work surface appear to be too high or too low for many operators?	____	____	____

	Yes	No	N/A
4.3 Is the location of the tool non-adjustable?	____	____	____
4.4 Does the job require handling oversized objects that require two-person lifting?	____	____	____
4.5 Is there an absence of material handling aids, such as air hoists and scissors tables?	____	____	____
4.6 Do workers attempt to modify their chairs or work surfaces by adding cushions or pads?	____	____	____
5. Repetitiveness:			
5.1 Does the job require that one motion pattern be repeated at a high frequency?	____	____	____
5.2 Is the cycle time for repetitive operations less than 30 seconds?	____	____	____
5.3 Is the work pace rapid and not under the operator's control?	____	____	____
6. Tool design:			
6.1 Is the handle too large for the thumb and finger to slightly overlap around a closed grip?	____	____	____
6.2 Is the span of the tool's handle less than 5 cm (2 inches)?	____	____	____
6.3 Is the handle of the tool made of metal?	____	____	____
6.4 Is the weight of the tool greater than 10 lbs?	____	____	____
6.5 Are heavy tools lacking devices to suspend some of their weight?	____	____	____
6.6 Does use of the tool require flexion or extension of the wrist (bending up or down)?	____	____	____
6.7 Does the tool require ulnar or radial deviation of the wrist (bending to either side)?	____	____	____
7. Work environment:			
7.1 Are housekeeping practices poor, e.g., aisles cluttered, waste on the floor?	____	____	____
7.2 Are floors uneven or slippery?	____	____	____
7.3 Does the job require frequent (daily) stair or ladder climbing?	____	____	____
7.4 Do the work tasks contain significant visual components, requiring good lighting?	____	____	____
7.5 Does the worker's eye have to move periodically from dark to light areas?	____	____	____

	Yes	No	N/A
7.6 Is the air temperature uncomfortably hot or cold?	____	____	____

Score (count all "yes" answers) ____

Comments: _____

_____

_____

Prepared by:_____Date:_____

Shop/Task Identification:_____

Operator's Name: _____

Evaluation: When a group of workstations are evaluated using this checklist by the same individual, the workstations with the higher scores should be the ones most likely to cause ergonomic stress. It is not necessary for each workstation to achieve a "zero," or perfect score, on this checklist. Common sense should be used to determine where modifications are necessary, reasonable, and feasible.

Checklist for Evaluation of Ergonomic Stress at Workstations Equipped with Video Display Terminals

	Yes	No
1. VDT stations are arranged so that lighting does not reflect directly off the screen.	____	____
2. The seat and backrest of the chair support comfortable posture permitting occasional variation in the sitting position.	____	____
3. Seat height is adjustable so that the entire sole of the foot rests on the floor or footrest, and the back of the knee is slightly higher than the seat of the chair.	____	____
4. Backrest height is adjustable.	____	____
5. Backrest angle is adjustable.	____	____
6. Footrest provided if desired by individual.	____	____
7. The height of the surface on which the keyboard rests is adjustable, allowing the worker's forearms, with fingers resting on the keyboard, to be nearly horizontal or inclined slightly upward.	____	____
8. The workstation is adjusted so that the wrist is in a straight line, i.e., not bent up or down.	____	____
9. The topmost line of the screen is slightly below eye level.	____	____
10. Screen position can be tilted.	____	____
11. Document holder is positioned at the same height and at the same distance from the viewer as the screen.	____	____
12. Work surface is large enough to hold all needed reference material (at least 35 inches wide).	____	____
13. Paper can be easily and conveniently loaded into printers without the need for lifting heavy boxes in awkward postures.	____	____
14. Screen has color, brightness, and contrast satisfactory with the operator.	____	____
15. The illumination level at the VDT station is between 45 and 70 foot candles (500 and 700 lux).	____	____
16. Characters on the screen are clear and free of flicker or jitter.	____	____

	Yes	No
17. There is adequate room under the work table to permit movement of operator's legs and a foot rest where necessary.	____	____
18. Task schedules allow the operator to perform duties not requiring use of the VDT at least 15 minutes during each 2-hour period.	____	____
19. Are all adjustments easy to make with a single lever or are controls known? (Equipment that is difficult to adjust will probably not be adjusted properly.)	____	____

Score (count all "No" answers) ____

Comments:_____

_____

_____

Prepared by:_____Date:_____

Shop/Task Identification: _____

Operator's Name:_____

Evaluation: When a group of workstations are evaluated by the same evaluator, the higher scores should indicate which workstations are more likely to cause ergonomic stress. It is not necessary for each workstation to achieve a perfect score on this checklist. Common sense should be used to determine whether modifications to workstations are necessary, reasonable, and feasible.

Appendix 23-C

Model Specification for an Ergonomic Job Hazard Analysis

Objective: Evaluate work positions that have been identified as putting workers at high risk of developing cumulative trauma disorders; verify low risk factors of light duty or restricted activity work positions; or to determine if risk factors for a work position have been reduced to the extent feasible.

Work Scope: Evaluate the following work positions:

[list to be inserted at time of assignment]

Qualifications: The requested analysis shall be performed by or under the direct supervision of a person who possesses a recognized degree or professional credentials in ergonomics or a closely allied field, e.g., human factors engineering, and who has demonstrated, through knowledge and experience, the ability to identify and recommend effective means of correction for ergonomic hazards in the work place.

Technical Requirements:

1. Quantitatively characterize risk factors of posture, repetitiveness, force, and tool design.

a. Posture should be measured in degrees about the three axes in the shoulder, two axes in the elbow, and two axes in the wrist. Anthropometric measurements should be made of the worker who is performing the job, or ranges indicated for the worker for whom the job is designed.

b. For upper extremities, three quantitative measurements of repetitiveness are the total hand manipulations per cycle, the total per workshift, and the cycle time.

c. Force measurements may be estimated as an average effort, and a peak force.

d. Tool vibration should be measured at a point close to where the vibration enters the hand, in three mutually-orthogonal directions over a range of frequencies from 8 to 1500 Hertz. Measurement results should be expressed in frequency-weighted acceleration units (in/sec2) root mean square (rms). If results are expressed in decibels, the decibel reference level and the method for converting to acceleration units must be stated to allow comparison with American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values.

e. The dimensions of the workstation, tools, and personal protective equipment should be noted for each job hazard analysis. The physical demands and requirements of the jobs should be listed with the analysis.

f. For manual materials handling, the maximum weightlifting values should be calculated in newtons (see reference 23-6).

2. Obtain slow-motion videotape or equivalent visual records of workers performing their routine job tasks and analyze them to determine the efficacy of the relationship of the worker to the work position.

3. Systematically describe how, when, and where postural stressors, e.g., flexion, extension, and deviation, occur in the sequence of actions required to complete each task.

4. Recommend engineering and work practice control methods that would reduce or eliminate risk factors.

5. Devise an evaluation method that can be used to measure the effectiveness of workplace modifications. For example, a methodology for interviewing workers to determine the extent and severity of symptoms related to CTD before and after work-place modifications could be proposed.

Appendix 23-D

Ergonomic Considerations for Shift Workers

A. Nature of Occupational Hazard

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 the 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 the normal time cues are shifted faster than the human circadian rhythms 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, which is typical for night workers). Some individuals never completely adjust to time shifts of this magnitude. 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. Shiftworkers are at higher risk of psychosocial problems as well as family problems, including divorce.

Persons 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. Individuals with excessive family responsibilities will be at high risk of significant chronic sleep deprivation, as will those with long commuting times to and from work.

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.

NOTE:

> Unless prescribed by current labor contracts, schedules must be rotated in the forward (clockwise) direction (i.e., day to swing to graveyard).

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 consid-

eration when preparing schedules, but are not mandatory:

(1) At least 48 hours off should follow the night shift rotation. If at all possible, when several nights are worked in a row, the shift rotation should be followed by 72 hours off.

(2) In situations involving rotating shifts, the number of night shifts worked in a row should be limited to no more than four or five, if at all possible.

(3) Overtime is scheduled at management's prerogative, although sometimes constrained by labor contract agreements. Supervisors should be aware that scheduling overtime hours during the time of day when performance is poorest and asking workers who are already at high risk for sleep deprivation to work more than 8 hours is unwise, both from a medical and a safety perspective.

(4) Worker preferences should be considered in schedule planning. It should not be assumed that all groups of workers will prefer the same schedule. Family obligations, commuting times, etc. vary. Satisfaction with the work schedule is associated with fewer work-related health complaints and with lower absenteeism rates.

C. <u>Medical Surveillance for Shift Workers</u>

Being assigned night shift work, by itself, does not obligate an employee to undergo a medical evaluation. Where medical evaluations are otherwise required (i.e., for positions covered by medical standards, physical requirements, or medical surveillance programs) 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 the individual's fitness to work night shifts and/or recommend appropriate restrictions.

Supervisors may request medical qualification information from workers who demonstrate persistent performance problems and/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. Workers who claim to be unable to tolerate night work should not be forced to continue working the shift without medical clearance to do so.

Pre-employment evaluation of workers who will be involved in night work and medical surveillance of employees doing shift work should give 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.

a. Diabetes mellitus, epilepsy, being at high risk of cardiovascular disease, asthma, peptic ulcer disease, irritable bowel syndrome, or use of any medication with circadian variation in effectiveness. The examining physician must determine when such medical conditions are severe enough to warrant medical disqualification for night work.

b. When applying this portion of the instruction, supervisors are cautioned to consult Federal Personnel Manual (FPM) chapter 339 governing medical qualification determinations.

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 guidance 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 which are covered under references 24-3 and 24-4

(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 24-5 and 24-6

(c) Exposure to electrical hazards from work on, near or with conductors or equipment in electrical utilization installations, which are covered under references 24-5 and 24-6

(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 and 24-4. However, the installation of equipment for such training is covered by this instruction.

2402. General Policy

All 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, not tagout is the preferred method of energy control and commands shall use it ashore where feasible. 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 in the event of an emergency.

d. Both lockout and tagout devices shall indicate the identity of the employee applying the device(s). Tagout devices shall indicate the cognizant shop or code, the telephone number where the employee can be reached during working hours, his/her supervisor, date applied, and the machine, equipment or system component that is deenergized.

e. Commands shall ensure that all training complies with reference 24-1, is specific to the activity, but need not include instruction on energy sources or means of isolation that are not applicable to the activity.

2403. Requirements for Contractors or Other Outside Agencies

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 activity shall provide the contractor or agency with a copy of the lockout/tagout program instruction of the activity where the work is to be performed.

b. Contractors must comply with the requirements of reference 24-7.

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. Chief of Naval Education and Training (CNET) shall:

(1) Incorporate lockout/tagout requirements into the NAVOSH & Hazardous Material Control and Management Navy Training 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 by activities 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.

e. Activity OSH 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.

(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. 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.

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, latest revision (NOTAL)

24-2. American National Standards Institute (ANSI) Standard Z244.1-1982, Safety Requirements for Lockout/Tagout of Energy Sources (NOTAL)

24-3. OPNAVINST 5100.19C of 14 Jan 94, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

24-4. OPNAVINST 3120.32C of 11 Apr 94, Standard Organization and Regulations of the U.S. Navy

24-5. OPNAV P-45-117-6-98 of June 1998, Electrical Safety Field Guide

24-6. MIL-HDBK 1025/12 of November 1998, Military Handbook for Safety of Electrical Transmission and Distribution Systems

24-7. EM385-1-1 of Oct 92, U.S. Army Corps of Engineers Safety and health Requirements Manual (NOTAL)

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 which 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 regard-ing 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 carcin-ogens." 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 work week. 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 OSH 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 facepiece 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 which address Federal environmental regulations. Also, see references 25-9 and 25-10 for guidance. 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 (NOTAL)

25-2. Title 40 CFR 761 of 1 Jul 96, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions (NOTAL)

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” (NOTAL)

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) (NOTAL)

25-5. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, “Polychlorinated Biphenyls (PCBs), Polychlorinated Dibenzofurans (PCDFs), and Polychlorinated Dioxins (PCDDs), latest edition (NOTAL)

25-6. ACGIH (American Conference of Governmental Industrial Hygienists) 3rd Edition, Guidelines for Selection of Chemical Protective Clothing (NOTAL)

25-7. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, "Medical Surveillance Procedures Manual and Medical Matrix," latest edition (NOTAL)

25-8. OPNAVINST 5090.1B of 1 Nov 94, Environmental and Natural Resources Program Manual, Chapter 11, "PCB Management Ashore" (NOTAL)

25-9. NAVSEA S9593-A1-MAN-010, Shipboard Management Guide to PCBs, latest edition (NOTAL)

25-10. Naval Energy and Environmental Support Activity (NEESA) 20.2-028C, PCB Program Management Guide, latest edition (NOTAL)

CHAPTER 26

MAN-MADE VITREOUS FIBERS

2601. Discussion

a. This chapter provides guidance for controlling and minimizing the exposure of Navy personnel to man-made vitreous fibers (MMVF) during use, removal and disposal of materials.

b. Man-made vitreous fibers, also referred to as man-made mineral fibers (MMMF) or synthetic vitreous fibers (SVF), are a group of fibrous inorganic materials, generally aluminum or calcium silicates, that are derived from rock, clay, slag and glass. The Navy uses MMVF for thermal and acoustical insulation and as reinforcement materials. The MMVF products have replaced asbestos as the primary source of insulation and lagging material.

c. There are three categories of MMVF:

(1) Glass fibers, including glass wool, filamentous glass and special application superfine glass

(2) Mineral wools, more correctly separated into rock wool and slag wool

(3) Refractory ceramic fibers (RCF).

For a complete discussion of MMVF, refer to reference 26-1.

d. In contrast to asbestos fibers, MMVF are amorphous; that is, they are glassy and lack a crystalline matrix. Consequently, the man-made fibers do not split longitudinally into thinner fibers, but break transversely into shorter fibers.

2602. Applicability

The provisions in this chapter apply to all facilities using man-made vitreous fiber products.

2603. Exposure Limits

a. The exposure limits for MMVFs are listed in appendix 26-A.

(1) These exposure limits are based on "pure" product exposures. If the manufacturer's material safety data sheet (MSDS) lists other regulated chemicals (i.e., in the lubricating oils or sizings), then activities must consider the applicable exposure limits for these chemicals.

(2) If the MSDS lists more stringent exposure values, consult the cognizant industrial hygienist or the Navy Environmental Health Center to assess the suggested exposure limit based on its scientific validity.

b. For a literature review of occupational exposures to MMVF, see reference 26-1.

2604. Control of MMVF in the Workplace

a. General Workplace Control Practices. When performing work on MMVF, activities shall:

(1) Use wet methods whenever possible.

(2) Provide containments during removal procedures, including glove bags where applicable, if necessary to keep exposures below the exposure limits.

(3) Minimize airborne dusts and fibers through strict adherence to good housekeeping procedures. At a minimum, activities shall vacuum work areas at the end of the work-shift using a high efficiency particulate air vacuum. Pick up any MMVF scraps that fall to the ground or floor as soon as possible to reduce possible airborne fiber generation as a result of material disturbance.

(4) Ensure personnel involved in MMVF operations do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the work area.

b. Ventilation

(1) Certain operations may require the use of local exhaust ventilation (LEV) to ensure that airborne levels of MMVF do not exceed the exposure limits. All such ventilation shall be high efficiency particulate air HEPA-filtered. Activities shall design, construct, install and maintain LEV and dust collection systems per references 26-2, 26-3 and 26-4.

(2) Workcenters using power tools for machining MMVF products (i.e., saws, drills and grinders) shall equip them with HEPA-filtered local exhaust to collect dust at the source.

c. Personal Protective Clothing and Related Facilities

(1) All personnel working with MMVF materials shall wear goggles or safety glasses with side shields and long sleeved clothing and should wear leather or other impenetrable gloves and disposable (i.e., Tyvek® or equivalent) coveralls. If personnel use non-disposable coveralls, they shall thoroughly clean them with a HEPA-filtered vacuum before leaving the work area. Activities shall launder them (separately from other clothing) before being worn again.

(2) In addition to the personal protective equipment (PPE) listed above, personnel experiencing skin irritation shall wash or shower to remove the irritant substances, and upon return to work shall ensure that their long sleeved clothing is closed at the neck and wrists. They should also wear a head covering.

(3) Personnel shall use respiratory protection when the exposure limit is or is reasonably expected to be exceeded. The minimum respiratory protection shall be half-mask with P100 filter. Activities shall ensure that respiratory protection com-plies with the requirements of chapter 15 of this instruction.

(4) Personnel handling MMVF materials shall wash thoroughly with soap and water before breaks and at the end of the work shift. Personnel should shower at the end of the work shift.

(5) Where the potential for exposure is effectively eliminated through the use of glove bags, the use of the PPE described above is not required.

2605. Disposal Procedures

Personnel shall adequately wet MMVF waste before placing it in heavy duty plastic bags or other suitable impermeable containers for disposal in an approved sanitary landfill.

2606. Training

a. Navy personnel who work with or handle MMVF, or who may be occupationally exposed to MMVF, shall receive the following training prior to initial assignment:

(1) The health effects/hazards of MMVF

(2) Uses of MMVF products which could result in exposure

(3) Engineering controls and work practices

(4) Purpose, proper use and limitations of personal protective equipment and the required protective equipment when working with MMVF.

b. Training records shall be per chapter 6.

2607. Industrial Hygiene Surveillance

a. Activities shall establish a exposure monitoring plan to characterize exposures for employees occupationally exposed to MMVF above the exposure limit. Within a class or category of similar operations, they shall sample at such frequency and pattern as to accurately and reproducibly represent airborne levels produced by a typical operation within the class or category.

b. If the initial sampling or the periodic monitoring results statistically indicate that personnel exposures are below the exposure limit, activities may discontinue routine monitoring of person-nel.

c. Whenever changes in production, engineering controls or work practices occur, activities shall conduct monitoring to ensure that exposures are below the exposure limit.

2608. Man-made Vitreous Fiber Medical Surveillance Program

Activities shall conduct medical surveillance, based on industrial hygiene assessment per reference 26-5.

Chapter 26

References

26-1. Navy Environmental Health Center Technical Manual 6290.91-1 Rev A of Oct 97, Man-made Vitreous Fibers (NOTAL)

26-2. American Conference of Governmental Industrial Hygienists Pub. No. 2092, Industrial Ventilation: A Manual of Recommended Practice, 23rd Edition (NOTAL)

26-3. American National Standards Institute Z9.2 of 29 Mar 79, Fundamentals Governing the Design and Operation of Local Exhaust Systems (NOTAL)

26-4. MIL-HDBK-1003/17C of 29 Feb 96, Industrial Ventilation Systems (NOTAL)

26-5. Navy Environmental Health Center Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, Latest Edition (NOTAL)

Appendix 26-A

Exposure limits for MMVFs

The exposure limits for MMVFs are derived in part from the ACGIH 1998 TLVs:

1. Continuous filament glass fibers	1 f/cc	(a)
2. Continuous filament glass fibers	5mg/m^3	(b)
3. Glass wool fibers	1 f/cc	(a)
4. Rock wool fibers	1 f/cc	(a)
5. Slag wool fibers	1 f/cc	(a)
6. Special purpose glass fibers	1 f/cc	(a)
7. Refractory ceramic fibers	1 f/cc	(a)
8. Refractory ceramic fibers (high temperature)	.05 mg/m^3	(c)

(a) Fibers longer than 5 μm; diameter less than 3 μm; aspect ratio greater than 5:1 as determined by the membrane filter method at 400-450X magnification (4-mm objective) phase contrast illumination.

(b) Inhalable fraction. The concentration of inhalable particulate for the application of this exposure limit is to be determined from the fraction passing a size-selector with the characteristics of SI (d)=50% x $(1 + e^{-0.06d})$ for $0< d \leq 100\mu m$ where: SI (d) = the collection efficiency for particles with aerodynamic diameter d in μm.

(c) High temperature means- use temperature of > 850 °C. Operations involving the removal of "high temperature" refractory ceramic fiber (RCF) materials shall adhere to an exposure limit of 0.05 mg/m^3 respirable crystalline silica dust. The reason for this variation is that, at high temperatures, RCF will convert to cristobalite, a form of crystalline silica dust. The concentration of respirable particulate for the application of this exposure limit is to be determined from the fraction passing a size-selector with the characteristics of SR(d)= SI(d) [1-F(x)] with Γ=4.25 μm and Σ=1.5 and where F(x)= the cumulative probability function of a standardized normal variable,x. The variable x can be found by using the following formula:

$$x = \frac{\ln (d/\Gamma)}{\ln (\Sigma)}$$

CHAPTER 27

CONFINED SPACE ENTRY (CSE) PROGRAM (NON-MARITIME)

2701. Discussion

a. Confined spaces are enclosures not designed for routine occupancy which an employee may need to enter to perform work. In general, such spaces have poor ventilation, have limited means of entry or egress and contain potential and/or known hazards. Numerous confined spaces can be found on most Navy shore installations. Examples include storage tanks, process vessels, pits, vats, boilers, fuel cells, sewers, underground utility vaults, tunnels and manholes. Personnel entering such spaces may encounter a variety of hazards, including:

(1) Lack of sufficient oxygen to support life

(2) Excessive oxygen which increases the danger of fire or explosion

(3) The presence of flammable or explosive atmospheres or materials

(4) The presence of toxic atmospheres or materials

(5) Physical hazards such as:

(a) Slippery surfaces

(b) Conduits

(c) Cables, protruding sharp objects or other obstructions to passage

(d) Deteriorated or unstable ladders

(e) Machinery and electrical devices that require energy isolation (lockout/tagout procedure), etc.

(f) Engulfment. Poor illumination often compounds these hazards.

b. Navy policy is that activities shall consider all confined spaces hazardous and prohibit entry into or work on the boundaries of such spaces until a Confined Space Program Manager (CSPM) or Assistant Confined Space Manager (ACSPM) evaluates the space to establish appropriate safety precautions.

2702. Applicability

The provisions of this chapter apply to all non-maritime Navy installations. Naval shipyards and Shore Intermediate Main-tenance Activities (SIMAs) are exempt from the requirements of this chapter since they are governed by reference 27-1, an approved alternative OSHA standard. Activities performing maritime work at non-maritime activities (e.g., harbor craft at naval stations, etc.) shall comply with OSHA maritime standards. Activities performing non-maritime work at maritime activities may follow the procedures in this chapter.

2703. Program Management

Commanders, Commanding Officers or Officers-in-Charge of each naval shore installation shall appoint, in writing, a qualified Confined Space Program Manager (CSPM). The CSPM shall be responsible for the implementation of a confined space entry program consistent with the requirements of this chapter. The CSPM is a Navy designation, while attendants, entrants and entry supervisors are all covered under OSHA regulations. Activities should assign the CSPM to the activity Occupational Safety and Health (OSH) Office. However, in the event the CSPM is not assigned there, he/she shall have direct access to the commanding officer. Small shore installations may utilize the services of a CSPM from a larger facility via an appropriate

written agreement. Similarly, tenant organizations may either utilize the services of the host base CSPM through a host-tenant agreement, or the tenants may appoint their own CSPM.

2704. Basic Program Elements

The CSE program consists of six basic program elements.

a. Identification and Preliminary Evaluation

(1) Confined Space. The CSPM/ACSPM, in coordination with appropriate line managers, shall identify all confined spaces on the installation having reasonable potential for personnel entry. For the purpose of identification, a confined space is a space that:

(a) Is not designed for routine, continuous employee occupancy

(b) An employee can bodily enter to perform work

(c) Is poorly ventilated and/or has limited or restricted means for entry or exit.

(2) Permit Required Confined Space means a confined space that has one or more of the following characteristics: contains or has a potential to contain a hazardous atmosphere; contains a material that has the potential for engulfing an entrant; has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or contains any other recognized serious safety or health hazard. The CSPM/ACSPM, with the assistance of industrial hygiene or safety personnel, as necessary, shall evaluate each space to determine whether it is a permit required confined space (PRCS) per reference 27-2. The CSPM/ACSPM shall maintain a current inventory of all confined spaces on the installation, and annotate those that are Permit Required.

(3) Non-permit required confined space is defined as a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. For these spaces, a qualified person (QP), trained per 2704e(2) may conduct atmospheric testing prior to entry.

b. Prevention of Unauthorized Entry. Responsible supervisors shall prevent unauthorized entry using the guidance contained in reference 27-2.

c. Comprehensive Hazard Evaluation. CSPM/ACSPM shall evaluate factors prior to entry into a confined space. Such evaluations shall include the following:

(1) Initial Atmospheric Testing. Prior to entry into a PRCS containing a potentially hazardous atmosphere, the CSPM/ACSPM shall test the space following the procedures outlined in reference 27-2. Based on the results of such testing, the CSPM/ACSPM shall take the appropriate precautions per reference 27-2.

(2) Instrument Requirements. The CSPM/ACSPM shall ensure that appropriate instruments are available to perform the atmospheric testing. These instruments shall be suitable for the task and be approved by the National Institute for Occupational Safety and Health (NIOSH), Mine Safety and Health Administration (MSHA), or other nationally recognized testing laboratory recognized by OSHA such as Underwriters Laboratory (UL). The CSPM/ACSPM shall ensure that such equipment is properly used, maintained and calibrated per the manufacturer's instructions. The CSPM/ACSPM shall maintain records of such checks for a period of one year.

d. Issuance of Confined Space Entry Permits. If entry into a PRCS is required, the entry supervisor of personnel requiring entry shall request a permit from the CSPM/ACSPM. All requests and permitting will follow the guidelines in reference 27-2. A sample confined space permit form can be found in Appendix 27-A.

NOTE:

Entry supervisor is a term used in This chapter that under most Circumstances applies to the cognizant worksite supervisor.

e. Training and Qualifications.

(1) The CSPM and ACSPM shall successfully complete course number A-493-0030, Confined Space Safety, 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 commanding officer's written appointment to the position.

NOTE:

Persons who qualify as Navy Maritime Ashore Gas Free Engineers per the provisions of reference 27-1, may serve as non-maritime ashore CSPMs or ACSPMs, respectively.

(2) QPs shall be trained and certified by the CSPM. Training shall include the proper use, maintenance and calibration/functional check of test equipment. Shore installations shall provide Qps with at least 8 hours of initial classroom instruction followed by 8 hours of on-the-job training (OJT). A minimum of 2 hours annual refresher training shall also be provided.

(3) Shore installations shall provide all attendants, entrants and entry supervisors with training per reference 27- 2.

(4) Activities requiring personnel to enter into and work inside of confined spaces, fuel cells and fuel tanks shall include such duties formally in their position description and personnel records. Activities shall also require these workers to receive physical examinations per reference 27-2. Annual examinations will be given if the physical requirements for the job support them and when industrial hygiene evaluations deem them necessary. A termination examination will be given upon termination of employment or reassignment to other duties.

f. Program Evaluation. The commanding officer shall make, or cause to be made, an evaluation of the Confined Space Entry (CSE) Program following any mishap or other incident, and at least annually to ensure that the activity is properly conducting all aspects of the program.

2705. Requirements for Confined Space Entry and Work

In addition to the hazard evaluation, the following requirements and restrictions also apply:

a. Personal Protective Clothing and 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 permit. Per reference 27-2, for all vertical penetrations greater than five feet, the entrant shall wear a chest or full body harness

attached to a mechanical retrieval device or a fixed point. The CSPM/ACSPM shall ensure that responsible entry supervisors train all confined space entry personnel in the proper use of personal protective clothing and equipment.

b. Preparation of Spaces

(1) Protection from External Hazards. Entry supervisors shall take appropriate measures to isolate the space from unwanted hazards per reference 27-2.

(2) Ventilation. When atmo-spheric testing and/or the nature of operations that activities conduct within the space indicate, the CSPM/ACSPM shall ventilate all PRCS confined spaces per reference 27-2.

(3) Space Cleaning. It is often necessary to clean the interior of a con-fined space before certain work can be accomplished. Agents used during the cleaning process may be hazardous. Also, cleaning may disturb residues and sludges in some spaces, releasing toxic or flammable gases. References 27-3 and 27-4 prescribe specific instructions for cleaning fuel storage tanks.

2706. Special Precautions for Specific Operations

a. Hot Work. is defined as work involving open flames; cutting and welding using open flames or electric arcs; grinding, buffing or open unguarded sources of ignition. The provisions of Chapter 5 of reference 27-1 apply to all hot work activities performed in confined spaces and hot work performed on closed structures or containers such as pipes, drums, ducts, tubes and similar items.

b. Aircraft Fuel Cell Repair. Reference 27-5 prescribes safety pre-cautions relative to maintenance and repair of aircraft fuel cells which involve entry into or work on confined spaces. If the CSPM/ ACSPM oversees aircraft fuel cell entry, he/she shall complete the formal training and follow the procedures stated in reference 27-5.

2707. Emergency Rescue Procedures

The CSPM/ACSPM, in coordination with cognizant line managers, shall prepare a written emergency plan to cover confined space entries under their control. Activities shall plan emergency and rescue procedures, in order to be most effective, consistent with the nature of the operations and the conditions within the confined space. Rescue plans and procedures shall incorporate the requirements of reference 27-2.

2708. Contractor Operations

Where contractors are performing work at Navy shore installations, references 27-2, 27-6 or 27-7 apply depending on whether their work or operations are shore, or maritime-related. In addition, activities shall observe the following provisions:

a. The appropriate laws and regulations make no provision for Navy personnel to issue permits for contractor operations nor authorize contractors to use government owned and controlled equipment to evaluate confined spaces. Performance of such functions may involve assumption of liability by the Navy in the event of a mishap. Therefore, Navy personnel shall not certify spaces, permit a contractor to use government owned and controlled equipment to evaluate confined spaces or issue confined space entry permits for contractor operations or personnel, except where failure to do so would create an extreme emergency and would endanger personnel and property, and may, cause even greater potential liability. The commanding officer shall authorize such cases and the CSPM/ACSPM shall personally conduct and supervise them, except where the nature of the emergency is so extreme that delays created by seeking the commanding officer's approval or the personal services of

the CSPM/ACSPM would create a greater danger.

NOTE:

Government owned and controlled equipment is equipment that has been issued to, and is in the possession of a Federal government organization. Equipment that is government owned but issued or transferred to, and is in the possession of a contractor, per provisions of the contract, is not included in the exclusions of this paragraph.

b. Where Navy and contractor personnel are to occupy the same space at the same time, the Navy CSPM/ACSPM and the appropriate contractor repre-sentative shall issue separate permits. The CSPM/ACSPM shall inform the contractor of the Navy findings, and the contractor shall present his/her findings to the Navy CSPM/ACSPM, as appropriate. However, the contracting officer shall inform the contractor that the contractor retains legal obligation for the safety of contractor personnel.

c. In all cases involving contractor operations, the contracting officer must ensure that the contractor's confined space entry personnel are adequately qualified. In addition, the contractor shall conduct all operations per the statutory and regulatory requirements due to Navy personnel, ships and facilities that may also be at risk.

2709. <u>Responsibilities</u>

a. <u>Commanding Officer</u>. Commanders, commanding officers and officers-in-charge are responsible for establishing, conducting and evaluating a comprehensive confined space entry program which meets the intent and specific requirements of this chapter. To assist in the fulfillment of these responsibilities, the commanding officer shall appoint, in writing, a qualified CSPM. As the workload requires, the Commanding Officer may also appoint an ACSPM to assist the CSPM. The Commanding Officer shall issue local instructions defining the CSE program and procedures and assigning responsibilities.

b. Confined Space Program Manager. The CSPM, or ACSPM in the event the CSPM is absent, is responsible for implementing the activity CSE program consistent with the requirements of this chapter. The CSPM shall perform the duties and responsibilities specified in this chapter. If additional support is needed, the CSPM shall train and certify QPs to perform specific tasks not involving permits.

c. <u>Line Manager</u>. Management personnel shall ensure that:

(1) Confined spaces under their control are identified and properly evaluated by the CSPM/ACSPM (or QP for non-permit required) prior to commence-ment of operations within the space.

(2) The provisions, procedures and requirements of this chapter are fully met.

d. <u>Entry Supervisor</u>. Entry supervisors shall be familiar with the provisions of this chapter as they relate to personnel or operations under their supervisory control.

Entry supervisors shall act positively to eliminate any potential hazards existing in operations under their control and shall:

(1) Ensure that all employees under their immediate supervision are aware of the hazards associated with confined spaces and the precautions necessary to control such hazards

(2) Strictly enforce observance of the safety and health requirements of this

chapter and the specific instructions of the CSPM/ACSPM on entry permits

(3) Promptly report to cognizant management any unsafe conditions or procedures and, where warranted by the severity of such conditions, cease all operations until corrective action has been taken

(4) Prohibit unauthorized entry into confined spaces under their control.

e. Attendants and Entrants. All persons engaging in confined space entry or work are responsible for fully understanding and strictly observing the safety standards, regulations and procedures, and specific instructions from the CSPM/ ACSPM on entry permits. Further, attendants and entrants shall:

(1) Report to their immediate supervisor any condition, procedure or equipment they consider unsafe

(2) Warn others to observe the proper procedures or precautions

(3) Report to their supervisor any injury or evidence of impaired health occurring in the course of work or duty, or which may affect the safe performance of duties.

f. Attendants. Attendants are mandatory for all entries into permitted spaces. The CSPM/ACSPM shall annotate the requirement for attendants on the entry permit along with the names of eligible personnel. In physically remote areas, activities shall equip attendants with radios or other communications equipment to ensure prompt emergency response.

(1) Attendants shall remain on the outside of the main opening to the space to monitor the condition of those inside and seek assistance in the event of any emergency. Attendants shall also warn those inside of any dangers that may arise. Accordingly, attendants shall maintain constant visual or verbal communication with those inside.

(2) The CSPM shall instruct attendants regarding whom to notify in the event of an emergency and that no rescue attempt involving entry shall be made until designated rescue personnel have arrived.

(3) Attendants shall not be assigned additional duties.

(4) Attendants must know what hazards entrants will face during entry, be aware of possible behavioral effects of hazard exposure, continuously maintain a count of entrants, and monitor activities inside and outside the space.

(5) The attendant shall order the evacuation of the space immediately upon detection of any prohibited condition; behavioral effect on an entrant due to hazardous exposure; situation outside the space that could endanger entrants; or any situation that could result in entrants or attendants being unable to effectively or safely perform all required duties.

(6) Attendants shall warn unauthorized personnel to stay away from the permitted space, advise any unauthorized personnel who have entered a space to leave immediately, and inform authorized entrants and the entry supervisor if unauthorized persons have entered the space.

g. Entrants. Only personnel the entry supervisor authorizes shall enter a PRCS. The entry supervisor shall ensure that such personnel are aware of any potential hazards and the appropriate safety measures initiated. The entry supervisor shall also ensure that such personnel are medically fit for such an activity. Entrant personnel shall:

(1) Properly use all required protective and other equipment

(2) Communicate with the attendant as necessary to enable the attendant to monitor the entrants, and to enable the attendant to alert entrants of the need to evacuate as required

(3) Alert the attendant whenever a warning sign or symptom of exposure to a dangerous situation is recognized or if a prohibited situation is detected

(4) Exit from the permitted space as quickly as possible whenever an order to evacuate is given by the attendant or supervisor, any warning sign or symptom of exposure to a dangerous situation is recognized, a prohibited condition is detected, or an evacuation alarm is activated.

h. Safety, Occupational Health and Fire Protection Managers. Activity safety, occupational health and fire protection managers shall coordinate their respective programs with the CSPM/ACSPM and provide assistance in the evaluation and control of confined space hazards.

Chapter 27

References

27.1. NAVSEA S6470-AA-SAF-010, Gas Free Engineering Program (NOTAL)

27-2. Title 29 Code of Federal Regulations (CFR) 1910.146 of 14 January 1993, Permit Required Confined Spaces (NOTAL)

27-3. NAVFAC Guide Specification 13219A, Cleaning Petroleum Storage Tanks (NOTAL)

27-4. American Petroleum Institute (API) Instruction 2015 of 1991, Safe Entry and Cleaning of Petroleum Storage Tanks, 4th Edition (NOTAL)

27-5. NAVAIR 01-1A-35, Aircraft Fuel Cell Tanks (NOTAL)

27-6. Title 29 CFR 1926, Safety and Health Regulations for Construction (NOTAL)

27-7. Title 29 CFR 1915 Subpart B, Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment (NOTAL)

Appendix 27-A
Confined Space Entry Permit

A special permit is required for entry into certain confined spaces. The permit shall contain the following information.

a. Description and location of space to be entered

b. Purpose of entry

c. Authorized entry personnel

d. Authorized attendants

e. Pre-entry atmospheric test data:

(1) Time and date of test

(2) Test results

(3) Person conducting test

(4) Instruments used (type, serial number) and calibration/function check dates.

f. Follow-up test requirements and data

g. Other required safety precautions:

(1) Personal protective clothing/ equipment

(2) Lockout/tagout requirements

(3) Ventilation or other space preparation requirements.

(4) The method of communication to be used by the personnel making entry into the permitted space

h. Emergency instructions and required emergency/rescue equipment

i. Date of permit and authorized duration

j. Expiration date and time of permit

k. Signature of CSPM (or ACSPM)

l. Signature of entry supervisor.

NOTE:

This signature authorizes entry and is an acknowledgment that requirements have been met.

A sample permit form is attached.

CONFINED SPACE ENTRY PERMIT

DATE OF PERMIT:	EXPIRATION DATE/TIME:
LOCATION:	DESCRIPTION:
PURPOSE OF ENTRY: (Operations to be conducted)	
AUTHORIZED ENTRANTS:	AUTHORIZED ATTENDANTS:

ATMOSPHERIC TEST DATA

TEST	PRE-ENTRY	FOLLOW-UP				
Oxygen Content						
Explosive (%LEL)						
Toxins (Specify)						
Tested by:	Date/Time:					

INSTRUMENT	MODEL	SERIAL NO.	CALIBRATION DATE	COMMENTS (Hazard of Permit Space)

REQUIRED SAFETY PRECAUTIONS

REQUIREMENT	YES	NO	SPECIFICS
Attendant			
Respiratory Protection			
Protective Clothing			
Protective Clothing			
Protective Equipment			
Rescue Equipment			
Lockout/Tagout			
Ventilation			
Follow-up Testing			
Other Controls (specify)			
Communication Practices			

EMERGENCY CONTACT:	PHONE:
OTHER COMMENTS:	
ENTRY SUPERVISOR'S SIGNATURE:	CONFINED SPACE PROGRAM MANAGER'S (OR QUALIFIED PERSON'S) SIGNATURE:

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. The Chief of Naval Education and Training (CNET) 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 CNET 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 91, Bloodborne Pathogens (NOTAL)

28-2. BUMEDINST 6230.15, Immunization and Chemoprophylaxis, (NOTAL)

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 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 (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. 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 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, activities shall not deny any individual pay or promotion because of 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 29-5 contain guidance on civilian personnel issues related to pregnant workers. The Occupational Safety and Health (OSH) office shall refer all employee questions regarding pregnancy employment issues to the human resources office. Appendix 29-A reprints specific information from references 29-4 and 29-5 on work-related issues during pregnancy.

2903. Control of Reproductive Hazards in the Workplace

a. Identification and Evaluation of Reproductive Stressors

(1) Reference 29-6 lists chemicals known to be reproductive stressors. Many of these stressors are no longer legally available in the United States. For simplicity, appendix 29-B provides a list of common chemicals that may be present in general Navy workplaces. Reference 29-6 provides additional guidance on physical and biological stressors. Safety personnel shall routinely look for these hazards during inspections. In addition, pharmacy and medical personnel should be aware of drugs and anti-neoplastic agents that reference 29-6 lists.

(2) Industrial hygiene personnel shall identify reproductive stressors that reference 29-6 lists during surveys and inspections of all Navy workplaces, as sections 0802 and 0903 of this instruction require.

(3) Industrial hygienists (IH) shall clearly annotate (highlight, asterisk, etc.) reproductive stressors on the list (that paragraph 0803b requires) 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, activities shall quantify the degree of exposure using conventional means, and then compare the results to those exposure standards (i.e., PELs, TLVs, etc.). Where stressor specific standards either do not exist, or were developed without consideration of reproductive health risk, 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. Assessments should include recommendations to reduce exposures per paragraph 2902b.

(6) Activities should contact the Navy Environmental Health Center (NAVENVIRHLTHCEN) if they need additional assistance, (757) 462-5500 (DSN: 253-5500).

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). 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) Activities shall consider all products that they currently use containing more than trace amounts of any of the chemicals. Appendix 29-B lists 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) Activities shall consider products containing chemicals in appendix 29-B for elimination/reduction via the Environmental and Natural Resources Program Manual in reference 29-7.

(d) Activities shall also consider these chemicals (appendix 29-B) 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 occupational safety and health (OSH) 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 CNET-approved courses sufficient to satisfy this requirement.

(2) Activities shall also specifically address reproductive hazards in OSH 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. 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 all patients, especially 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 activities determine there is a possibility of exposure.

(3) Developmental Hazards. The Navy strongly encourages all female employees who become pregnant to notify their commands immediately. Upon notification, the command shall perform the following evaluation:

(a) The woman shall be given the Developmental Hazard questionnaire in appendix 29-C. The pregnant woman should fill this out with command supervisory personnel, knowledgeable of the woman's workplace. 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, 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) 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 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 officers are cognizant of all items in appendix 29-B utilized at the command. Medical commands and commands with hospital units shall utilize the list in reference 29-6.

(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 conception of offspring. Upon notification of pregnancy, ensure that female workers complete the questionnaire in appendix 29-C and that an occupational physician performs an evaluation per 2903(d)(2).

(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. Appendix 29-B is the 1998 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 OSH professionals

(e) Appropriate counseling to personnel potentially exposed to reproductive hazards.

(3) Review references 29-1 and 29-8 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 CNET in developing training programs for OSH professionals and workers. Provide for individual occu-

pational medicine counseling of pregnant employees exposed to developmental hazards per section 2903d and of other employees upon request.

c. Chief of Naval Education and Training (CNET) shall develop training programs for OSH 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 which contain reproductive stressors listed in appendix 29-B for substitution, elimination, and annotation in HMIS.

Chapter 29

References

29-1. OPNAVINST 6000.1A, Management of Pregnant Servicewomen

29-2. OCPMINST 12630.1 of 17 Jun 88, Absence and Leave (NOTAL)

29-3. Public Law 95-555 (92STAT 2077) (78), Prohibition of Sex Discrimination on the Basis of Pregnancy (NOTAL)

29-4. Office of Personnel Management Instruction 335 of 24 Jul. 86, Federal Personnel Manual (NOTAL)

29-5. 29 CFR 1604.10, Employment Policies Relating to Pregnancy and Childbirth (NOTAL)

29-6. Navy Environmental Health Center Technical Manual NEHC-TM92-2, May 1992, Reproductive Hazards in the Workplace: A Guide for Occupational Health Professionals

29-7. OPNAVINST 5090.1B of 1 Nov 94, Environmental and Natural Resources Program Manual (NOTAL)

29-8. Supreme Court Ruling, 89-1215 (20 Mar 91), International Union, United Automobile, Aerospace and Agricultural Implement Workers of America, UAW, et al, Petitioners v. Johnson Controls, Inc. (NOTAL)

Appendix 29-A
Pertinent Reference Information On Pregnancy Employment Policies

1. Federal Personnel Manual, SubChapter 13, Article 13-5, paragraph a.(2)

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 customers.

Appendix 29-B
Occupational Reproductive
Chemical Stressors List[A]

Chemical	Class	PEL	TLV	Type of Stressor		
Acetohydroxamic acid	*	-	-			D
Aminopterin	Insecticide	-	-		F	D
Arsenic	Pesticide	+	+			D
Benomyl	Fungicide	+	+	M		D
Benzene	*	+	+	M		D
Bromoxynil	Herbicide	-	-			D
Cadmium	Metal	+	+	M		D
Carbon disulfide	Solvent	+	+	M	F	D
Carbon Monoxide	*	+	+			D
Chlordecone(Kepone)	Insecticide	-	-			D
Cyanazine	Herbicide	-	-			D
Cycloheximide	Fungicide	-	-			D
Cyhexatin	Insecticide	-	+			D
Dinocap	Insecticide	-	-			D
Dinoseb	Insecticide	-	-	M		D
1,2-Dibromo-3-chloropropane	Nematocide	+ R	-	M		
m-Dinitrobenzene	*	+	+	M		
o-Dinitrobenzene	*	+	+	M		
p-Dintrobenzene	*	+	+	M		
Epichlorohydrin	Solvent	+	+	M		
Ethylene glycol monoethyl ether	Solvent	+	+	M		D
Ethylene glycol monoethyl ether acetate	Solvent	+	+	M		D
Ethylene glycol monomethyl ether	Solvent	+	+	M		D
Ethylene glycol monomethyl ether acetate	Solvent	+	+	M		D
Ethylene oxide	Sterilizing Agent	+ R	+		F	
Hexachlorobenzene	*	-	+			D
Hydroxyurea	*	-	-			D

Chemical	Class	PEL	TLV	Type of Stressor		
Lead	Metal	+ R	+	M	F	D
Mercury and mercury compounds	Metal	+	+			D
Methyl bromide	Fumigant	+	+			D
Methyl mercury	Organometal	+	+			D
Nickel carbonyl	*	+	+			D
Polybrominated biphenyls (PBBs)	*	-	-			D
Polychlorinated biphenyls(PCBs)	*	+	+			D
2,3,7,8-Tetrachloro-dibenzo-para-dioxin (TCDD)	*	-	-			D
Toluene	Solvent	+	+			D
Urethane	Polymer	-	-			D
Warfarin	Rodenticide	+	+			D

[A] = Source for this information is 31 March 1998 Navy Reproductive Hazards Review Board Meeting
M = Male
F = Female
D = Developmental
* = Unable to classify into a single functional class
PEL = OSHA's permissible exposure limit (PEL)
TLV = ACGIH threshold limit value (TLV)
+ = Exists
- = Does not exist
R = Level considers reproductive effects

Appendix 29-C
WORKPLACE EXPOSURES OF REPRODUCTIVE CONCERN
JOINT SUPERVISOR's AND WORKER's STATEMENT

The supervisor and the worker are to complete this form at the time of a female worker's confirmed pregnancy or any time a male or female worker is concerned about workplace reproductive hazards.

Name_____Rank/Rate_____Command/Shop_____
Brief description of job duties (not job title)_____
Supervisor_____

CHECK ALL THAT ARE APPROPRIATE

Workplace:_____shipboard_____shop_____office_____outdoors_____other

HAZARDS(specify)	**WORKER EXPOSED**	**WORKER IN MED SURVEILLANCE**
CHEMICAL		
Solvents_____	_____yes _____no	_____yes _____no
Metals _____	_____yes _____no	_____yes _____no
Pesticides _____	_____yes _____no	_____yes _____no
Antineoplastics_____	_____yes _____no	_____yes _____no
Anesthestics _____	_____yes _____no	_____yes _____no
Other_____	_____yes _____no	_____yes _____no
PHYSICAL		
Heat_____	_____yes _____no	_____yes _____no
Nonionizing radiation_____	_____yes _____no	_____yes _____no
Noise_____	_____yes _____no	_____yes _____no
Vibration_____	_____yes _____no	_____yes _____no
BIOLOGICAL (infectious agents)___	_____yes _____no	_____yes _____no
OTHER HAZARDS(specify)		
_____	_____yes _____no	_____yes _____no
_____	_____yes _____no	_____yes _____no
_____	_____yes _____no	_____yes _____no

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:
_____none_____respirator_____gloves_____hearing protection_____protective clothing

DATE OF MOST RECENT INDUSTRIAL HYGIENE (IH) SURVEY
(Attach if available):_____
ATTACH RELEVANT MATERIAL SAFETY DATA SHEETS (MSDS)

JOB ACTIVITIES/CONDITIONS:

_____jumping	_____climbing	_____shift or night work
_____heavy pushing/pulling	_____crawling	_____working at heights
_____heavy/repetitive lifting of:	_____prolonged standing for	_____hours/day
_____lbs(weight)	_____work in hot environment	
_____times/hour(frequency)		

OCCUPATIONAL MEDICINE (OM) EVALUATION RECOMMENDED _____yes _____no

_____	_____	_____	_____
Worker's Signature	Date	Supervisor's Signature	Date

This form must be maintained in the command's occupational safety and health office. If an OM evaluation is recommended, provide a copy of this form to the cognizant OM provider.

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. 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 work spaces. 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 become symptomatic 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, 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 tech-

niques can release asbestos, lead and other contaminants into the renovated building's ventilation systems.

c. Proper designs for new and renovated buildings precludes 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 (e.g., Public Works Center (PWC)/Public Works Lead Activity (PWLA), or First Lieutenant) and the activity Navy Occupational Safety and Health (NAVOSH) manager. If the activity is unable to determine the cause of the problem, the NAVOSH manager shall request the cognizant industrial hygiene service to initiate an IAQ investigation. Reference 30-2 provides guidance on indoor air quality evaluations.

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 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 NAVOSH 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 nonsmokers 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. 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 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 house rooms designated for smoking except when a common HVAC system serves individual housing units. In such circumstances, commanding officers 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 environmental tobacco smoke.

3004. <u>Building Design and Maintenance</u>

a. 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. 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.

c. 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 roof line of the building. They should attain sufficient height 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 intake 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. AFOEHL Report 90-169CA00111KGA from Brooks, AFB. (NOTAL)

30-2. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision

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. (NOTAL)

30-4. DOD Instruction 1010.15 of 7 Mar 94, Smoke-Free Workplace. (NOTAL)

30-5. Federal Labor Relations Authority, Case No. 0-NG-1947-1949 of 13 December 1991, Vol. 42. (NOTAL)

30-6. United States Environmental Protection Agency & NIOSH, GPO Stock #055-000-00390-4 of December 1991, Building Air Quality: A guide for Building Owners and Facility Managers. (NOTAL)

30-7. American Society of Heating, Refrigerating, and Air-Conditioning Engineers Standard 55-1992, *Thermal Environmental Conditions for Human Occupancy*. (NOTAL)

30-8. American Society of Heating, Refrigerating, and Air-Conditioning Engineers Standard 62-1989, *Ventilation for Acceptable Indoor Air Quality* (NOTAL)

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 (N45) 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 (COMNAVFAC-ENGCOM) 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 activity 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. Chief of Naval Education and Training shall assist COMNAVFAC-ENGCOM 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 OSH 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 (NOTAL)

31-2. NAVFAC P-307, Management of Weight handling Equipment

31-3. Title 29 Code of Federal Regulations (CFR) 1915, Occupational Safety and Health (OSH) Standards for Shipyard Employment

31-4. Title 29 CFR 1917, Safety and Health Regulations for Marine Terminals

31-5. Title 29 CFR 1918, Safety and Health Regulations for Longshoring"

31-6. Title 29 CFR 1919, Safety and Health Regulations for Gear Certification

31-7. Title 29 CFR 1910, OSH General Industry Standards

31-8. Title 29 CFR 1926, Safety and Health Regulations for Construction

31-9. ANSI/ASME B30.2, *Overhead and Gantry Cranes*

31-10. ANSI/ASME B30.4, Portal, Tower and Pillar Cranes

31-11. ANSI/ASME B30.5, Mobile and Locomotive Cranes

31-12. ANSI/ASME B30.6, Derricks

31-13. ANSI/ASME B30.7, *Base Mounted Drum Hoists*

31-14. ANSI/ASME B30.8, Floating Cranes and Floating Derricks

31-15. ANSI/ASME B30.9, Slings

31-16. ANSI/ASME B30.10, Hooks

31-17. ANSI/ASME B30.11, Monorail and Underhung Cranes

31-18. ANSI/ASME B30.16, Overhead Hoists (Underhung)

31-19. ANSI/ASME B30.17, Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)

31-20. ANSI/ASME B30.20, Below-the-Hook Lifting Devices

31-21. ANSI/ASME B30.21, Manually Lever Operated Hoists

31-22. ASME B30.22, Articulating Boom Cranes

31-23. Wire Rope Sling Users Manual published by the Wire Rope Technical Board

CHAPTER 32

SAFETY AND OCCUPATIONAL HEALTH AWARDS PROGRAM ASHORE

3201. Purpose

To issue the policy and procedures for selecting the winners of the Chief of Naval Operations (CNO) Safety and Occupational Health (SOH) 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 and Occupational Health Awards Program Ashore provides recognition to an Echelon 2 command with the best overall command SOH Program record; to activities for attaining excellent records in safety and occupational health; and to individual SOH professionals who have made significant contributions to a command/ activity or overall Navy SOH 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, inven-tion, 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 Safety and Occupational Health Awards Ashore. Appendix 32-B provides applicable formulas for the calculation of ashore mishap statistics. Awards are presented for excellence at the Echelon 2, activity, and individual levels.

3205. Action

Activity commanders, commanding officers, or officers in charge shall develop and implement an activity safety awards program applicable to the mission and operations of the individual activity.

Appendix 32-A
Awards Selection Criteria

1. Description

Chief of Naval Operations (CNO) safety and occupational health awards will be presented annually on a fiscal year basis to an Echelon 2 and shore activities (including Fleet operational/support units located ashore) based on the overall quality of their safety and occupational health programs, mishap prevention records, and contributions to the Navy's Safety and Occupational Health (SOH) Program. In addition, individual safety and occupational health professionals will be recognized for their contributions to their command/activity and/or the Navy's SOH program.

2. Award Categories

a. Echelon 2. All Echelon 2 commands whose primary function involves serving as the headquarters to subordinate field activities are eligible. Selection criteria includes quality and quantity of support provided to subordinate activities, performance of subordinate activities as measured by selected mishap rates and results of Inspector General (IG)/Naval Oversight Inspection Unit (NOIU) inspections, and contributions to Fleet operational readiness and the Navy's SOH Program.

b. Activity

(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. Activities will compete in the following categories:

(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 - 2,000

(c) Large - activities with military and civilian working population of 2,001 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. Activities will compete in the following categories:

(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 which are not eligible for the surface ship award. The safety program must be based on the shore safety requirements of OPNAVINST 5100.23E.

c. Individual - the Jerry E. Shultz Memorial Safety Award - four awards - for one military and one civilian headquarters level SOH professional who has made a significant contribution to the command or Navy SOH program and for one military and one civilian SOH professional at the activity level who has made a significant contribution to the activity or Navy SOH Program.

3. <u>Eligibility</u>

a. <u>Echelon 2</u> - Echelon 2 commands described in paragraph 2 a. are eligible for the Echelon 2 award. Commander, Naval Safety Center (COMNAVSAFECEN) and NOIU will provide supporting documentation for Echelon 2 command consideration.

b. <u>Activity awards</u>

(1) All activities have a minimally compliant program if they have received a satisfactory rating from the IG/NOIU inspection or the Immediate Superior in Command (ISIC) command inspection. The inspection must have occurred within the award year or 2 preceding fiscal years.

(2) In addition, nominees must have:

(a) A 5-year declining mishap trend in combined total case rates and lost time case rates for on-duty military and civilian mishaps and in total case rates and lost time case rates for off-duty military mishaps; OR the award fiscal year rate must be the best or the second best year of the 5

(b) An award year for which the number and cost of government motor vehicles mishaps are less than the average of the previous 4 years.

Calculations for mishap trends shall be determined by use of the formulas found in appendix 32-B.

c. <u>Individual</u> - Jerry E. Shultz Memorial Safety Award. Nominees must be a headquarters (military or civilian) or an activity safety and occupational health professional (military or civilian) as defined in chapter 3 of this instruction and must have made significant contributions to either the individual command program or to the overall Navy SOH program. The award will be based on contributions made during the previous three years, including the current fiscal year.

4. Nomination Criteria and Evaluation Criteria

a. Echelon 2 award will be based on the criteria in paragraph 2a. A board consisting of a representative from CNO (N45), COMNAVSAFECEN, and NOIU awardees. They will complete selection at the same time as the activity selections.

b. Activity Award. Activities meeting the criteria in paragraph 3b shall submit a nomination package signed by the commander/commanding officer/officer in charge, explaining why they deserve the award.

(1) The nomination package shall be in narrative style. It shall consist of single-spaced text and may use graphics; e.g., tables, charts, diagrams, and/or photographs, to clarify accomplishments. When printed, the text and graphics, including the information below, shall consist of no more than 16 single-side printed pages. The package shall include:

(a) A summary/explanation of what is being done toward continued mishap reduction

(b) Details on unique/special initiatives. As the award is for total command involvement/support of the SOH Program, unique/special initiatives are to include all areas of the command in support of the program, i.e. motor vehicle, off-duty/recreational, fire, partnering with the community and other government activities and organizations, community involvement, initiatives in support of the SOH Program that aren't required but will enhance the command program such as purchase of ergonomic work stations or equipment; development of programs and accomplishments beyond the minimum required by this instruction.

(c) Number of tenant commands receiving SOH support and total number of personnel at these tenant commands

(d) A copy of the NOIU or ISIC inspection cover letter and a 5-year (current year plus 4 previous years) mishap trend analyses that include total case rates and lost time case rates for both on-duty military and civilian mishaps and off-duty/recreation mishaps, number of government motor vehicle mishaps and cost, and the Federal Employees' Compensation Act costs per charge back year (CBY).

(2) Activities shall forward nomination letters to Echelon 2 commands via the appropriate chain of command by 30 November. Echelon 2 commands shall evaluate the nominations and forward candidates that meet the CNO criteria in each award category to COMNAVSAFECEN (Code 41) by 31 December annually. In the case of multiple winners in a given category, the Echelon 2 command must also designate the activity it wants considered for the Secretary of the Navy (SECNAV) competition. Only nominations from the Echelon 2 commands will be accepted.

(3) COMNAVSAFECEN shall conduct a preliminary review of all nominations. Those they determine to be best qualified will be evaluated by a CNO selection committee consisting of CNO (N454), NOIU and COMNAVSAFECEN. The committee will meet by 15 January annually. CNO will announce the winner and runners-up, as appropriate, not later than 31

January annually. CNO will forward winners to SECNAV as the Navy nominee in their respective category for the "Secretary of the Navy Activity Award for Achievement in Safety Ashore" competition.

c. Jerry E. Shultz Memorial Safety Award. 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 signed by the Echelon 2 Commander for headquarters nominees or by the commander/commanding officer/officer in charge for activity nominees shall be submitted directly to COMNAVSAFECEN by 15 September annually. A special review board consisting of five individuals from the Echelon 2 commands and chaired by CNO (N454) shall evaluate the nominations.

The committee will evaluate and select the best three nominees in each category and select a winner. Winners and finalists will be announced at the annual NAVOSH Professional Development Conference. The winner will receive a trophy and will have his/her name engraved on a permanent plaque to be displayed at CNO (N454).

5. Recognition of Nominees

Echelon 2 and 3 commands should establish "in-house" safety awards of their own in line with the CNO Award criteria to recognize respective nominees within each claimancy.

Appendix 32-B
Formulas for Calculation of Mishap Trends

1. TOTAL CASE RATES:

   a. Military and Civilian On-Duty Total Case Rate:

   *Total Number of Injuries X 200,000
   End Strength X 2000HRS

   b. Military Off-Duty Total Case Rate:

   *Number of recorded off-duty injuries X 200,000
   End Strength X 3760 HRS

2. LOST TIME CASE RATES

   a. Military and Civilian On-Duty Lost Time Case Rate:

   **Number of all On-duty lost time/deaths X 200,000
   End strength X 2000 HRS

   b. Military Off-duty Lost Time Case Rate:

   **Number of off-duty lost time/deaths X 200,000
   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 NAVOSH 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 - The formal report of an accident investigation.

ACGIH - American Conference of Governmental Industrial Hygienists.

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 NAVOSH 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 - Severe, usually crucial, often dangerous in which rapid changes are occurring. An acute exposure runs a comparatively short course.

Administrative Contracting Office (ACO) - A designated contracting officer performing administrative functions under ASPR 1-406 (NOTAL).

Administrative Control - Any procedure which limits daily exposures to toxic chemicals or harmful physical agents by control of the work schedule.

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.

Anthropometric - Pertaining to the measurement of the size and proportions of the human body.

Atmosphere Immediately Dangerous to Life or Health (IDLH) - Any atmosphere that poses an immediate hazard to life or produces immediate irreversible debilitating effects on health.

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 - Sound level in decibels as measured on a sound level meter using an A-weighted network. This network attempts to reflect the human ear's decreased sensitivity to low frequency sounds.

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 micro- organisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and Human Immune Deficiency Virus (HIV).

Capture Velocity - That velocity at a distance from a hood, necessary to overcome dispersive forces and capture the contaminant.

Ceiling Value - An exposure to toxic materials which cannot be exceeded for any length of time.

Chronic - Persistent, prolonged, repeated.

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.

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), chief, 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	asbestos

Confined Space - A space that is not designed for routine and/or continuous occupancy, is large enough and so configured that an employee can bodily enter to perform work, and is poorly ventilated and/or has limited or restricted means for entry or exit.

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 2 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.

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 OSHAct.

Cumulative Trauma Disorders (CTDs) - Health disorders arising from repeated biomechanical stress. Other terms that have been used for such disorders include "repetitive motion injury," "occupational overuse syndrome," and "repetitive strain injury." CTD are a class of musculoskeletal disorders involving damage to the tendons, tendon sheaths, and related bones, muscles, and nerves of the hands, wrists, elbows, shoulders, neck, and back. Disorders in this class include carpal tunnel syndrome, tennis elbow, tendinitis, tenosynovitis, DeQuervain's Disease, and low back pain.

dB(A) - A sound level reading in decibels as measured on the A-weighted network of a sound level meter. (See A-weighted Sound Level)

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 micropascals (0.0002 microbars). In hearing testing, the unit used to express hearing threshold levels as referred to audiometric zero (re: ANSI S3.6, 1969 (NOTAL)).

Designated Safety and Occupational Health Official - The individual at the Secretary of the Navy level who is responsible for the administration of the Navy safety and occupational health program.

Detector Tube - A glass tube which 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 earn the wage which the employee was receiving at the time of such injury or illness.

Disabling Work/Duty Injury - (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 causes 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.

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.)

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 that would occur if respiratory protective equipment was 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.

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 - The study of the design of work in relation to the physiological and psychological capabilities of people. The aim of the discipline is the evaluation and design of facilities, environments, jobs, training methods, and equipment to match the capabilities of users and workers, and thereby to reduce the potential for fatigue, error, or unsafe acts.

Ergonomic Hazards - Workplace conditions that pose a biomechanical stress to a worker's body as a consequence of posture and force requirements, work/rest regimens, repetition rate, or other similar factors. Faulty workstation layout, improper work methods, or improper tools may contribute to such conditions.

Ergonomic Risk Factors - Conditions of a job, process, or operation that contribute to the development of CTD.

Ergonomist - A person who possesses a recognized degree or professional credentials in ergonomics or a closely allied field (e.g., human factors engineering) and who has demonstrated, through knowledge and experience, the ability to identify and recommend effective means of correction for ergonomic hazards in the work place.

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 which are called for by industrial hygiene considerations, when toxicological data are unavailable.

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.

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.

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 - Any case that requires one or more visits to a medical facility for examination or treatment during working hours beyond the date of injury, as long as no leave or continuation of pay (COP) is charged to the employee and no medical expense is incurred. Also, a case which requires two or more visits to a medical facility for examination or treatment during non-duty hours beyond the date of injury as long as no leave or COP is charged and no medical expense is incurred.

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 determines frequency. 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 - Fumes are found when the material from a volatilized solid condenses in cool air. The solid particles that are formed make up a fume that is extremely fine - usually less than 1.0 micrometer in diameter. In most cases, the hot vapor reacts with the air to form an oxide.

Gas - Diffuse, formless fluid normally in a gaseous state.

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.

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 discarded or abandoned hazardous substance as defined in 40 CFR 261 or applicable state regulations where the state has been granted enforcement authority by EPA. It may include any discarded liquid, semi-solid, solid, or containerized gaseous material. Hazardous waste does not include EHM with expired shelf-life unless determined as such by a Defense Reutilization and Marketing Office (DRMO).

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 or other headquarters 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 in Chief, 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 - Unit of frequency.

High-Efficiency Particulate Air (HEPA) Filter - A filter capable of trapping and retaining at least 99.97 percent of 0.3 micrometer diameter mono-dispersed particles.

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.

Hz - Abbreviation of Hertz.

Illness - Any abnormal condition or disorder, other than one resulting from 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.

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.

Lost Time Case - A nonfatal traumatic injury that causes any loss of time from work beyond the day or shift it occurred; or for each case of nonfatal illness/disease that causes disability at any time.

Lost Workday Case - See Disabling Work/ Duty Injury.

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) to which 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 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.

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 $10,000 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.

(4) Class D Mishap. The resulting total cost of reportable material (property) damage is less than $10,000, or a non-fatal injury (no lost time or first aid case) that does not meet the criteria of a Class C mishap.

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 preplacement 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 who 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 which 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 person***al*** 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 Occupational Safety and Health (NAVOSH) 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.

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.

NIOSH - National Institute for Occupational Safety and Health.

NIOSH/MSHA-Certified Equipment - Respirators or other equipment that have been tested by NIOSH or MSHA and jointly approved as meeting certain minimum requirements of protection against specified hazards.

No Lost Time Case - A non-fatal traumatic injury or occupational illness or disease that does not meet the definition of Lost Time Case or First Aid Case. This definition includes 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.

Occupational Health - That multidisciplinary field of general preventive medicine which is concerned with prevention and/or treatment of illness induced by factors in the workplace environment. The major disciplines involved are: occupational medicine, occupational health nursing, epidemiology, toxicology, audiology, industrial hygiene, and health physics.

Occupational Health Care Provider - Occupational medicine physicians, occupational health physician assistants, occupational health nurses, occupational audiologists,

and independent duty corpsmen trained to provide occupational health services.

Occupational Illness. A physiological harm or loss of capacity that by systemic infection; continued or repeated stress or strain; exposure to toxins, poisons, fumes, etc.; or other continued and repeated exposures to conditions of work environment over a long period of time procedures For practical purposes, an occupational illness or disease is any condition not meeting the definition of occupational injury that activities report.

Occupational Injury. A wound or other condition of the body external force, including stress or strain causes. The injury is identifiable as to time and place of occurrence and member or function of the body affected and results from a specific event or incident, or series of events or incidents within a single day or work shift. The injury must arise out of or in the course of employment or performance of duty. All injuries occurring aboard Navy service craft and small boats are occupational injuries.

Occupational Injury or Illness Categories. 29 CFR 1960 and enclosure (5) of reference 14-1 list the following injury category definitions. They apply to on-duty military and civilian personnel.

(1) Fatal Occupational Injury or Occupational Illness. One that results in death from a mishap or the complications arising therefrom, regardless of the length of time between the mishap and a subsequent death.

(2) Permanent Total Disability. Any non-fatal injury or occupational illness that in the opinion of competent medical authority, permanently and totally incapacitates personnel to the extent that they cannot follow any gainful occupation.

NOTE:

The Navy considers the loss or the loss of use of both hands, both feet, both eyes, or a combination of any of these body parts as a result of a single mishap to be a permanent total disability.

(3) Permanent Partial Disability. An injury or occupational illness that does not result in death or permanent total disability but, in the opinion of competent medical authority, results in the loss or permanent impairment of any part of the body, with the following exceptions:

(a) Loss of teeth

(b) Loss of fingernails or toenails

(c) Loss of tip of finger or tip of toe. (The Navy considers loss of complete first joint to be a permanent partial disability and the loss of any part of the thumb or great toe a permanent partial disability.)

(d) Inguinal hernia, if it is repaired

(e) Disfigurement

(f) Sprains or strains which do not cause permanent limitation of motion.

(4) Lost Time Case. A non-fatal traumatic injury that causes any loss of time from work (even if the person chooses to use sick or annual leave instead of continuation of pay (COP), as long as there is medical justification) beyond the day or shift it occurred; or a non-fatal, non-traumatic ill-

ness or disease that causes disability at any time. Office of Worker's Compensation Program (OWCP) defines disability as the incapacity, because of injury in employment, to earn the wage which the employee was receiving at the time of such injury or illness. For military on-duty injuries or illnesses, lost work time results if the military person is sick in quarters (SIQ), hospitalized, or on convalescent leave. The Navy requires medical documentation to justify lost time cases. If a physician or equivalent returns a person to work and the person elects on his or her own to take sick or annual leave, activities shall not count such time as lost time for mishap recording purposes.

(5) No Lost Time Case. A non-fatal traumatic injury or occupational illness or disease that does not meet the definition of Lost Time Case or First Aid Case (these are cases where employees incur medical expense but not lost time from work as represented by a charge to leave or COP).

(6) First Aid Case. (Civilians Only) A first aid case is a specific type of no lost time case which meets one of the following criteria:

(a) A non-fatal traumatic injury or occupational illness or disease that requires one or more visits to a medical facility for examination or treatment during on-duty hours beyond the date of injury as long as employees incur no medical expense and activities charge no leave or COP to the employee.

(b) A non-fatal traumatic injury or occupational illness or disease that requires two or more visits to a medical facility for examination or treatment during non-duty hours beyond the date of injury as long as activities charge no leave or COP and incur no medical expense .

Occupational Medicine Services - Occupational medicine services includes medical examinations and tests related to preemployment, preplacement, periodic, and pretermination; tests required for protecting the health and safety of naval personnel; job-related immunizations and chemoprophylaxis; education and training related to occupational health; and other medical services provided to avoid lost time or to improve employee effectiveness.

Off-Duty Personnel. For the purpose of mishap reporting, Navy personnel are off-duty when they are not on-duty.

On-Duty Personnel. For the purpose of mishap reporting, Navy military and civilian personnel are on-duty when they are:

(a) Physically present at any location (area under the control of a DOD component) where they are to perform their officially assigned work. (This includes activities incidental to normal work activities occurring on DOD installations, such as lunch, coffee, or rest breaks, and all activities aboard vessels, service craft or small boats.)

(b) Transport by DOD or command conveyance to perform official work. (This includes reimbursable or non-reimbursable travel in private motor vehicles to perform official duty, but not routine travel to and from work. The Navy considers injuries occurring in DOD-provided and/or -maintained parking areas on-duty if the injured person has yet to enter or has already left his or her vehicle.)

(c) Participating in compulsory physical training activities (including compulsory sports or command-directed activities during work hours). Navy civilians participating in voluntary command-sponsored events during normal working hours are on-

duty, but not reportable. The Navy considers mishaps as a result of participation in an activity-approved health and wellness program on-duty.

(d) Ready Reservists performing inactive duty training (drill) and are between departure and return home without diversion.

(e) On temporary duty or temporary additional duty (TDY/TAD). The Navy covers personnel on assignment away from the regular place of employment 24 hours a day with respect to any injury that results from activities essential or incidental to the temporary assignment. However, when personnel deviate from the normal incidents of the trip and engage in activities, personal or otherwise, which are not reasonably incidental to the duties of the temporary assignment contemplated by the employer, the Navy ceases to consider the person on-duty for investigation purposes of occupational injuries or illnesses. For civilians, these deviations may not be compensable (OWCP determines on a case-by-case basis).

OSHA - Occupational Safety and Health Administration, Department of Labor.

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 having an oxygen concentration which is below the minimum legal requirement (19.5 percent), but above that which is immediately dangerous to life and health. Such a deficiency is generally caused by oxidation or by the dilution/displacement of oxygen by other gases.

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) to which an employee may be exposed.

Permit Required Confined Space (PRCS) - A confined space that, based on a hazard analysis by the CSPM, requires a special permit for entry.

Pesticide - Any chemical used to kill pests, such as insects. Examples: Baygon® (propoxur), Killmaster® (dursban), d-phenothrin, malathion.

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.

Pressing Up - The process of filling a space with a liquid to exclude flammable vapor/air mixtures from the space.

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.

Radiofrequency Radiation (RFR) - Electromagnetic radiation at frequencies between 10 kHz and 300 GHz.

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. An on-duty occupational injury or illness meeting the definition of fatality, lost time case, no lost time case, or first aid case. (The "first aid case" designation only applies to civilian personnel.) The Navy requires activities to enter these cases on the appropriate injury and occupational illness log.

Recordable Occupational Injuries or Illnesses - Any occupational injuries or illnesses which result in:

a. Fatalities, regardless of the time between the injury and death, or the length of the illness

b. Lost time cases

c. Lost workday cases

d. No lost time cases

e. First aid cases.

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 (Asbestos) Area - A demarcated area established by the employer (activity) to minimize the number of persons who might be exposed to airborne concentrations of asbestos fibers which exceed or can be expected to exceed the permissible exposure limit, threshold limit value, or other accepted 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.)

f. 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 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 in Section 0902b, 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 which 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 - Persons who meet the Office of Personnel Management standards for Safety and Occupational Health Specialist/Manager GS-018, Safety Engineer GS-803, Safety Technician GS-019, Fire Protective Engineer GS-0804, Fire Protection Specialist/Marshall GS-0081, Medical Officer GS-602, Health Physicist GS-1306, Industrial Hygienist GS-690, Occupational Health Nurse GS-610, Industrial Hygiene Technologist, Audiologists, Radiation Health Officers, or comparably qualified personnel as determined by appropriate Navy authority.

Serious Physical Harm - Permanent, prolonged, or temporary 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. Illness could shorten life or significantly reduce physical or mental efficiency by inhibiting the normal function of part of the body. Examples of such illnesses are silicosis, asbestosis, hearing impairment, radiation exposure and visual impairment.

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).

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 and any subsequent audiogram. In addition, 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.

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 which 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 which 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.

Termination of Training. Any interruption or cessation of formal training where at least 1 day of instructing is lost, or the student is rolled back or disenrolled from the course.

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.

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 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.

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 which are normally in the solid or liquid state.

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 which 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.