DEPARTMENT OF THE NAVY
COMMANDER MILITARY SEALIFT COMMAND
WASHINGTON NAVY YARD BLDG 210
901 M STREET SE
WASHINGTON DC 20398-5540

COMSCINST 5100.17C CH-1
N00S

COMSC INSTRUCTION 5100.17C CHANGE TRANSMITTAL 1

Subj: AFLOAT SAFETY AND OCCUPATIONAL HEALTH PROGRAM MANUAL

Encl: (1) New pages i, 1-6, 13-2, 14-2 and 23-1

1. Purpose. To correct an error in Chapter 13 of the basic instruction and other minor typographical errors. This change will:

a. Remove the requirement to log all personal electrical equipment brought onboard MSC civilian mariner operated USNS ships.

b. Correct other minor typographic errors that will not change the context of this instruction.

2. Action. Remove pages i, 1-6, 13-2, 14-2 and 23-1 and insert enclosure (1) as appropriate.

Distribution:
COMSCINST 5000.19
List I (Case A, B)

SNDL	41B	(MSC Area Commanders)
	41C	(NFAF East/West)
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	T-105	(Masters & operators, contract-operated LMSRs) (1)

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COMSCINST **5100.17C w/CH-1**	**COG CODE N00S**	DATE **13 MAR 1998**

DEPARTMENT OF THE NAVY
COMMANDER MILITARY SEALIFT COMMAND
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COMSCINST 5100.17C
N00S
13 March 1998

COMSC INSTRUCTION 5100.17C

Subj: AFLOAT SAFETY AND OCCUPATIONAL HEALTH PROGRAM MANUAL

Ref: (a) OPNAVINST 5100.19C
(b) OPNAVINST 5100.23D

1. Purpose. To prescribe standards, policies and administration for a Military Sealift Command (MSC) Afloat Safety and Occupational Health Program. This is a complete revision and should be read in its entirety.

2. Cancellation. COMSCINST 5100.17B.

3. Background. Reference (a) assigns Commander, Military Sealift Command (COMSC) responsibility for establishing uniform guidance to implement provisions of the Navy Occupational Safety and Health Program. Reference (b) establishes MSC ashore safety and occupational health programs.

4. Scope. This instruction applies to civil service manned USNS ships.

5. Action

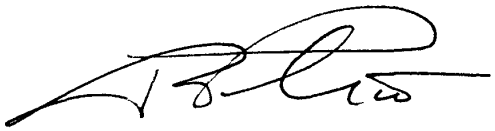
a. Masters shall use this manual as the standard in establishing the occupational safety and health program aboard civil service manned USNS ships. Commanders/ Commanding Officers/Directors of MSC subordinate shore activities will establish programs in accordance with reference (b).

b. Masters are urged to submit suggestions, via the chain of command, for improving organization, procedures and material contained in this manual.

6. Forms. The following forms are available from the sources indicated below.

FORM	TITLE	SOURCE
MSC 4710/12	VOYAGE REPAIR REQUEST	COMSC N0021
MSC 5100/3	SAFETY SHOE PURCHASE RECORD	COMSC N0021
MSC 5100/10	SIGHT CONSERVATION PROGRAM REFRACTIVE SERVICE APPROVAL	COMSC N0021
MSC 5100/15	SAFETY HAZARD REPORT	COMSC N0021
MSC 5100/19	LOCKOUT/TAGOUT RECORD SHEET	COMSC N0021
MSC 5100/20	MSC DANGER TAG	COMSC N0021
MSC 5100/21	MSC LOCKOUT BEFORE SERVICING LABEL	COMSC N0021
DD 1348-1	SHIPPING DOCUMENT, SINGLE LINE	S/N 0102-LF-013-7500
DD 2215	REFERENCE AUDIOGRAM	S/N 0102-LF-002-2151
DD 2216	HEARING CONSERVATION DATA	S/N 0102-LF-002-2161
DD-2521	HAZARDOUS CHEMICAL WARNING LABEL	S/N 0102-LF-012-0800
DD-2522	HAZARDOUS CHEMICAL WARNING LABEL	S/N 0102-LF-012-0100
DOL CA-1	FEDERAL EMPLOYEE NOTICE OF TRAUMATIC INJURY AND CLAIM FOR COMPENSATION	FECA Administrator or ADMINCON
DOL CA-2	NOTICE OF OCCUPATIONAL DISEASE AND CLAIM FOR COMPENSATION	FECA Administrator or ADMINCON
DOL CA-2a	NOTICE OF RECURRENCE	FECA Administrator or ADMINCON
DOL CA-6	OFFICIAL SUPERIOR'S REPORT OF EMPLOYEE'S DEATH	FECA Administrator or ADMINCON
NAVSUP 1280-95-96	NOTICE OF UNSATISFACTORY OPERATION (MATERIAL HANDLING EQUIPMENT)	S/N 0108-504-5180
OPNAV 5100/16	NAVY GAS FREE CERTIFICATION AND TEST LOG	S/N 0107-LF-011-7400
OPNAV 5100/18	NAVY USED HAZARDOUS MATERIAL IDENTIFICATION LABEL	S/N 0107-LF-016-9100
NAVMED 6260/2	HAZARDOUS NOISE WARNING DECAL	S/N 0105-LF-004-7200
NAVMED 6260/2A	HAZARDOUS NOISE LABEL	S/N 0105-LF-004-7800
NAVMED 6500/1	REPORT OF HEAT/COLD CASUALTY	S/N 0105-LF-206-5006

7. Reports. The reporting requirements contained in references (a) and (b) are applicable to the requirements of this manual. The reports are referenced, along with their appropriate report control symbol, throughout the text. The reporting requirements are effective for 3 years from the date of this instruction.



J.B. PERKINS III

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T-105 (Masters & operators, contract-operated LMSRs) (1)
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MISSION STATEMENT

To advise the Commander, Military Sealift Command (COMSC*)* on safety and occupational health issues related to the mission and personnel of the organization and provide assistance and advice in these areas to all other components of the Military Sealift Command (MSC*)* afloat and ashore.

To support the operational mission and quality of life of MSC as a whole by integrating standards, training and hazard control into all elements of business so our people can accept responsibility for their safety and health performance, resulting in the reduction of personnel injuries, occupational illnesses or deaths as well as material loss or damage.

VISION

MSC is committed to protecting its people. Our Occupational Safety and Health Program supports our customers' needs and is of the highest quality. Our services will be cost effective and meet the challenges of both changing regulations and a changing Navy.

PRINCIPLES

Our decisions and actions will be guided by the following principles:

* Protecting people is our most important task.
* We are committed to ensuring personnel have the knowledge and tools necessary to carry out their safety and health responsibilities.
* We will make decisions that are practical and technically sound.
* We will be responsive and flexible in anticipating and meeting the customer's needs.
* We will strive for compliance with applicable regulatory requirements.
* We will promote and support command responsibility for safety and health.
* We are dedicated to maintaining a high level of professionalism, credibility and a positive image.
* We will strive to continually improve our processes.

GOAL

To achieve a near term target of zero Class A Mishaps with an ultimate target of no mishaps, no occupational injuries and illnesses and full compliance of DON Naval Occupational Safety and Health standards.

FOREWORD

Since the Navy's Occupational Safety and Health Program Manual for Forces Afloat was issued in early 1989, we have designed a MSC Safety and Occupational Health Program that tailors requirements for our civil service manned ships. With this latest revision, we have incorporated changes brought about by MSC Reinvention.

This manual:

- Places all COMSC afloat safety instructions under one cover
- Provides only information required to conduct an afloat program
- Meets the "equal protection" requirement of OPNAVINST 5100.19C

During the process, it was apparent that training would be one of the prime factors in implementing the program at the deckplate level. Each safety program includes a separate section on training that lists prerequisite safety training for shipboard positions, refresher training and annual shipboard training requirements. Chapter 3 contains a listing of MSC-developed shipboard resources including lesson plans, 16 videotapes to describe ship hazards and program specifics and a recommended training plan. (R

Because of MSC Reinvention, shoreside responsibilities for the afloat safety and occupational health program have changed. These responsibilities are now delegated to the Program Managers, the Area Safety Offices, the Force Medical Officer and the Afloat Personnel Management Center. The program responsibilities for shipboard personnel have remained relatively unchanged.

Comments and recommendations regarding the program or safety and health issues are welcomed and should be submitted to MSC Headquarters via the chain of command.

MILITARY SEALIFT COMMAND
AFLOAT SAFETY AND OCCUPATIONAL HEALTH PROGRAM MANUAL

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CHAPTER 1

AFLOAT SAFETY AND OCCUPATIONAL HEALTH PROGRAM

0101 DISCUSSION

a. Navy policy is to enhance operational readiness and mission accomplishments by establishing an aggressive Afloat Safety and Occupational Health Program. The purpose of this program is to reduce personnel injuries, illnesses or deaths as well as material loss or damage and to maintain safe and healthful working/living conditions aboard Navy ships. In implementing this policy aboard United States Naval Ships (USNS) of the Military Sealift Command (MSC) manned by civil service mariners (CIVMARs) and military personnel, OPNAVINST 5100.19C, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat, permits MSC to tailor administrative procedures for application on its ships. The MSC Afloat Safety and Occupational Health Program Manual has been developed to provide guidance and administrative procedures for the implementation of Volume I of OPNAVINST 5100.19C on MSC ships.. THE CHAPTERS OF THIS MANUAL SERVE AS SHIP INSTRUCTIONS WHERE SHIPBOARD INSTRUCTIONS ARE REQUIRED FOR NAVOSH TOPICS. Volume II of OPNAVINST 5100.19C, Surface Ship Safety Standards, contains basic safety requirements applicable to shipboard activities and operations. All CIVMAR manned USNS ships must adhere to these standards.

b. MSC Afloat Safety and Occupational Health Program is designed to provide a safe and healthful work/living place onboard MSC ships for the CIVMAR and Military Department (MILDEPT) personnel assigned to MSC ships. This program considers shipboard manpower constraints, reduces unnecessary administration burdens and maximizes benefits from safety and occupational health efforts for the ship, its mission, the crew, cargo and equipment.

c. This manual is provided to MSC contract-operated ships for advisory purposes only. MSC contract-operated ships are encouraged to voluntarily incorporate the principles of this manual into their operations. However, unless some general guidance is provided to the contractor, incorporating the requirements of this manual shall not be considered to incur additional costs to the government on contract-operated ships.

0102 RESPONSIBILITIES

a. COMSC Safety Office (N00S) shall:

(1) Advise Commander, Military Sealift Command (COMSC) and Program Managers on all safety and occupational health issues related to the mission and personnel of MSC CIVMAR and contract operated ships.

(2) Establish and direct all safety and occupational health programs effecting CIVMARs and provide oversight of those programs for Program Managers and at the subordinate commands. This includes the maintenance, evaluation and revision of safety and occupational health programs listed in this manual and the development of new programs as circumstances demand.

(3) Develop, maintain and monitor safety and occupational health inspection criteria for formal MSC Inspections. Perform Afloat Occupational Safety and Health Program Evaluations every 2 years of subordinate commands, to determine compliance with the provisions of this manual, per OPNAVINST 5100.19C.

(4) Provide input to contracting officers and contracting officer representatives for development of safety requirements in contracts for MSC contract operated ships.

(5) Maintain the MSC Mishap Recordkeeping data base to record all CIVMAR work related injuries and illnesses required by the Federal Employee Compensation Act (FECA). Also, maintain a data base of all MSC shipboard major material property damage. Provide annual mishap reports to Naval Safety Center, and statistical reports to COMSC and Program Managers as circumstances demand.

(6) Conduct, at a minimum, a biennial in-class audit of the MSC 2-day Afloat Occupational Safety and Health (OSH) course.

b. COMSC Force Medical Officer (N00M) shall:

(1) Advise COMSC on all medical, occupational health and industrial hygiene matters.

(2) Establish and direct health care delivery, screening and monitoring programs at MSC headquarters and provide oversite to subordinate commands.

(3) Coordinate Industrial Hygiene (IH) afloat baseline, periodic and resurveys when required.

c. Program Managers shall:

(1) Ensure subordinate afloat commands implement the Afloat Safety and Occupational Health Program as required by this manual.

(2) Ensure MSC Safety Specialists conduct safety and occupational health compliance inspections during inspection and assist visits.

(3) Ensure all CIVMAR ships receive a safety visit annually. Arrange industrial hygiene assistance as needed and safety assist visits upon ship's request.

(4) Appoint a formal Mishap Investigation Board (MIB), ensuring at least one member is a MSC Safety Specialist, to investigate thoroughly all Class A mishaps and those Class B mishaps which may reveal vital safety information if investigated by a MIB. The MIB shall submit findings and recommendations to the Naval Safety Center with a copy to COMSC and the cognizant Program Manager in the Mishap Investigation Report (MIR). (See Chapter 5 for details regarding mishap investigation and reporting.)

(5) Implement the Operational Risk Management (ORM) concepts discussed in Chapter 4 through their program.

d. Afloat Personnel Management Center (APMC) shall:

(1) Ensure prerequisite training listed in Table 3-1 is provided prior to shipboard assignment.

(2) Provide the MSC 2-day Afloat OSH course per Chapter 3.

e. The Master shall ensure that the Afloat Safety and Occupational Health Program elements listed below and described in the chapters of this manual are executed in a timely and effective manner.

(1) Inspections and hazard reporting

(2) Training

(3) Hazard abatement

(4) Mishap investigation and reporting

(5) Asbestos control

(6) Heat stress

(7) Hazardous material control and management

(8) Hearing conservation

(9) Sight conservation

(10) Personal protective equipment and clothing

(11) Respiratory protection

(12) Electrical safety

(13) Gas free engineering

(14) Radiation protection

(15) Safety council

(16) Lockout/Tagout procedures

(17) Occupational health

(18) Back injury prevention

(19) Traffic safety

(20) Off duty/recreational safety

(21) Safety Award program

(22) Polychlorinated biphenyls (PCBs)

(23) Forklift safety

(24) Package and pallet conveyor safety

(25) Contract liberty boat safety

(26) Concepts of ORM discussed in Chapter 4.

f. The First Officer shall be the vessel's Safety Officer and as such shall:

(1) Be the principal safety advisor to the Master.

(2) Implement the Afloat Safety and Occupational Health Program.

g. The Medical Services Officer (MSO) shall (on ships having an MSO) serve as an assistant to the Safety Officer. The MSO shall administer the occupational health elements of the MSC Afloat Safety and Occupational Health Program to include hearing conservation, heat stress, sight conservation and respiratory protection program, including fit testing. The MSO shall work with Department Heads to identify and correct workplace health hazards.

h. Department Heads (includes Military Departments (MILDEPTs) Officers in Charge (OICs), in keeping with the concept that the maintenance of a safe and healthful workplace is a chain of command responsibility, shall:

(1) Ensure that all spaces are inspected regularly and maintained free of hazards.

(2) Take prompt action and document action taken to abate identified safety and health deficiencies under their control.

(3) Ensure employees under their supervision are trained on the safety and occupational health practices required for their job.

(4) Investigate mishaps or near-mishaps which occur in their department and prepare required reports.

(5) Participate as a member of the ship’s Safety Council.

i. All hands shall:

(1) Know and comply with all safety and occupational health precautions/ standards and use appropriate personal protective equipment and clothing in performing assigned work.

(2) Promptly report suspected unsafe or unhealthful work procedures or conditions per Chapter 2.

(3) Immediately report to their supervisor any injuries or occupational illnesses or material property damage resulting from a mishap.

(4) Comply with the safety standards of Volume II of OPNAVINST 5100.19C.

(5) Comply with ship's standing orders as they apply to safety and occupational health.

CHAPTER 1 - REFERENCES

1-1 OPNAVINST 5100.19C	Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
1-2 OPNAVINST 5100.23D	Navy Occupational Safety and Health (NAVOSH) Program Manual

CHAPTER 2

INSPECTIONS AND HAZARD REPORTING

0201 DISCUSSION

a. Safety and occupational health inspections and assist visits are required to ensure a safe and healthful workplace for MSC employees and military personnel. These inspections and assists are designed to identify, control and eliminate occupational safety and health hazards, and to ensure that safety training is provided.

b. Hazard reporting of unsafe or unhealthful conditions is required of all hands. He/she shall either orally notify the supervisor or make a written notification to the Safety Officer of observed deficiencies or hazards.

0202 PROCEDURES

a. Inspections

(1) Program Managers shall:

(a) Require Safety Specialists conduct ship safety and occupational health compliance inspections at least annually.

(b) Arrange through the MSC Force Medical Officer for a baseline industrial hygiene (IH) survey on each assigned ship. A resurvey of each ship shall be arranged every 18 months or when significant changes occur to shipboard equipment, procedures and/or ship mission, whichever occurs first.

(2) Department Heads or their designated representatives shall walk through assigned spaces regularly and observe evolutions to detect and correct safety and occupational health deficiencies and unsafe work practices. Deficiencies which cannot be immediately corrected shall be placed in the ship's Voyage Repair Log, which serves as the Hazard Abatement Log, for correction as described in Chapter 4. Unsafe work practices shall be corrected immediately.

b. Hazard Reporting by Individuals

(1) Any person identifying an unsafe or unhealthful working condition shall promptly orally notify their immediate supervisor. That supervisor shall promptly evaluate the situation and take appropriate corrective action. The supervisor shall contact the Department Head or Safety Officer, as appropriate, for assistance. The supervisor

shall keep the reporting person informed of action being taken. If the supervisor does not take action to investigate the condition or if the person is not satisfied with the action being taken, that person may submit MSC 5100/15, Appendix 2-A (Safety Hazard Report) directly to the Safety Officer. The form may be handwritten and should simply state the nature of the condition and its location. If that person desires anonymity, this should be so stated.

(2) Upon receipt of a Safety Hazard Report, the Safety Officer shall evaluate alleged critical situations immediately. Potentially serious or moderate situations shall be evaluated within 3 days if possible. The Safety Officer shall notify the originator by an interim or final response, in writing, within 10 days of action to be taken. An interim response will specify the expected date of the final report. If the Safety Officer determines that no significant hazard exists, the notification shall contain the rationale for such a determination.

(3) A person not satisfied with action to abate a reported hazard may appeal **WITHOUT FEAR OF REPRISAL**, in writing, and as a part of this appeal shall submit a copy of the original MSC 5100/15; a statement of how, when and to whom the original report was submitted; a description of the action taken (if any) and the reason(s) for dissatisfaction. The sequence of appeal shall be in the following order:

(a) Ship's Master

(b) Program Manager

(c) Commander, MSC

(d) Chief of Naval Operations

(e) Assistant Secretary of the Navy (Installations and Environment)

(f) Deputy Assistant Secretary of Defense (Safety and Occupational Health)

(g) Department of Labor (Officer of Federal Agency Safety Programs) (civilians only).

(4) Copies of Safety Hazard Reports, including action taken, shall be retained by the ship for 2 years after the calendar year in which they were submitted.

c. An imminent danger situation is one which immediately threatens the loss of life, bodily injury or illness. Imminent danger situations shall be immediately reported to the Master. All work shall be stopped and adequate precaution taken by the senior person on scene, except in an operational emergency.

APPENDIX 2-A

SAFETY HAZARD REPORT **COMSCINST 5100.17C**

A. REPORTING INDIVIDUAL/SAFETY OFFICER SECTION		
1. I.D. NUMBER		**2. SHIP NAME:**
3. REPORTED BY:		**4. REPORTED TO;**
5. HAZARD NOTED		**6. RISK ASSESSMENT CODE** ***(See explanation on back before completing)***
DATE:	**TIME:**	
7. LOCATION OF HAZARD:		**8. NATURE OF HAZARD:**

B. SUPERVISOR SECTION		
1. CORRECTIVE ACTION TAKEN:		
2. INTERIM CORRECTIVE MEASURES:		
3. NAME AND TITLE:	**4. SIGNATURE**	**5. DATE FORWARDED:**

C. DEPARTMENT HEAD SECTION		
1. ACTION TAKEN: ☐ **CORRECTIVE ACTION TAKEN IN ITEM B1 ADEQUATE** ☐ **ADDITIONAL ACTION TAKEN/REQUIRED (GIVE EXPLANATION IN C2)**		**2. EXPLANATION OF ADDITIONAL ACTION TAKEN/REQUIRED:**
3. NAME AND TITLE:	**4. SIGNATURE:**	**5. DATE FORWARDED:**

D. RECORD SECTION

1. INITIALS ***(Indicate Action Taken In Sections A, B & C)***

TITLE	INITIALS	DATE
SAFETY OFFICER		
DEPARTMENT HEAD		
MASTER		

2. IS VOYAGE REPAIR LOG ENTRY REQUIRED?

☐ **YES** ☐ **NO**

MSC 5100/15 (Rev. 9-95)

A. Risk Assessment. Each identified/validated hazard shall be assigned a Risk Assessment Code (RAC). The RAC represents the degree of risk associated with the deficiency and combines the elements of hazard severity and mishap probability. The RAC is derived as follows:

1. Hazard Severity. The hazard severity is an assessment of the worst possible consequence, defined by the degree of injury, occupational illness, or property damage which is likely to occur as a result of a deficiency. Hazard severity categories shall be assigned by Roman numeral according to the following criteria:

a. Category I - Catastrophic: The hazard may cause death or loss of a facility.

b. Category II - Critical: May cause severe injury, severe occupational illness or major property damage.

c. Category III - Marginal: May cause minor injury, minor occupational illness or minor property damage.

d. Category IV - Negligible: Minimally affect safety or health, but is in violation of a 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. Mishap probability shall be assigned an Arabic letter according to the following criteria:

a. **Subcategory A** - Likely to occur immediately or within a short period of time.

b. **Subcategory B** - Probably will occur in time.

c. **Subcategory C** - May occur in time.

d. **Subcategory D** - Unlikely to occur.

3. Risk Assessment Code (RAC). The RAC is an expression of risk which combines the elements of hazard severity and mishap probability. Using the matrix shown below, the RAC is expressed as a single Arabic number that can be used to help determine hazard abatement priorities.

HAZARD SEVERITY	MISHAP PROBABILITY			
	A	B	C	D
Category I	1	1	2	3
Category II	1	2	3	4
Category III	2	3	4	5
Category IV	3	4	5	5

RAC
1 - Critical
2 - Serious
3 - Minor
4 - Negligible

CHAPTER 3

AFLOAT SAFETY AND OCCUPATIONAL HEALTH TRAINING

0301 DISCUSSION

Successful implementation of the MSC Afloat Safety and Occupational Health Program and the achievement of safe and healthful workplaces require continuous, effective all-hands training and participation. Progressive training in afloat Occupational Safety and Health standards, practices and procedures must be provided throughout an individual's employment. An effective onboard training program must be developed and implemented. Adherence to safe operating practices and procedures by personnel is normally assured when there is a clear knowledge of job-related hazards and a practical understanding of the methods for preventing them. The record of training for each crewmember is to be maintained onboard the vessel for 3 years.

0302 PROCEDURES

a. APMC shall:

(1) Ensure that each ship's First Officer receive the Naval Surface Warfare Officer School's Afloat Safety Officer Course (A-4J-0020) to accomplish his/her duties as Safety Officer. Additionally, First Officers shall attend the MSC 2-day Afloat OSH course every 5 years for refresher training. Depending on mission requirements and budgetary constraints, the APMC shall provide the opportunity for Second and Third Officers to attend the Afloat Safety Officer Course (A-4J-0020).

(2) Provide Shipboard Occupational Safety and Health Program Coordinators (CIVMARs listed in Table 3-1) the respective required training prior to their ship assignment. This will enable them to effectively administer their shipboard programs and to conduct onboard training for all hands.

(3) Provide All Hands the MSC 2-day Afloat OSH course on a one-time basis. This training shall be provided prior to the employees' initial shipboard assignments. COMSC (N00S) shall be responsible for and will coordinate the development, promulgation and presentation of this MSC 2-day course. The course curriculum shall contain the following topics:

(a) Inspections and hazard reporting

(b) Hazard abatement

(c) Mishap reporting and investigation

(d) Asbestos control

(e) Heat stress

(f) Hazardous material control and management

(g) Hearing conservation

(h) Sight conservation

(i) Personal protective clothing and equipment

(j) Respiratory protection

(k) Electrical safety

(l) Gas free engineering

(m) Non-ionizing radiation protection

(n) Lockout and Tagout procedures

(o) Shipboard ergonomics and back safety

(p) Traffic safety

(q) Recreational, athletic and home safety

(r) Shipboard egress routes

(s) Polychlorinated biphenyls control

(t) Forklift safety

(u) Package and pallet conveyor safety

(v) Contract liberty boat safety

b. The Safety Officer shall:

(1) Ensure All Hands Annual Shipboard Refresher Training as shown in Table 3-2 is conducted.

(2) Maintain the MSC Safety Videotape Library as shown in Table 3-3. The tapes may be used to assist in meeting the Afloat Safety and Occupational Health Program training requirements. Requests for videotapes and material should be made by the ship's Safety Officer to the Area Safety Offices (East/West).

(3) Maintain onboard for a period of 3 years a record or log showing shipboard safety training conducted. This log shall include a roster of crew trained, topics covered, date of training, and department assigned.

(4) Ensure departmental training reports are part of the Safety Council meeting minutes.

c. Department Heads shall train their crew on safe working practices, including safe operation of all equipment within the department and submit training records to the Safety Officer. Each department shall report monthly training to the Safety Council. Such training may be conducted with videotapes, “Safety on Ship” booklets and accompanying instructor's guides.

d. Recommended Training Plan. Table 3-4 is provided as a recommended training plan to assist in meeting all annual training requirements. This plan can assist the Safety Officer in scheduling and monitoring annual crew training. However, this plan does not waive annual training for crewmembers who miss a scheduled month’s training session.

TABLE 3-1

PROGRAM MANAGEMENT TRAINING REQUIREMENTS

PARAGRAPH NUMBER	TOPIC	CIVMARS TO BE TRAINED BEFORE ASSIGNMENT
0302.a.(1)	Afloat Safety Officer Course (A-4J-0020)	Safety Officer
0302a.(3)	Afloat Safety and Occupational Health training (MSC 2 day Afloat OSH course)	All hands at time of employment
0603a	Shipboard Asbestos Emergency Response (A-760-2166)	First Assistant Engineer and Emergency Asbestos Removal Team members
0703a	Heat Stress Afloat (B-322-2320)	MSO
0806a	Forces Afloat Hazardous Material Coordinator Course (A-8B-008); or the MSC Supply Officer Course at Athens GA	Hazardous Material Coordinator/Supply Officer
1203a	Respiratory Protection Program Management Course (A-493-0072)	MSO as Respiratory Protection Officer
1304a	Cardiopulmonary Resuscitation (CPR)	Personnel who maintain and repair shipboard electrical and electronic equipment
1403a.(1)	Navy's Gas Free Engineering course (K-495-0051)	Gas Free Engineer
1403a.(2)	Cardiopulmonary Resuscitation (CPR)	Gas Free Engineer
2503b.	Forklift and Pallet Truck Operator Explosive Handling (TC-1001)	Forklift Truck Operators
2604a	Conveyor Training	Conveyor Operators

TABLE 3-2

ONBOARD TRAINING REQUIREMENTS

PARAGRAPH NUMBER	TOPIC	TRAINING APPLICABILITY
0603b	Asbestos Control	First Assistant Engineer and Emergency Asbestos Ripout Team Members annually
0603c	Asbestos Awareness	All hands annually
0703c	Heat Stress	All hands annually
0703d	Heat Stress Monitoring	Heat Stress Monitors annually
0806b	HM handling, marking, stowage, spill response, disposal	All officers annually
0806c	Fighting HM fires	Damage control team members annually
0806d	Used/Excess HM	Personnel involved in requisitioning, receipt, collection, transfer and stowage of used/excess HM annually
0806e	Job specific HM	All hands annually
0903d	Hearing Conservation	All hands annually
1003b	Sight Conservation	All hands annually
1103b	Personal Protective Equipment/Clothing	All hands annually
1203c	Respiratory Protection	Personnel required to wear respirators when needed annually
1304a	CPR Training	Electrical ratings annually
1304c	Electrical Safety	All hands annually
1403d	Gas Free Engineering	All hands annually
1503b	Radiation Protection	All hands as needed annually
1704b,d	Lockout and Tagout Procedures	All hands annually
1704c,d	Lockout and Tagout Procedures	Personnel who install or remove locks and tags
1803c	Back Injury Prevention and Ergonomics	All hands annually
1902h	Traffic Safety	All hands before shore leave
2003b	Recreation and Athletic Safety	All hands annually
2302b	Shipboard Egress	All hands with crew changes
2403a	PCB Exposure Prevention	Personnel who work with materials containing or suspected of containing PCBs
2604b	Conveyor Operation	Conveyor operators as operations require

TABLE 3-3

MSC SAFETY VIDEOTAPE LIBRARY

	Title	Time
	MSC SLIPS, TRIPS, FALLS & WORKING ALOFT	6:45
	MSC BACK INJURY PREVENTION	11:00
	MSC ELECTRICAL SAFETY (VERSION 2)	9:30
	MSC HAZARDOUS MATERIAL/HAZARDOUS WASTE	18:12
	MSC GAS FREE ENGINEERING	20:38
	MSC NAVOSH INSPECTIONS	9:25
	MSC PERSONAL PROTECTIVE EQUIPMENT	12:30
	MSC SHIPBOARD ASBESTOS CONTROL	8:50
	MSC SIGHT & HEARING CONSERVATION	13:00
	MSC SHIPBOARD HEAT STRESS	10:20
	MSC RESPIRATORY PROTECTION	7:55
	MSC AFLOAT SAFETY PROGRAM	10:00
	MSC HAZARDOUS MATERIAL CONTROL & MANAGEMENT	13:32
	MSC MISHAP INVESTIGATION AND REPORTING	9:45
	MSC LOCKOUT/TAGOUT PROCEDURES	19:45
	MSC LOCKOUT DEVICES	11:00

TABLE 3-4 (Page 1 of 2)

RECOMMENDED TRAINING PLAN

Topic / Section	Asbestos / 0603.b	Asbestos / 0603.c	Heat Stress / 0703.c	Heat Stress / 0703.d	Hazardous Material / 0806.b	Hazardous Material / 0806.c	Hazardous Material / 0806.d	Hazardous Material / 0806.e	Hearing Conservation / 0903.d	Sight Conservation / 1003.b	Personal Protective Equipment / 1103.b	Respiratory Protection / 1203.c
MONTH	JAN	JAN	FEB	FEB	MAR	MAR	MAR	MAR	APR	APR	MAY	MAY
DECK DEPT.												
ENGINE DEPT.												
SUPPLY DEPT.												
MILDEPT												
Ship Personnel	RP	A*	A	H	O	D	HM	A	A	A	A	R

Legend:

A **All hands**
A* **All hands under special circumstances (see referenced section)**
D **Damage Control Team**
H **Heat Stress Monitors**
HM **Those who order, stow, collect, receive used/excess hazardous material**
O **All officers**
RP **First Assistant Engineer and Asbestos Ripout Team**

Table 3-4 (Page 2 of 2)

RECOMMENDED TRAINING PLAN

Topic / Section	CPR / 1304.a	Electrical Safety / 1304.d	Gas Free Engineering / 1403.d	Radiation Protection / 1503.b	Lockout/Tagout Procedures / 1704.b,d	Lockout/Tagout Procedures / 1704.c,d	Back Injury/Ergonomics / 1803.c	Traffic Safety / 1902.h	Recreational/Athletic Safety / 2003.b	Shipboard Egress / 2302.b	PCB Exposure / 2403.c	Conveyor / 2604.b
MONTH	JUN	JUN	JUL	JUL	AUG	AUG	SEP	SEP	OCT	OCT	NOV	DEC
DECK DEPT.												
ENGINE DEPT.												
SUPPLY DEPT.												
MILDEPT												
Ship Personnel	E	A	A	A*	A	LO	A	A*	A	A*	P	C

Legend:

A **All hands**
A* **All hands under special circumstances (see referenced section)**
C **Those who works with conveyors**
E **Electrical ratings**
LO **Those who install and remove locks and tags**
P **Those who work on or suspected PCB containing material**

CHAPTER 4

HAZARD ABATEMENT

0401 DISCUSSION

Hazards or deficiencies may be identified as a result of Department Head walk-through inspections, safety and health compliance inspections, Safety Assist visits, industrial hygiene surveys or reports of unsafe or unhealthful conditions from crewmembers. Abatement action shall be taken to reduce the risk to personnel from identified hazardous conditions.

0402 PROCEDURES

a. Identified safety and health deficiencies and hazards should be corrected immediately. Those deficiencies which cannot be corrected within 30 days by ships force shall be entered into the ship's Voyage Repair (VR) Log. This entry shall include a notation that the item is a safety deficiency and shall be assigned a Risk Assessment Code (RAC) (see Appendix 4-A). The VR Log shall serve as the Hazard Abatement Log required by OPNAVINST 5100.19C, Chapter A4, and shall be used to manage corrective action on safety and occupational health related deficiencies. The VR Log shall be reviewed during compliance inspections.

b. Safety and occupational health deficiencies which require assistance beyond the capability or time limitation of ships force shall be submitted as follows:

(1) Voyage Repair Requests (VRR), MSC Report 4710-12, are used for both emergency work and to request routine and desired work during an upcoming availability. VRRs shall be completed per the instructions found in COMSCINST 3540.6, Engineering Operations and Maintenance Manual (EOMM). The safety standard and the requested action to correct the safety hazard shall be identified. The RAC designation and an annotation that this is a Safety Deficiency shall be noted in section A.8 (Category) of the VRR.

(2) COMSCINST 4700.2F outlines procedures to be followed in requesting alterations. TRANSALTs submitted to correct safety hazards shall identify the safety standard and have the word SAFETY and the RAC in the description block.

These procedures shall be followed to ensure that the correction of safety and occupational health items are given the highest priority.

c. Any safety or occupational health deficiency assigned a RAC of 1 or 2 (**CRITICAL** or **SERIOUS**) shall be corrected immediately or have interim controls (i.e., physical barricades, written instructions, word passed over the announcing system, warning signs, lockouts/tagouts) placed into effect as soon as possible. These interim controls shall meet or exceed minimum necessary requirements to prevent future damage to equipment or injury/death to personnel. Such interim controls shall be approved by the Master, documented in the ship's log and remain in effect until corrective action is accomplished. Interim controls for other unabated deficiencies shall be appropriately established and shall be approved by the responsible Department Head.

0403 OPERATIONAL RISK MANAGEMENT

a. Operational Risk Management (ORM) is an integral part of MSC operations, training and planning at all levels in order to optimize operational capability and readiness. Masters have a fundamental responsibility to safeguard highly valued personnel and material resources, and to accept only the minimal level of risk necessary to accomplished an assigned mission. The ORM process should be integrated into all levels of MSC.

b. Masters should incorporate the ORM process into all shipboard evolutions and training. ORM should incorporate identified hazards, assessments and controls into briefs, notices and written plans. OPNAVINST 3500.39, Operational Risk Management, provides detailed guidance.

c. The ORM process includes conducting a thorough risk assessment of all new or complex evolutions. The use of Risk Assessment Codes, Appendix 4-A, can be used to define acceptable risk and possible contingencies for these evolutions.

CHAPTER 4 - REFERENCES

4-1	OPNAVINST 5100.19C	Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
4-2	COMSCINST 3540.6	MSC Engineering Operations and Maintenance Manual
4-3	COMSCINST 4700.2F	Administrative Procedures for the Alteration, Maintenance and Repair of MSC Ships
4-4	OPNAVINST 3500.39	Operational Risk Management

APPENDIX 4-A

RISK ASSESSMENT CODE

The RAC provides a measure of the degree of risk associated with a deficiency by assessing both the severity of the hazard produced by the deficiency and the probability of a mishap occurring. Therefore, the RAC provides a priority for the correction of deficiencies. The RAC is derived as follows:

1. The hazard severity is an assessment of the worst potential consequence which is likely to occur as a result of a deficiency. It is assigned a Roman numeral according to the following criteria:

Category	Description	Results
I	CATASTROPHIC	Death or system loss
II	CRITICAL	Severe injury, severe occupational illness or major damage
III	MARGINAL	Minor injury, minor occupational illness or minor system damage
IV	NEGLIGIBLE	Probably would not effect personal safety or health, but is nevertheless a violation of a NAVOSH standard

2. The mishap probability is the likelihood that a deficiency will result in a mishap based on factors such as location, exposure and affected population. Mishap probability is assigned a letter according to the following criteria:

Subcategory	Description
A	Likely to occur immediately or in a short period of time
B	Probably will occur in time
C	May occur in time
D	Unlikely to occur

3. To derive the RAC from hazard severity and mishap probability, use the matrix below. The RAC is expressed as a single number (1 through 5).

HAZARD SEVERITY	MISHAP PROBABILITY A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Code	Description
1	CRITICAL SAFETY OR OCCUPATIONAL HEALTH DEFICIENCY - All efforts must be exerted to correct these items immediately. Suspension of use of equipment/system/ space is mandatory until corrected.
2	SERIOUS SAFETY OR OCCUPATIONAL HEALTH DEFICIENCY - Correction of system/ equipment/space hazard is required prior to resuming use.
3	MODERATE SAFETY OR OCCUPATIONAL HEALTH DEFICIENCY - Equipment/space/ system can be used without seriously risking injury to personnel or damage to equipment prior to correction.
4	MINOR SAFETY OR OCCUPATIONAL HEALTH DEFICIENCY - Correct when resources are available.
5	NEGLIGIBLE SAFETY OR OCCUPATIONAL HEALTH DEFICIENCY - Noted for record purposes only.

CHAPTER 5

MISHAP INVESTIGATION AND REPORTING

0501 DISCUSSION

a. Comprehensive and accurate mishap investigations are an essential tool in identifying the cause of a mishap and thereby preventing recurrences and requires the free and open disclosure of safety information. Reports required by this chapter are separate and independent of any other investigative report required by the Manual of the Judge Advocate General (JAGMAN). The sole purpose of the safety mishap investigation, is mishap prevention, not culpability. All reports required by this chapter are designated **"For Official Use Only (FOUO)**."

b. Concept of Privilege. Military and Federal Courts recognize that information given under the promise of confidentiality is protected from release under executive privilege. Promises of confidentiality are given to witnesses and members of Mishap Investigation Boards (MIB). Under privileged information, any statement made to a MIB conducting a mishap investigation is confidential, will not be released to any other investigator (i.e., JAGMAN investigator) and that the statement cannot be used against the individual during any legal or administrative proceedings. Any information that is obtained in any other investigation (e.g., JAGMAN) may be used for adverse action purposes. The entire chain of command shall fully support this concept and tenaciously maintain a commitment to the limited use of privileged information

c. This chapter implements OPNAVINST 5100.19C and describes reporting requirements of the Federal Employees' Compensation Act (FECA) program used to track safety related data. All shipboard mishaps shall be reported per this chapter. For personal injury or death, material or property damage or explosives' mishaps occurring ashore, refer to OPNAVINST 5100.23D and OPNAVINST 5102.1C. Vehicular mishaps shall be reported under OPNAVINST 5100.12F and OPNAVINST 5100.19C.

d. The following definitions are used in this chapter:

(1) **Class A** Mishap. The resulting total cost of reportable damage is $1,000,000 or more or an injury and/or occupational illness resulting in a fatality or permanent total disability.

(2) **Class B** Mishap. The resulting total cost of reportable property damage is $200,000 or more, but less than $1,000,000; an injury and/or occupational illness resulting in permanent partial disability or when five or more personnel are inpatient hospitalized.

(3) **Class C** Mishap. The resulting total cost of property damage is $10,000 or more, but less than $200,000; a nonfatal injury that causes any loss of time from work beyond the day or shift on which it occurred or a nonfatal illness or disability that causes loss of time from work or disability at any time.

(4) Afloat Special Case Mishaps. These mishaps include (a) electrical shock mishaps; (b) hazardous material, chemical or toxic exposure mishaps requiring medical attention; (c) back injury mishaps requiring medical attention and (d) explosive, oxidizers, incendiaries, explosive systems or chemical warfare agent mishaps.

(5) Mishap Investigation Board (MIB). The formal investigating body that is appointed to determine the primary cause(s) of **Class A** mishaps. The Program Manager appoints the Senior Member.

(6) Mishap Investigation Report (MIR) (RCS OPNAV 5102-7). A Limited Use report written by an MIB as a result of a **Class A** mishap investigation. An MIR contains privileged information.

(7) Mishap Report (MR) (RCS OPNAV 5102-6). A General Use report containing no privileged information. An MR is submitted within 24 hours for all **Class A** mishaps (if not reported by other messages) and within 30 days for all reportable shipboard mishaps not investigated by an MIB.

(8) Federal Employees' Compensation Act (FECA). A government-wide program administered by Office of Workers' Compensation Programs (OWCP), U.S. Department of Labor. FECA provides compensation benefits to civilian employees for disability due to personal injury or disease sustained while in the performance of duty. Reports required under this program are to be used as the supplementary record required for each injury/illness case.

(9) For Official Use Only (FOUO). Reports required under this chapter contains information that is protected under the Freedom of Information Act. OPNAVINST 5100.19C, Chapter A6, provides guidelines for disseminating essential safety information to other Navy commands. Chapter A6 also provides guidelines for the release of program information subject to the Freedom of Information Act and the Privacy Act.

0502 PROCEDURES

a. Program Managers shall:

(1) Ensure assigned MSC ships conduct timely and complete shipboard safety mishap investigations.

(2) Direct the investigation of all **Class A** mishaps and any **Class B** or other mishaps that may reveal vital safety information if investigated by an MIB.

(3) Assign responsibility for and monitor completion of corrective action on recommendations made by the MIB.

(4) Collect and disseminate lessons learned and safety-related information per this chapter. Include the Naval Safety Center and COMSC (N00S) as an information addressee on any lessons learned issued.

(5) Serve as the appointing authority for MIBs.

(6) Appoint, in writing, the Senior Member and other members, as appropriate, of the MIB and ensure that at least one member is a MSC Safety Specialist. See Appendix 5-A for procedures to accomplish these appointments.

b. APMC shall process all new FECA compensation claims and forward copies to COMSC (N00S). The copies shall be marked **"For Official Use Only."**

c. The Master shall:

(1) Protect personnel from coercion, discrimination or reprisals for participation in mishap investigations.

(2) Make a message report to the Naval Safety Center of any reportable mishap. For all mishap reports, include the COMSC Program Manager and N00S as informational addressees.

(a) For NFAF ships, include **COMSC WASHINGTON DC//PM1/N00S//** and either **MSC NFAF WEST OAKLAND CA//PM1W/PM1WS//** or **MSC NFAF EAST NORFOLK VA//PM1E/ PM1ES//** as informational addressees.

(b) For Special Mission ships, include **COMSC WASHINGTON DC//PM2/N00S//** and either MSC NFAF Safety Office at **MSC NFAF WEST OAKLAND CA//PM1WS//** or **MSC NFAF EAST NORFOLK VA//PM1ES//** as informational addressees.

(3) **For Class A Mishaps**, send a message report in the format of Appendix 5-A within 24 hours of the occurrence of the mishap and if not previously reported by **OPREP-3** or **UNIT SITREP**. For **OPREP-3** and **UNIT SITREP** messages, include **COMNAVSAFECEN NORFOLK VA//30/20/054//** as informational addressee. If the mishap involves a fatality, send an information copy of the **OPREP-3** or **UNIT SITREP** to **ARMED FORCES INSTITUTE OF PATHOLOGY WASHINGTON DC//CMEO//.**

(a) As a minimum, furnish the date and time of the mishap, the geographic location of the mishap, the reporting activity, the number of personnel involved, a description of the operation and a brief explanation of the mishap in the initial report.

(b) As additional information becomes available, submit follow-up reports referencing the original and all subsequent reports.

(4) For **all OPREP-3 and UNIT SITREP messages** reporting fires, flooding, grounding, explosions, collisions or other accidents include **COMNAVSAFECEN NORFOLK VA //30//** as informational addressee per OPNAVINST 3100.6G, Special Incident Reporting (OPREP-3/UNIT SITREP).

(5) Investigate all mishaps not investigated by an MIB and report them as provided for in Appendix 5-A.

(6) Ensure that FECA reporting requirements are accomplished per COMSCINST 12810.1A.

(a) MSC mariners receiving a traumatic injury (i.e., cut, burn, broken bone) while on-duty shall report the injury to their supervisor and have the injury treated by the MSO. A **Federal Employee Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation, Department of Labor Form CA-1,** (Attachment 5-A-6) or **Notice of Recurrence, Department of Labor Form CA-2a** (Attachment 5-A-7) shall be filled out by the employee (or someone acting on the employee's behalf) and shall be submitted to the immediate supervisor as soon thereafter as possible (2 to 3 days). The supervisor shall investigate the situation, complete the report and forward the report to the Master for review and signature. The Master shall forward the report to the APMC within 10 working days.

(b) Mariners suffering from an occupational disease or illness (abnormal physical condition or disorder caused by repeated exposure to conditions, such as toxic substances, noise or heat associated with the work environment) shall submit a **Notice of Occupational Disease and Claim for Compensation, Department of Labor Form CA-2**, Attachment 5-A-8, to the immediate supervisor. The supervisor shall investigate the situation, complete the report and forward the report to the Master for review and signature. The Master shall forward the report to the APMC within 10 working days.

(c) Mishaps resulting in death are to be reported on **Department of Labor Form CA-6, Official Superior's Report of Employee's Death,** Attachment 5-A-9. The Master shall assist the APMC in completing the CA-6. This would be a **Class A** mishap requiring an MIB and MIR. For deaths resulting from motor vehicle mishaps, an MIB and MIR are not required. Instead, a motor vehicle mishap investigation and a Motor Vehicle MR are required.

(7) Submit a **Heat/Cold Injury Report** (RCS MED 6500/1) whenever personnel are exposed to excessive heat or cold stress, in the judgment of the MSO, and suffer from a heat or cold related injury. If more than 5 lost workdays are involved, an MR (see Appendix 5-A) shall be submitted in addition to the Heat/Cold Injury Report. See OPNAVINST 5100.19C, Chapter B2, for detailed information regarding the Heat/Cold Injury Report.

(8) Submit a **Motor Vehicle Mishap Report** (OPNAV 5102-4(MV)) within 30 days whenever government owned motor vehicles or government personnel on duty are involved in a mishap. See OPNAVINST 5100.19C, Chapter A6, for reporting criteria. Motor vehicle mishaps do not require an MIB.

(9) Submit an **Explosive Mishap and Conventional Ordnance Deficiency Report** (DD-FR&P (AR) 1020(5102)) in the event of explosive mishaps or ordinance deficiencies. See OPNAVINST 5100.19C, Chapter A6, for reporting criteria.

(10) Submit an **Off-Duty Recreation, Athletic and Home Safety Mishap Report** (OPNAV 5102-10) within 30 days of an off-duty recreation, athletic or home death or injury of military personnel. This report shall also be submitted for off-duty recreation or athletic death or injury of civilian personnel when using Navy owned or managed property. See OPNAVINST 5100.19C, Chapter A6, for reporting criteria.

(11) Masters are encouraged to submit “near mishap” MRs with lessons learned from minor nonreportable mishaps where other ships could benefit. You would use the same reporting format outlined in Appendix 5-A.

d. The Safety Officer shall:

(1) Assist the Master and responsible Department Heads in conducting mishap investigations for all reportable mishaps not investigated by an MIB. Ensure required MRs and compensation reports are submitted.

(2) Maintain a complete ship file of MRs, CA-1’s, CA-2’s and CA-2a’s in a location that offers protection for the Privacy Act information contained in these reports.. Such reports shall be retained for 5 years and then destroyed.

(3) Ensure ship-wide dissemination of safety information and lessons learned resulting from mishap investigations.

e. Department Heads shall:

(1) Investigate all **Class C** mishaps and those **Class B** mishaps for which it is determined that an MIB is not warranted. The investigation is the investigator's analysis and account of a mishap based on factual information gathered by a thorough and conscientious examination of all factors involved. The investigation as a minimum is to:

(a) Describe what happened

(b) Determine the real causes

(c) Decide the risks

(d) Develop controls to prevent a recurrence.

(2) Prepare the MR and compensation reports for those mishaps identified in Appendix 5-A, and send to the Master.

f. All hands shall:

(1) Report to their supervisor any injuries, occupational illnesses or property damage resulting from a mishap.

(2) Cooperate with all safety investigators in providing mishap information.

CHAPTER 5 -- REFERENCES

5-1	OPNAVINST 5100.12F	Issuance of Navy Traffic Safety Program
5-2	OPNAVINST 5102.1C	Mishap Investigation and Reporting
5-4	OPNAVINST 5100.19C	Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat
5-5	OPNAVINST 5100.23D	Navy Occupational Safety and Health (NAVOSH) Program Manual
5-6	COMSCINST 12810.1A	Federal Employees' Compensation Program

APPENDIX 5-A

MSC MISHAP INVESTIGATION AND REPORTING REQUIREMENTS (To comply with OPNAVINST 5100.19C)

ATTACHMENTS

This appendix shall be followed in investigating and reporting mishaps aboard MSC ships to comply with OPNAVINST 5100.19C. Detailed information is located in OPNAVINST 5100.19C.

When a mishap occurs on an MSC ship, the Master will determine the severity classification of the mishap (**A**, **B** or **C**). The following procedures shall be followed dependent upon the severity of the mishap:

1. **Class A** Mishaps

a. The Master shall send an MR within 24 hours for all **Class A** mishaps to notify the COMSC Program Manager, and the Naval Safety Center of the mishap occurrence unless the mishap is reported by **OPREP-3** or **UNIT SITREP**. Attachment 5-A-1 is a sample MR for an NFAF ship. The Master shall:

(1) As a minimum, furnish the date and time of the mishap, the geographic location of the mishap, the reporting activity, the number of personnel involved, a description of the operation and a brief explanation of the mishap in the initial report. As additional information becomes available, submit follow-up reports referencing the initial report.

(2) If possible, protect the mishap site or damaged area from loss or further damage. Operational requirement or damage control measures may require disturbing the scene of the mishap before the MIB arrives. In such cases, make every reasonable effort to:

(a) Make an accurate plot of the scene.

(b) Take photographs or videotape recordings of the wreckage, its distribution and the surrounding area.

(c) Make a diagram of any underwater damage.

(3) Direct the collection of any transitory medical evidence, such as specimens to determine blood alcohol and drug levels, pertinent to the mishap investigation.

b. The Program Manager shall, upon receipt of the MR (or other report), appoint, in writing (using Attachment 5-A-2 as an example), the Senior Member and other members, as appropriate, of the MIB, ensuring that at least one member is a MSC Safety Specialist. The Program Manager may delegate the assignment of the MIB members (exclusive of the Senior Member) to the Master of the affected ship. A mishap investigation advisor shall be assigned from the Naval Safety Center for all **Class A** mishaps.

(1) The Senior Member shall be a senior MSC official with suitable training and experience.

(2) Anyone directly involved in a mishap shall not serve as the Senior Member or member of the MIB for that mishap.

(3) Anyone having a personal interest in a mishap that might conflict with their objective and impartial performance of duties shall not serve as the Senior Member or member of the MIB.

(4) Members of the MIB shall neither participate in nor conduct a JAGMAN investigation of the same mishap.

c. The Senior Member of the MIB shall convene the board as directed, and the MIB shall thoroughly investigate the mishap. The appointed members of the mishap investigation board are responsible for conducting an accurate, complete and timely investigation of the mishap. Their responsibilities include:

(1) Collecting, organizing, interpreting and protecting all physical and testimonial evidence.

(2) Ensuring photographs and videotapes accurately depict the mishap scene, whether taken prior to or after arrival of the board.

(3) Interpreting logs, records, blueprints, schematics and written procedures.

(4) Taking oral statements from witnesses, including advising all witnesses in writing of the restricted use of their privileged testimony (see Attachment 5-A-3). The oral statement is not obtained under oath or in writing and may include opinions, secondhand information and speculation about the mishap. All such witness statements provided orally to the MIB are privileged information. Members of the MIB shall not ask witnesses to write a statement or to sign a summary the MIB has prepared. The MIB member shall summarize the results of the interview and may authenticate the summary by signing it.

(5) Reconstructing the sequence of events leading up to, and immediately following, the mishap.

(6) Preparing the MIR. See Attachment 5-A-4 for the format of the MIR. This report shall be submitted in message format within 30 days of convening the MIB.

d. The Master and COMSC Program Manager shall endorse the MIR by message in the format of Attachment 5-A-5. The Master shall submit his/her endorsement within 7 days of receipt of the MIR. The Program Manager shall submit their endorsements within 14 days of receipt.

2. **Class B** Mishaps

a. The Master shall convene an MIB if the mishap has been designated by the Program Manager as one of vital safety interest and warranting investigation. If so, the Master shall submit an MR to **COMNAVSAFECEN NORFOLK VA//30/50/054//** and the proper COMSC informational addressees in the format of Attachment 5-A-1. The procedures of Section 1a above for **Class A** Mishaps shall be followed.

b. If the mishap has not been designated as one of vital safety interest, the Master shall have the mishap investigated. This shall normally be accomplished by the responsible Department Head, assisted by the Safety Officer, as necessary. In conducting the investigation, the investigating officer should follow paragraphs 1c(1) through (6) above.

c. The investigating officer shall prepare an MR to **COMNAVSAFECEN NORFOLK VA//30/50/054//** and the proper COMSC informational addressees in the format of Attachment 5-A-1 for release by the Master.

d. The MR shall be submitted within 30 days of the mishap. If insufficient information is available for completion of a comprehensive MR, the Master should provide as much information as is available within 30 days and submits the remaining information, when known.

3. **Class C** Mishaps

a. The Master shall have the mishap investigated. This shall normally be accomplished by the appropriate Department Head, assisted by the Safety Officer, as necessary. In conducting the investigation, the investigating officer shall follow paragraphs 1c(1) through (5) above.

b. Upon completion of the investigation and within 30 days of the mishap, the investigating officer shall prepare an MR to **COMNAVSAFECEN NORFOLK VA//30/50/054//** and the proper COMSC informational addressees in the format of Attachment 5-A-1 for the Master's release if the mishap meets the following reporting criteria:

(1) Property damage is $10,000 or more, but less than $200,000.

(2) An injury has occurred which prevents an individual from performing regularly scheduled duties or work for 5 days after 2359 of the day of injury or onset of illness.

4. Afloat Special Case Mishaps. MRs are required for the following mishaps:

a. Any electrical shock mishaps.

b. All cases of hazardous material, chemical or toxic exposure requiring medical attention.

c. All cases of back injury requiring medical attention.

d. All mishaps involving explosives, oxidizers, incendiaries, explosive systems or chemical warfare agents. Mishaps include detonation, accidental launch, malfunction, dangerous defect, improper handling, damage to a launching device, weapon impact off range or other unusual or unexpected weapons-related occurrence. The Explosive Mishaps and Conventional Ordnance Deficiency Report (DD-FM&P (AR)1020(5102) shall be used. In these cases, the reporting requirements of OPNAVINST 5100.19C, Chapter A6, shall be followed.

ATTACHMENT 5-A-1

MISHAP REPORT (MESSAGE FORMAT)

Use the format and content below to report all reportable mishaps not investigated by an MIB and for the initial report of **Class A** and designated **Class B** mishaps. Submit as much information as is available. Submit supplementary reports, as necessary, to supply the missing information when it becomes available. The MR is a factual report and **shall not include privileged information** or the sources of any information.

The below report is an example for an MSC ship. Masters are reminded to use their proper COMSC informational addressees in drafting and sending MRs. **IF THE REQUESTED DATA DOES NOT APPLY OR IS NOT RELEVANT TO THE MISHAP, INSERT "NOT APPLICABLE"-"N/A" OR "UNKNOWN" - "UNK" AS APPROPRIATE.**

(Precedence - normally ROUTINE)

FM: REPORTING ACTIVITY (Ship name)
TO: COMNAVSAFECEN NORFOLK VA//30/50/054//
INFO: COMSC WASHINGTON DC//(Appropriate Program Manager)/N00S//
(For PM1 ships, cognizant NFAF East/West Office with Project Officer Code and Safety Office Code)
(For ships other than PM1, appropriate NFAF East/West Safety Office Code)

UNCLAS//NO5102//(Normally unclassified unless classified information must be included.)

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

SUBJ/AFLOAT MISHAP REPORT (MR) (REPORT SYMBOL OPNAV 5102-6)//

REF/(If follow-up message, refer to original message)//
USE GENADMIN FORMAT PROCEDURES.

NARR/FOR OFFICIAL USE ONLY. THIS IS A GENERAL USE MISHAP REPORT TO BE USED ONLY FOR SAFETY PURPOSES AS DEFINED IN CHAPTER A6 OF OPNAVINST 5100.19C//
POC/NAME/RANK/PRIMARY PHONE/PRIMARY FREQ/LOCATION/SECONDARY PHONE/SECONDARY FREQ//
RMKS/ALPHA:

1. **UICS OF MISHAP COMMANDS**
2. **HULL NUMBER/SIDE NUMBER**
3. **TYPE OF MISHAP (For example, flooding, fire, injury, electric shock, collision, grounding, explosion, back injury, chemical or toxic exposure, or equipment damage)**
4. **LOCAL TIME AND DATE OF MISHAP**
5. **GEOGRAPHIC LOCATION (latitude/longitude. If classified, give general area)**
6. **WEATHER CONDITIONS (e.g., temperature, relative humidity, visibility, lighting, ventilation, air quality, wind speed and direction, sea state, current, tide, precipitation, lightning, hurricane and other)**
7. **LOCATION WHERE MISHAP OCCURRED (give workcenter or description of the location; (e.g., main deck, side and frame number, hold description, engine room))**
8. **SHIP'S EVOLUTION AT THE TIME OF MISHAP (e.g., underway, replenishment, mooring)**
9. **SEA STATE AND DIRECTION**
10. **SHIP'S EMPLOYMENT (e.g., refit, independent steaming, maintenance availability, underway, anchored)**
11. **PAYLOAD (e.g., type cargo and load weight)**
12. **RISK ASSESSMENT CODE (RAC)**

BRAVO:

1. **EQUIPMENT DAMAGED OR DESTROYED BY MISHAP (include EIC, TEC or NSN if applicable, describe damage)**

2. ESTIMATED COST TO REPAIR OR REPLACE DOD PROPERTY (Provide the total dollar value and UIC and name of command activity having custody of property (if different from reporting activity). The cost includes $16 for each hour of labor plus the cost of material and equipment)
3. ESTIMATED COST OF NON-DOD PROPERTY DAMAGE
4. NUMBER OF OPERATING DAYS LOST

CHARLIE:

1. NAME/SSN/AGE/SEX/RACE (Repeat items 1 through 8 if the mishap involves more than one person)
2. RANK AND DESIGNATOR OR RATE AND NEC, JOB AND EMPLOYMENT STATUS (Employment status includes Navy Federal civil service, contractor, foreign civilian)
3. DUTY STATUS (on or off-duty) and UIC (if different from reporting activity)
4. SPECIFIC JOB OR ACTIVITY INDIVIDUAL ENGAGED IN AT TIME OF MISHAP (e.g., conducting planned maintenance, standing watch, maintenance, loading stores, training)
5. NUMBER OF MONTHS EXPERIENCE AT THE JOB OR ACTIVITY (in paragraph 4 above)
6. MEDICAL DIAGNOSIS (include parts of body and type of injury)
7. EXTENT OF INJURIES AND PROGNOSIS FOR DISABILITY (specify extent of injuries and outlook; (e.g., permanent partial disability or no disability likely))
8. ESTIMATE OF LOST TIME
   A. TOTAL NUMBER OF DAYS AWAY FROM JOB (lost workdays)/DAYS LOST BEFORE PERMANENT LOSS TO COMMAND
   B. DAYS IN HOSPITAL OR SICK
   C. DAYS OF LIGHT OR LIMITED DUTY

DELTA: NARRATIVE

1. CHAIN OF EVENTS LEADING UP TO, THROUGH AND SUBSEQUENT TO MISHAP (This paragraph is not required for the initial report of Class A or designated Class B mishaps.) Explain the "who, what, where, why, when and how" of the mishap. Give the class (A, B, or C) of any fires. Include the source and how the fire was extinguished. If a flooding mishap, give the source of the flooding and de-watering technique. If a collision, give estimates of damage and identify ships involved. If a chemical or toxic exposure, try to identify the chemical or material involved, the amount of concentration and length of exposure. If electric shock, give the primary and alternate power sources and the voltage (AC or DC). If personal protective equipment (PPE) was required, was it worn? Was it effective? Evaluate the effectiveness of damage control equipment and procedures.)
2. RECOMMENDATION OR ACTION TAKEN TO PREVENT RECURRENCE.//

BT

ATTACHMENT 5-A-2

SAMPLE APPOINTMENT LETTER

From: COMSC Program Manager
To: (Name, SSN)
Via: (Command of the appointed member, if different from the appointing command)

Subj: APPOINTMENT AS MEMBER OF (ORGANIZATION) MISHAP INVESTIGATION BOARD

Ref: (a) COMSCINST 5100.17C, Afloat Safety and Occupational Health Manual
(b) OPNAVINST 5100.19C, NAVOSH Program Manual for Forces Afloat

1. Based on your professional experience and knowledge, I appoint you as (the Senior Member)(a member) of the (organization) Mishap Investigation Board. You shall comply with reference (a) in the performance of your duties.

2. I direct your attention to the provisions of reference (b) concerning privileged information. You shall properly safeguard all privileged information available to you as a member of the board.

3. When investigating and reporting a shipboard mishap, your duties as a member of the board shall take precedence over all other duties. You will not be assigned to do a JAG Manual or other investigation of the same mishap.

4. The responsibility inherent in the appointment extends beyond any loyalties you may hold to the command. The MSC Afloat Safety and Occupational Health Program depends on the efforts of mishap investigators to analyze mishaps and to identify and remove potential causes of damage and injury. The sole objective of the board is mishap prevention. Therefore, your efforts should include complete, open and forthright expressions of your views. Rest assured, the MIR shall be used within the command, and elsewhere within MSC and the Department of the Navy for safety purposes only.

5. Should any circumstances arise which would prevent the proper performance of your duties as a member of the board, you shall immediately notify me.

6. Contact me if you experience any difficulties in properly conducting the investigation.

//signed//

Copy to:

ATTACHMENT 5-A-3

NOTICE TO WITNESSES

**THIS IS PART OF A LIMITED USE MISHAP INVESTIGATION REPORT.
LIMITED DISTRIBUTION AND SPECIAL HANDLING ARE REQUIRED.
AS PROVIDED IN COMSCINST 5100.17C**

THIS STATEMENT IS PRIVILEGED AND IS EXEMPT FROM DISCLOSURE UNDER FOIA

DO NOT FILE THIS STATEMENT IN A SYSTEM OF RECORDS SUBJECT TO THE PRIVACY ACT. FOR EXAMPLE, THIS STATEMENT MUST NOT BE RETRIEVABLE BY NAME, SOCIAL SECURITY NUMBER, DATE OF BIRTH OR OTHER UNIQUE IDENTIFIER ASSOCIATED WITH AN INDIVIDUAL.

Authority: 10 USC 5013. Department Regulations
Principal Purpose: To determine the cause of the mishap so the U.S. Navy can improve equipment design, safety and warning devices, operating and maintenance procedures and training, administrative and engineering controls, and personnel protective devices to prevent or reduce to a minimum the accidental loss of naval personnel and material.

Official Use(s): The information requested will be used by the mishap investigation board, officials and employees of MSC, the Naval Safety Center and other Department of Defense Officials to prevent mishaps and to promote safety and safety programs. Collective or individual MIRs for the basis for safety advisories to the fleet, material for safety publications and for recommendations in human factors and equipment design to higher authority to prevent mishaps.

Mandatory or Voluntary Disclosure: The information being requested is voluntary. However, your failure to provide information will diminish the overall understanding of the causes of the mishap.

**PLEASE READ THIS STATEMENT CAREFULLY.
CERTIFY YOUR UNDERSTANDING BY SIGNING AT THE BOTTOM.**

I understand:

a. I have been requested to provide information to a mishap investigation board.
b. My statement will not be under oath or affirmation and will not be written or signed by me.
c. Disclosure of information is voluntary; my election or refusal to provide such information will have no adverse effect upon me.
d. The mishap investigation board and the Department of Defense will use the information I provide solely to determine the cause(s) of the mishap and to make safety evaluations for future prevention of loss of life/material.
e. The information I provide shall not be used as evidence, or to obtain evidence, in any other administrative or judicial proceeding(s) to determine misconduct or line of duty status, or governmental liability.
f. Examples of situations where the information provided by me shall NOT be used include:
   (1) In any determination affecting me.
   (2) As evidence in determining misconduct or line of duty status of other personnel.
   (3) As evidence in any disciplinary proceedings.
   (4) To assert affirmative claims by the government or to defend the government against claims.
   (5) Before any administrative boards.
   (6) As evidence in any court, civilian or military.

1. PRINTED NAME		**2. SIGNATURE**	
3. DATE	**4. GRADE LEVEL**	**5. SERVICE**	**6. TELEPHONE NO.**
7. ADDRESS			
8. PRINTED NAME OF BOARD MEMBER		**9. BOARD MEMBER SIGNATURE**	
10. RESULTS OF INTERVIEW (Continue on reverse or attach separate sheets)			

ATTACHMENT 5-A-4

MISHAP INVESTIGATION REPORT (MIR)

Use the format and content below for reporting the results of the mishap investigation board. Send the report as a message.

(Precedence - normally ROUTINE)

FM (RELEASING COMMAND) (Normally the Senior Member's command)
TO Mishap Ships
COMSC WASHINGTON DC//(Appropriate Program Manager)/N00S//
(For PM1 ships, cognizant NFAF East/West Office with Project officer Code and Safety Office Code)
(For ships other than PM1, appropriate NFAF East/West Safety Office Code)
Group Commander (when required)
Fleet Commander (when required)
COMNAVSAFECEN NORFOLK VA//30/054//
INFO CNO WASHINGTON DC//N86D/N871D/N885/N889E1/N45//
Fleet Commander (when not an action addressee)
Group Commander (when not an action addressee)
(If the mishap involves explosives or explosive systems or equipment, include addressees provided by COMNAVSAFECEN.)
UNCLAS//N05102// DISTRIBUTE ONLY TO THE COMMANDER OR OFFICE CODE(S) FOLLOWING EACH ADDRESSEE. (Normally UNCLAS unless the content requires including classified information.)
MSGID/GENADMIN/MSG ORIG/SER NO./MONTH//
SUBJ: AFLOAT MISHAP INVESTIGATION REPORT (MIR) (RCS OPNAV 5102-7)//
REF/A/ (If follow-up message, refer to the MR reporting the mishap)//
REF/B/DOC/CNO/(OPNAVINST 5100.19C)//
NARR/REF B IS OPNAVINST 5100.19C, NAVOSH PROGRAM MANUAL FOR FORCES AFLOAT. THIS REPORT IS FOR OFFICIAL USE ONLY. THIS IS A PRIVILEGED, LIMITED USE, CONTROLLED DISTRIBUTION, SAFETY MISHAP INVESTIGATION REPORT. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS REPORT BY MILITARY PERSONNEL IS A CRIMINAL OFFENSE PUNISHABLE UNDER ARTICLE 92, UNIFORM CODE OF MILITARY JUSTICE. UNAUTHORIZED DISCLOSURE OF INFORMATION IN THIS REPORT BY CIVILIAN PERSONNEL WILL SUBJECT THEM TO DISCIPLINARY ACTION UNDER CIVILIAN PERSONNEL INSTRUCTION 752. SEE CHAPTER A6 OF OPNAVINST 5100.19C FOR RESTRICTIONS.//
POC/NAME/RANK/PRIMARY PHONE/PRIMARY FREQ/LOCATION/SECONDARY PHONE/SECONDARY FREQ//
RMKS/ALPHA: (NON-PRIVILEGED)
1. UIC OF MISHAP COMMANDS
2. HULL NUMBER/SIDE NUMBER
3. TYPE OF MISHAP (e.g., flooding, fire, injury, electric shock, collision, grounding, explosion, back injury, chemical or toxic exposure, or equipment damage)
4. LOCAL TIME AND DATE OF MISHAP
5. WEATHER CONDITIONS (e.g., temperature, relative humidity, visibility, lighting, ventilation, air quality, wind direction/velocity, sea state, current, tide, precipitation, lightning, hurricane, and other)
6. GEOGRAPHIC LOCATION (latitude/longitude. If classified, give general area)
7. LOCATION WHERE MISHAP OCCURRED (give workcenter or description of the location; (e.g., main deck, side and frame number, hold description, engine room))
8. SHIP'S EVOLUTION AT THE TIME OF MISHAP (e.g., underway, replenishment, mooring)
9. SEA STATE AND DIRECTION
10. SHIP'S EMPLOYMENT (e.g., refit, independent steaming, maintenance availability, underway, anchored)

11. PAYLOAD (e.g., type cargo and load weight)
12. SENIOR MEMBER POINT OF CONTACT (Include telephone number, if available)
13. EQUIPMENT DAMAGED OR DESTROYED BY MISHAP (include EIC, TEC, or NSN if applicable; describe damage)
14. ESTIMATED COST TO REPAIR OR REPLACE DOD PROPERTY (Provide the total dollar value and UIC and name of command having custody of the property (if different from reporting activity). The cost includes $16 for each hour of labor plus the cost of material and equipment))
15. ESTIMATED COST OF NON-DOD PROPERTY DAMAGE
16. NUMBER OF OPERATING DAYS LOST
17. NAME/SSN/AGE/SEX (repeat items 17 through 24 if the mishap involves more than one person)
18. RANK AND DESIGNATOR OR RATE AND NEC, JOB AND EMPLOYMENT STATUS (e.g., employment status is Navy Federal civil service, contractor, foreign civilian)
19. DUTY STATUS (on or off-duty) and UIC (if different from reporting activity). (If the mishap involves injuries to people from different commands, specify the UIC of each individual)
20. SPECIFIC JOB OR ACTIVITY INDIVIDUAL ENGAGED IN AT TIME OF MISHAP (e.g., standing watch, maintenance, loading stores, training)
21. NUMBER OF MONTHS EXPERIENCE AT THE JOB OR ACTIVITY (in paragraph 20 above)
22. MEDICAL DIAGNOSIS (include parts of body and type of injury)
23. EXTENT OF INJURIES AND PROGNOSIS FOR DISABILITY (specify extent of injuries and outlook; (e.g., permanent partial disability or no disability likely))
24. ESTIMATE OF LOST TIME
- **A. TOTAL NUMBER OF DAYS AWAY FROM JOB (lost workdays)**
- **B. DAYS IN HOSPITAL OR SICK**
- **C. DAYS OF LIGHT OR LIMITED DUTY**

25. RISK ASSESSMENT CODE (RAC)

BRAVO (PRIVILEGED) (Contains the mishap investigation board's deliberative evaluation)

1. BRIEF DESCRIPTION OF THE MISHAP (include chain of events leading up to, through and subsequent to mishap)
2. SUMMARY OF EVIDENCE AND TESTIMONY ANALYZED
3. DETAILED SEQUENCE OF EVENTS
4. OPINIONS OF THE MISHAP INVESTIGATION BOARD (as applicable)
- **A. THE ADEQUACY AND USE OF APPROVED PROCEDURES**
- **B. THE QUALIFICATIONS OF THE PEOPLE INVOLVED**
- **C. THE STATE OF TRAINING OF THE PEOPLE INVOLVED AND OF THE CREW IN COMBATING THE MISHAP**
- **D. THE EFFECTIVENESS OF SUPERVISION**
- **E. THE EFFECTIVENESS OF THE QUALITY ASSURANCE PROGRAM, WHERE APPLICABLE**
- **F. THE EFFECTIVENESS OF DAMAGE CONTROL EFFORTS**
- **G. THE ROLE PREVENTIVE AND CORRECTIVE MAINTENANCE PLAYED IN THE MISHAP**
- **H. ANY EXISTING MATERIAL DEFICIENCIES OR SHORTCOMINGS WHICH MAY HAVE CONTRIBUTED TO THE MISHAP**

5. ANALYSIS OF FINDINGS
- **A. PROBABLE CAUSE(S) OF THE MISHAP (State each probable cause of damage and injury with a short rationale.**
- **B. OTHER CAUSES CONSIDERED BUT REJECTED (State each possible cause of damage and injury rejected by the mishap investigation board with a short rationale)**

6. RECOMMENDATIONS (State recommendations for changes in procedures, equipment or training, to prevent the recurrence of the mishap. Include the mishap investigation board's recommended lessons learned.

ATTACHMENT 5-A-5

MISHAP INVESTIGATION REPORT ENDORSEMENTS

Use the format and content below for endorsing the Mishap Investigation Report (MIR). Send the endorsement as a message.

(Precedence - normally ROUTINE)

FM: COMSC (Appropriate Program Manager)
TO: (Subsequent endorsers based on MIR addressees)
COMNAVSAFECEN NORFOLK VA//30/054//
INFO: CNO WASHINGTON DC//N8/N86D/N871/N885/N09/N45//
UNCLAS //N05102// DISTRIBUTE ONLY TO THE COMMANDER OR OFFICE CODE(S) FOLLOWING EACH ADDRESSEE. (Normally UNCLAS unless the content requires including classified information.)
MSGID/GENADMIN/MSG ORIG/SER NO./MONTH//
SUBJ: PRIVILEGED FIRST/SECOND ENDORSEMENT ON MISHAP INVESTIGATION REPORT (MIR) (RCS OPNAV 5102-7)
REF/A/ (refer to original MIR and all previous endorsements)//
REF/B/ DOC/CNO/(OPNAVINST 5100.19C//
NARR/REF B IS OPNAVINST 5100.19C, NAVOSH PROGRAM MANUAL FOR FORCES AFLOAT. THIS REPORT IS FOR OFFICIAL USE ONLY. THIS IS A PRIVILEGED, LIMITED USE, CONTROLLED DISTRIBUTION, SAFETY MISHAP INVESTIGATION REPORT ENDORSEMENT. UNAUTHORIZED DISCLOSURE OF THE INFORMATION IN THIS ENDORSEMENT IS A CRIMINAL OFFENSE PUNISHABLE UNDER ARTICLE 92, UNIFORM CODE OF MILITARY JUSTICE. SEE CHAPTER A6 OF OPNAVINST 5100.19C FOR RESTRICTIONS.//
POC/NAME/RANK/PRIMARY PHONE/LOCATION/SECONDARY PHONE
RMKS/1. Brief description of the mishap based on the MIR. General statement about the mishap, mishap investigation board findings and previous endorsements.
2. List each probable cause, rejected probable cause and recommendation from the MIR and previous endorsements and your agreement or disagreement with each. For each point of disagreement, identify alternative recommendations or actions and recommended action agency. For each recommendation under your cognizance, report the status and/or your plan of action and milestones for accomplishment.
3. Provide any amplifying information, additional comments or action intended by the endorser concerning the mishap.

CHAPTER 6

ASBESTOS AND MAN-MADE VITREOUS FIBER CONTROLS

0601 DISCUSSION

a. Asbestos insulation and other asbestos containing materials are normally not a health hazard when in good condition, secured in place and unlikely to be disturbed. Bound asbestos materials, such as most gaskets, floor coverings and cements are not generally health hazards except when worked by punching, grinding, machining or sanding or when the material is deteriorated. Of primary concern is that asbestos has the potential to become airborne through disturbance, damage or friability. Friable asbestos is a known health hazard. Inhalation of asbestos fibers has been demonstrated to cause asbestosis and cancer. There are no acute (immediate) effects associated with exposure to asbestos. Exposure must, therefore, be avoided even though breathing asbestos dust may not seem to produce any harmful effects. **Asbestos ripout or removal operations at sea shall be limited to emergency repairs to piping or equipment.**

b. Man-made vitreous fibers (MMVF), also referred to as man-made mineral fibers (MMMF), are a group of fibrous inorganic materials, generally aluminum or calcium silicates, that are derived from rock, clay, slag and glass. MMVF are widely used for thermal and acoustical insulation and as reinforcement materials. A number of thermal insulation products have replaced asbestos as the primary source of insulation and lagging material. Because these materials are fibrous and bear physical similarities to asbestos mineral, the concern is that they may have similar health hazard potential. Though experimental data is contradictory, the consensus is that prolonged high exposures to these products may lead to increased health risks.

0602 PROCEDURES

a. Program Managers shall provide ships with necessary equipment for the safe emergency repair/removal of asbestos at sea.

b. The Chief Engineer shall:

(1) Authorize all asbestos insulation removal at sea, for emergencies only.

(2) Maintain, as a minimum, a trained, three-person team for emergency asbestos removal at sea. Identify these persons to the ship's MSO and Medical Officer (East/West) and ensure they report for medical examinations annually.

(3) Provide at-sea asbestos removal personnel with the necessary equipment and protective clothing to perform such work, maintaining the inventory in Allowance Equipage List (AEL)-330024045.

c. The First Assistant Engineer shall:

(1) Be the at-sea asbestos removal team coordinator and meet the training requirements of paragraph 0603a.

(2) Perform any emergency at-sea asbestos removal following the procedures of, NSTM, Chapter 635, Thermal, Fire and Acoustic Insulation.

(3) Request assistance from the MSC (East/West) Area Safety Office for the evaluation of potential asbestos insulation hazards.

(4) Inspect each repair operation in which asbestos insulation is to be removed to ensure proper procedures are being followed.

(5) Approve access to spaces where asbestos was removed at sea, after appropriate inspection.

(6) Conduct annual refresher training for asbestos team members on removal procedures and the use of personal protective equipment (PPE) during asbestos removal per paragraph 0603b.

(7) Maintain PPE and emergency repair equipment in good operating condition and maintain an up-to-date inventory of the emergency asbestos removal equipment.

(8) Ensure that all asbestos-containing waste materials are collected as required by paragraph 0602m and properly stored while awaiting disposal.

d. Department Heads shall:

(1) Ensure personnel are trained per paragraph 0603c.

(2) Notify the Safety Officer and First Assistant Engineer prior to performing any work which may include asbestos removal.

(3) Arrange with the First Assistant Engineer for repairs of damaged or deteriorating thermal insulation to minimize release of asbestos dust.

e. The MSO shall:

(1) Maintain a list of personnel in the Asbestos Medical Surveillance Program (AMSP) and personnel who work with MMVF and schedule for required medical surveillance.

(2) Conduct training on the medical aspects of the Asbestos/MMVF Control Program, upon request.

f. All hands shall:

(1) Obtain and use proper protective clothing for entrance into an area with asbestos warning signs. Comply with posted asbestos warning signs. Only authorized personnel shall enter into an asbestos posted area.

(2) Inform immediate supervisors of damage to thermal insulation or work requiring the disturbance or removal of thermal insulation or other asbestos/MMVF containing material.

g. Asbestos can not be identified based solely on a visual inspection. Therefore, thermal insulation, especially on ships built before 1976, should be handled as if it contains asbestos unless the material has been known to be asbestos-free by laboratory analysis.

h. Whenever possible, removal of asbestos insulation shall be performed by a qualified shore facility. When emergency repairs must be made at sea, the asbestos removal shall be authorized by the Chief Engineer. Emergency removal shall be performed by the designated three person team using the procedures of Naval Ships Technical Manual (NSTM), Chapter 635.

i. Personal protective clothing and equipment required for shipboard asbestos operations are listed in AEL 2-330024045 CLOTHING X EQUIPMENT - ASBESTOS REMOVAL PROTECTION. This list shall be used as an inventory for equipment that must be onboard. Asbestos removal equipment is to be maintained in a dedicated locker.

j. When accomplishing an at-sea asbestos repair and if the concentration is unknown, a full facepiece, continuous flow supplied air respirator shall be used. The Ambient Air Breathing Apparatus meets this requirement.

k. For emergency repairs at sea, the First Assistant Engineer shall conduct a thorough inspection of the asbestos removal area following the removal operation. He/she shall ensure that the work area has been cleaned and is free of all visible asbestos dust prior to restoring the area to general occupancy. A checklist found in Appendix 6-A shall be used for this purpose.

l. Warning signs shall be displayed outside of an area in which asbestos removal is being performed. The signs shall state:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

Similarly, warning labels shall be attached to containers of asbestos material. Such labels shall state:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

m. Asbestos and asbestos containing materials shall be collected and bagged in red sealed impermeable containers (normally double poly bags) and labeled in accordance with paragraph 0602l. These materials shall be disposed of at a Navy shore facility or activity in accordance with Navy/EPA requirements.

n. Personnel who are assigned to the asbestos repair team or who have received past exposure to asbestos shall be enrolled in the AMSP.

o. When asbestos repairs are made at sea, they shall be made at a distance of 3 miles or greater from U.S. shores.

p. Special procedures for MMVF materials

(1) The First Officer shall request assistance from the MSC (East/West) Area Safety Office for the evaluation of potential MMVF insulation hazards. The First Officer shall also inspect each repair operation in which MMVF insulation is to be removed, to ensure proper procedures are being followed.

(2) Department Heads shall notify the Safety Officer prior to performing any work which may include MMVF insulation removal.

(3) For at sea repair or replacement of MMVF material, all hands shall obtain and use proper PPE when working with MMVF material. PPE shall include as a minimum long sleeved clothing, safety glasses or goggles with side shields and head protection. A half-facepiece respirator with dust, fume and mist filter(s) shall also be used.

(4) At the end of the workday, MMVF work areas shall be vacuumed using a high efficiency particulate air (HEPA) vacuum to reduce possible airborne fiber generation. MMVF material shall be placed in heavy duty plastic bags (other than red) or other suitable impermeable containers for disposal as regular solid waste.

q. Personnel involved in asbestos/MMVF related work activities shall not eat, drink, smoke, chew tobacco or gum or apply cosmetics in the work area.

0603 TRAINING

Required training for the Asbestos/MMVF Control Program is as follows.

a. The following training shall be provided prior to reporting to the ship:

(1) The First Assistant Engineer, being the Asbestos Emergency Removal Team Coordinator, shall attend the Shipboard Asbestos Emergency Response Course (A-760-2166) provided by NAVOSHENVTRACEN.

(2) Asbestos Emergency Removal Teams members shall be trained in asbestos control procedures. This training shall be obtained through the Shipboard Asbestos Emergency Response Course(A-760-2166) provided by NAVOSHENVTRACEN.

b. The following shipboard annual refresher training shall be provided for the First Assistant Engineer and the Asbestos Emergency Removal Team Members. This training shall include, but not be limited to:

(1) Health hazards of asbestos/MMVF;

(2) Purpose and proper use of protective clothing;

(3) Purpose and description of the AMSP;

(4) Emergency cleanup procedures;

(5) Engineering controls and work practices associated with one's work assignment; and

(6) Posting of signs and labels

c. All hands who work in areas where asbestos/MMVF insulation is or may be present, shall be trained to report damaged insulation.

CHAPTER 6 - REFERENCES

6-1 Naval Ships Technical Manual, Chapter 635, Thermal, Fire and Acoustic Insulation

6-2 OPNAVINST 5100.19C Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

APPENDIX 6-A

CHECKLIST FOR FINAL INSPECTION AFTER EMERGENCY ASBESTOS INSULATION REMOVAL

Date:

Project: _____

Location: _____

CHECKLIST

Residual dust on:	**Yes**	**No**		**Yes**	**No**
a. Deck	☐	☐	**d. Ventilation Equipment**	☐	☐
b. Horizontal Surfaces	☐	☐	**e. Ducts**	☐	☐
c. Pipes	☐	☐	**f. Lights**	☐	☐

FIELD NOTES

Record any problems encountered.

_____
_____
_____
_____
_____
_____
_____
_____

The space/location is cleared for unrestricted operations.

_____
Signature (Safety Officer) / Date

CHAPTER 7

HEAT STRESS

0701 DISCUSSION

a. Heat stress is the result of a combination of air temperature, thermal radiation, humidity, air flow and work load. If the body's capability to adjust to heat is exceeded, an increase in body temperature occurs, causing fatigue, severe headache, nausea and reduced physical and mental performance. With prolonged exposure to heat stress conditions, the body's temperature may continue to rise to the point where heat stress casualties (i.e., heat exhaustion or heat stroke) will occur. Heat stroke can be life threatening if not treated properly.

b. While heat stress conditions can occur in practically any place aboard ship, machinery spaces, laundries, galleys and sculleries are the most likely locations to contain conditions of elevated temperature which may cause heat stress.

c. There may also be situations or conditions which result in a heat stress hazard. Some examples include operations in particularly hot and humid climates, performance of arduous physical tasks and reduced physical stamina due to:

(1) Lack of sleep

(2) Illness

(3) Use of medication, drugs or alcohol

(4) The presence of atmospheric contaminants such as combustion gases or fuel vapors

d. This chapter does not apply when determining heat exposure limits for personnel wearing fire or chemical protective clothing during shipboard emergencies. This chapter does apply to personnel wearing fire or chemical protective clothing during required training evolutions.

0702 PROCEDURES

a. The Master shall:

(1) Report instances of personnel injury resulting from excessive heat stress per OPNAVINST 5100.19C and Chapter 5.

(2) Submit Voyage Repair Requests (VRRs) and/or Casualty Reports (CASREPs), as appropriate, identifying those material deficiencies beyond ship's force capability to correct which contribute to heat stress conditions aboard ship. Request assistance from the Medical Officer (East/West) or the Program Manager if the source of heat stress can not be identified.

(3) Conduct an investigation into the circumstances surrounding heat stress casualties which result in unconsciousness per Chapter 6 of reference 7-2. The results of this inquiry shall be forwarded to the appropriate fleet Commander in Chief via the chain of command. When the cause of the injury and required action is obvious, the Master may request permission to waive the requirements for a complete inquiry when the incident is reported to the Program Manager.

b. The Chief Engineer shall:

(1) Ensure that alcohol-in-glass dry bulb thermometers, NSN 9G/6685-00-243-9964, are installed in all key watch and work stations where a potential for heat stress exists throughout the ship. These thermometers shall be installed so that they indicate the temperature at the location where the individual will primarily stand his/her watch and shall be positioned in such a manner that they are not influenced by the temperature of materials in the vicinity of the watchstation (i.e., do not attach the thermometer to a steam pipe with wire).

(2) Dry bulb temperatures shall be recorded a minimum of once per watch or work period, at the start of the period when the ship is underway or when a potential heat stress condition exists. Normal frequency will be:

(a) Once each watch for manned engineering spaces

(b) Once during preparation and serving of each meal in galley spaces

(c) Once after each meal in the scullery

(d) Once each shift while the ship's laundry is in use.

(3) Assign and train personnel to perform heat stress monitoring of the engineering spaces with a Wet Bulb Globe Temperature (WBGT) meter. Monitoring and recording shall be performed per paragraph 0702f.

(4) Ensure exposure limits for engineering personnel are properly determined, per paragraph 0702g, whenever WBGT meter monitoring has taken place. Limit personnel exposures to heat stress, accordingly, except in an operational emergency. Inform the Master when personnel exposure limits are reduced to less than normal watch or work periods.

(5) Reduce heat stress conditions throughout the ship through performance of preventive and corrective maintenance. Elimination of steam and water leaks, reducing radiant heat sources (i.e., insulating appropriate steam piping and machinery), maintaining proper space ventilation and maintaining dry bilges are important factors in reducing heat stress.

(6) Ensure that all heat stress deficiencies which cannot be corrected within 30 days are entered into the Voyage Repair Log per Chapter 4.

c. The MSO shall:

(1) Perform heat stress WBGT meter monitoring of non-engineering spaces including weather deck spaces, when required, or as directed by the Master (i.e., when an actual heat casualty has occurred, during engineering casualties and when the PHEL may or has exceeded normal safe stay times limits).

(2) Collect WBGT monitoring data and provide it to the Master, when appropriate. Inform the Master when any personnel exposure limits are reduced to less than normal watch or work periods.

(3) Provide training to personnel on heat stress health hazards.

(4) Prepare the Heat/Cold Injury Report (NAVMED 6500/1) for heat stress related casualties per Chapter 5. The Master shall sign the report. The report shall be sent to the Navy Environmental Health Center (NAVENVIRHLTHCEN), Code 35, with a copy to the Force Medical Officer, Medical Officer (East/West) and the COMSC Program Manager.

d. All hands shall:

(1) Obtain prompt medical attention for personnel who exhibit heat stress symptoms.

(2) Follow recommended work practices and procedures for controlling heat stress hazards.

e. Installed alcohol dry bulb thermometers shall be read and the temperature recorded during each watch.

f. WBGT meter readings shall be taken at watch and work stations within a space and a Physiological Heat Exposure Limit (PHEL) determined whenever:

(1) A dry bulb thermometer reading meets 100 degrees Fahrenheit (°F)

(2) Conditions of high atmospheric heat and humidity exist (greater than 90°F dry bulb temperature or 81°F wet bulb temperature).

(3) The Master or Chief Engineer, in their judgment, determine such monitoring to be necessary.

Record the WBGT readings on a copy of the MSC Heat Stress Monitoring Report found in Appendix 7-A. Appendix 7-B is a heat stress monitoring decision diagram which provides heat stress and follow-on monitoring requirements in a graphic format.

g. Whenever the PHEL, as determined from the PHEL chart or table found in OPNAVINST 5100.19C, Appendix B2-B, is less than the normal watch or work period, the Master and Chief Engineer shall be notified and actions taken to protect personnel and reduce heat stress. .

h. Personnel reaching their exposure limit shall remain in a cool, dry area for a period twice the exposure time or 4 hours, whichever is less, prior to being re-exposed to heat stress. If the individual, after the necessary recovery time, remains tired, is unable to carry out normal work requirements or exhibits increased incidents of health disorders, he or she shall be referred immediately to the MSO for follow-up evaluation.

0703 TRAINING

The required training for the Heat Stress Program is as follows:

a. The MSO shall have completed the Heat Stress Afloat Course, B-322-2320 offered by the Navy Environmental and Preventive Medicine Units prior to assignment aboard ship.

b Personnel shall receive heat stress training as a part of the MSC 2-day Afloat OSH Course. Training shall include the following:

(1) Heat stress health hazards, symptoms and first aid procedures

(2) Heat stress monitoring

(3) Causes of heat stress and corrective action.

c. All personnel shall receive onboard annual refresher training. Refresher training shall include the topics listed in paragraph 0703b above.

d. Personnel assigned as heat stress monitors shall be trained on the following subjects prior to being assigned and annually thereafter:

(1) Assembly/use of the WBGT meter

(2) Manually calculating WBGT Index.

(3) Completing required monitoring report forms

(4) Using PHEL Charts

(5) Using alternate heat stress monitoring equipment

CHAPTER 7 - REFERENCES

7-1 OPNAVINST 5100.19C Navy Occupational Safety and Health Program Manual for Forces Afloat

7-2 Manual of the Judge Advocate General (JAG Manual)

7-3 NAVMED P-5010-3 Manual of Naval Preventive Medicine, Chapter 3: Ventilation and Thermal Stress Ashore and Afloat (NOTAL)

APPENDIX 7-A

HEAT STRESS MONITORING REPORT

_____
Date

Ref: (a) COMSCINST 5100.17C
(b) OPNAVINST 5100.19C

1. Procedures:

a. References (a) and (b) require WBGT meter monitoring for watch or workstations whenever hanging dry bulb thermometer temperatures meet or exceed 100°F, during atmospheric conditions of high heat and humidity or at the direction of the Master or Chief Engineer.

b. When the required WBGT readings are taken, they shall be recorded on this form and the allowable heat exposure limits should be determined for each location from the PHEL chart or table.

c. The Master and Chief Engineer shall be informed if heat stress conditions at any location result in heat exposure limits that will not permit the completion of a normal watch.

2. WBGT Measurements and Exposure Limits.

OUTSIDE AIR TEMPERATURES:

Before Monitoring			After Monitoring		
Time	DB	WB	Time	DB	WB
_____	____	____	_____	____	____

Watch/work station	Time	DB	WB	GT	WBGT	Curve	Exposure Limit

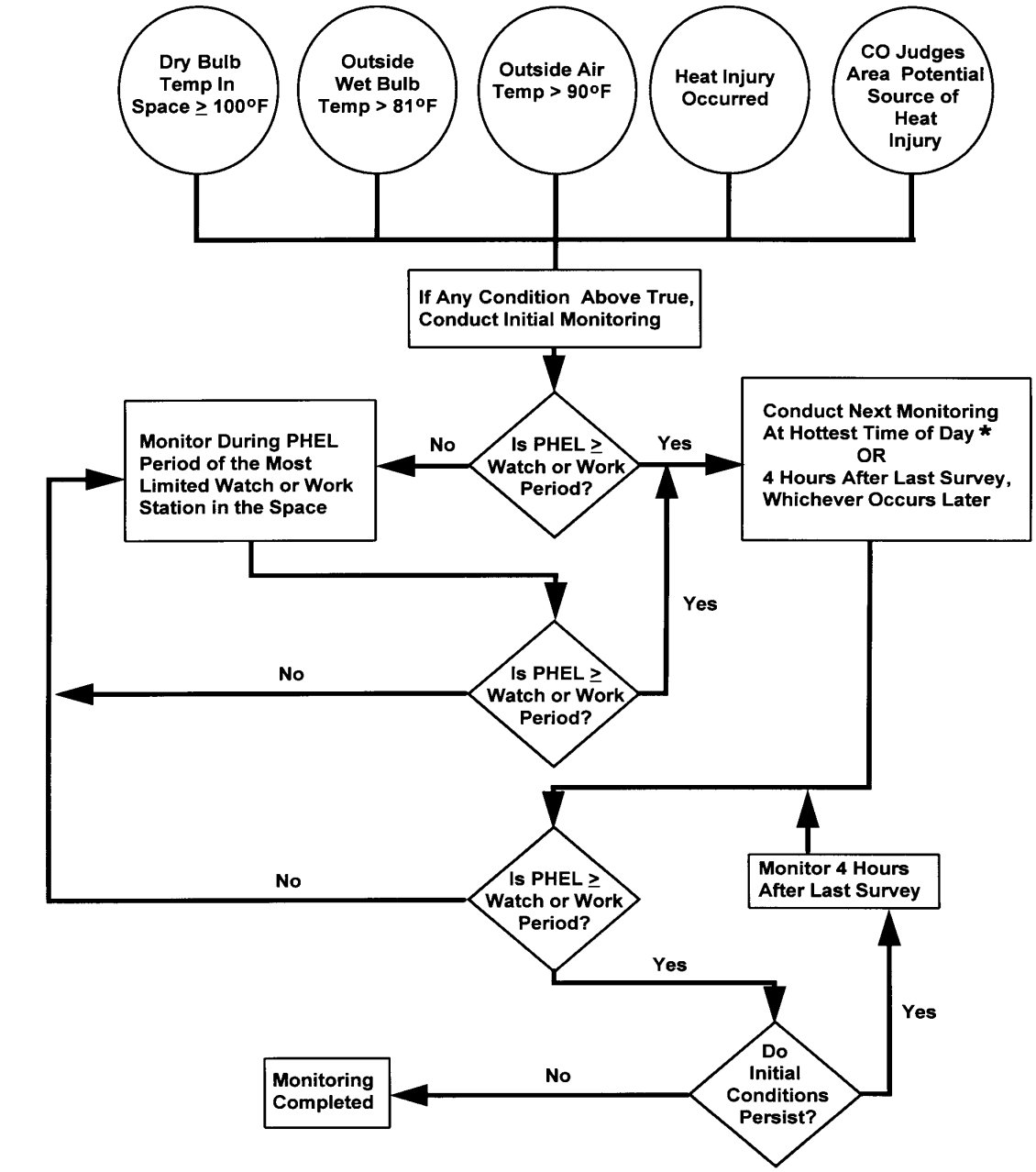
Watch/work station	Time	DB	WB	GT	WBGT	Curve	Exposure Limit

REMARKS:

_____
Monitor

APPENDIX 7-B

HEAT STRESS MONITORING DECISION DIAGRAM



* Only if conditions occurred prior to the hottest time of the day

CHAPTER 8

HAZARDOUS MATERIAL CONTROL AND MANAGEMENT (HMC&M)

0801 DISCUSSION

a. Hazardous materials (HM) are so termed because their quantity, concentration, physical or chemical characteristics may pose a substantial hazard to human health or the environment when incorrectly used, purposefully released or accidentally spilled. HM consists of flammables/combustibles, corrosives, toxins, oxidizers, aerosols and compressed gases. Mishaps may occur aboard ship due to mishandling of HM. Mishaps frequently involve materials associated with routine maintenance, ship operations or cargo handling and stowage. It is MSC policy that HM be kept at a minimum consistent with operational requirements.

b. This chapter implements OPNAVINST 5100.19C, Chapters B3 and C23, Hazardous Material Control and Management Program and describes requirements for Hazard Communication, HM Minimization and HM stowage and compatibility. This chapter supplements COMSCINST 4110.1B which provides policy, guidance and requirements for life-cycle control of HM acquired and used by MSC. The goal of this chapter is to inform mariners of the hazards they work with and how they can minimize the probability and severity of potential harm.

c. The following definitions are used in this chapter:

(1) Material Safety Data Sheets (MSDSs) are technical bulletins containing information about HM, including precautions for safe use and health and safety hazards. An MSDS is required aboard ship for each HM carried, either as a part of the HMC&M Hazardous Material Information System (HMIS) CD-ROM or as a hard copy. The MSDSs shall be readily accessible to personnel who actually use or handle the material.

(2) Authorized Use List (AUL) specifies HM permitted aboard MSC CIVMAR ships. HM that is not listed in the AUL shall not be ordered without the specific approval of the ship's Master.

(3) Excess HM is full, properly sealed containers of usable HM in excess of a ship's needs awaiting transfer to a supply stock point for possible credit or redistribution.

(4) Used HM is HM that has no further use onboard the ship. Ships are required to transfer used or excess HM to a Navy shore activity for redistribution or disposal.

Used HM must be segregated (never mixed), labeled and accompanied by a DD 1348-1 Form.

(5) Hazardous Material (HM) Coordinator is the ship's Supply Officer or the First Officer on ships without a Supply Officer.

0802 PROCEDURES

a. COMSC Logistics Director, N4, shall:

(1) Manage the AUL for MSC ships per COMSCINST 4110.1B. This includes maintaining the AUL, ensuring HM Coordinator access to the AUL and reviewing all proposed AUL additions.

(2) Review the annual inventory of HM received from afloat units to determine if HM aboard is listed on the MSC-AUL. Challenge all items not allowed aboard or specifically justified by afloat units.

b. Program Managers shall:

(1) Ensure compliance with HM requirements for forces afloat.

(2) Promote cooperation and adhere to established procedures in all ports for marking containers, preparing off-loading documents and off-loading Used or Excess HM.

(3) Ensure shipboard annual refresher training for crewmembers are provided per paragraph 0806.

(4) Review MSDSs from ship's open purchases of HM and provide copies to COMSC N4.

c. The Master shall:

(1) Designate the First Officer as the HM Coordinator on ships without a Supply Officer assigned.

(2) Report all HM mishaps per Chapter 5.

(3) Report any situation that results in the discharge of a hazardous substance into the navigable waters of the United States per OPNAVINST 5090.1B and COMSCINST 5090.1B.

(4) Authorize the ordering of non-standard hazardous material required for the ship's operations from support activities ashore. This is material not listed on the MSC AUL and that can not be replaced by an item on the AUL. Report all authorized non-standard items ordered to the Program Manager.

(5) Implement a system to control and safeguard the labeling, collection, pickup, transportation and ultimate disposal of Used/Excess HM that complies with Navy, local, state and Federal regulations.

(6) Comply with applicable HM requirements of host nation's Status of Forces Agreements (SOFAs) or other official agreements if they are more restrictive than U.S. regulations. Conform to OPNAVINST 5090.1B and COMSCINST 5090.1B and U.S. laws and regulations, to the extent feasible, when host country requirements are less stringent.

(7) Review all new requirements for HM deemed necessary and not on the MSC AUL. Attempt to find a non-hazardous substitute prior to procuring HM. Prudent judgment shall be used when procuring new items of HM.

(8) Ensure that an "HM field day" is conducted annually. The purpose is to consolidate HM stowage, earmark excess HM for transfer ashore, identify HM with expired shelf life for transfer ashore, cleanup of HM stowage areas and remove HM from unauthorized stowage. The HM field day will normally follow the physical inventory of HM.

(9) Provide a completed annual inventory of the ship's HM to COMSC N4 and to the ship's cognizant Program Manager no later than 1 August each year.

d. The First Officer shall:

(1) As Safety Officer, review with the Safety Council the list of HM stowage locations annually in order to minimize the number of locations and eliminate excessive or unauthorized quantities of Used/Excess HM.

(2) Annually train ship's damage control teams per paragraph 0806c.

e. The HM Coordinator shall:

(1) Ensure that management of HM follows the procedures outlined in this chapter and COMSCINST 4110.1B. COMSCINST 4110.1B provides detailed instructions for using the shipboard Supply Management Program (SM5).

(2) Maintain the DOD HMIS so that MSDSs are available for each item of HM listed in each inventory. Also maintain hard copies of MSDSs for those non-standard items provided by ashore supply activities. Ensure that hard copy MSDSs are available to personnel or their supervisor, upon request. Forward copies of MSDSs that are not on the HMC&M/HMIS CD-ROM to: Commanding Officer, Navy Environmental Health Center, Attn: HMIS (Code 341), 2510 Walmar Avenue, Norfolk VA 23513-2617.

(3) Ensure that before stowage and issue, all HM brought aboard ship is properly labeled with the material name, the manufacturer's name and address and the nature of the hazard presented by the HM. Department of Transportation (DOT) or National Fire Protection Association (NFPA) labels installed by the manufacturer should be left in place (see Appendix 8-A for example of NFPA hazard identification).

(4) Label all repackaged containers, temporary containers used for breaking out small quantities of HM and any unlabeled or improperly labeled containers of HM using DOD Chemical Warning Labels DD 2521 (8.5”x11”) or DD 2522 (4”x7”)(Appendix 8-B).

(5) Establish shipboard procurement, receipt and storage controls to ensure that only HM listed on the MSC AUL or authorized by the Master is procured. Obtain the Master's authorizing signature prior to ordering HM not listed in the AUL.

(6) Promptly and properly store HM upon receipt, inspection and acceptance.

(7) Provide Department Heads support in completing their annual inventory of HM. This includes providing baseline inventory records from SM5. Upon Department Heads completion of their inventories, adjust records in SM5 to reflect an accurate annual ship inventory.

(8) Compile the ship’s annual HM inventory and compare it to the MSC AUL. Any differences between the inventory and the AUL shall be resolved by either submitting a change to the AUL to reflect the new requirements, or transferring the material as Used or Excess HM. Use the inventory to determine locations where spills are most likely to occur.

(9) Provide a completed annual HM inventory to the Master for further submission to COMSC N4 and the ship’s cognizant Program Manager.

(10) Refuse delivery of HM if it is unacceptable because of material condition (rusted, dented where container integrity is in doubt), or the shelf life will expire within 6 months. If refusal of delivery is not feasible, re-label, repackage or expend the HM as appropriate.

(11) Reject requests for HM not on the MSC AUL back to the originator, unless the new requirement is valid and approved by the Master.

(12) Ensure that Ozone Depleting Substances (ODS) are supplied only to authorized users of the ODS Reserves per COMSCINST 4110.1B.

(13) Follow guidelines of paragraph 0803 for the accumulation, storage and turn-in of all Used or Excess HM aboard ship. For turn-in ashore, use locally established procedures.

(14) Provide shipboard HM training per paragraph 0806.

(15) Create a Ship Item Management - Direct Turnover (SIM-DTO) record for all HM ordered by shipboard departments.

f. Department Heads shall:

(1) Ensure that an inventory of all HM under their responsibility is conducted annually. Also ensure that the inventory is updated monthly for newly procured line items. The inventory of HM shall contain:

(a) HM trade or generic name;

(b) NSN or local stock number;

(c) Hazard characteristic code;

(d) Location of HM (authorized/actual);

(e) Quantity of HM aboard (on hand/maximum authorized);

(f) Shelf life expiration;

(g) Size of HM container/unit of issue; and

(h) HM manufacturer's name.

(2) Ensure the Master's approval is obtained for all necessary HM not currently listed on the AUL.

(3) Verify that all HM received from the HM Coordinator is in good material condition and properly labeled, stored properly and with compatible HM. Obtain MSDSs from HMIS or by hard copy and maintain them for easy access to all department personnel.

(4) Ensure that a copy of the Hazardous Material User's Guide (HMUG), OPNAV Publication P-45-110-96 is available for use by department personnel.

(5) Ensure that prior to using any HM, personnel within their department have been trained per paragraph 0806e.

(6) Ensure that a valid requirement exists prior to placing an order for HM not on the AUL.

(7) Ensure that HM is stored and used only in the minimum quantity required for a particular job to reduce the generation of used or excess HM.

(8) Ensure that HM storage requirements can be met within their respective department.

(9) Ensure that locations where HM is stowed are inspected quarterly (weekly for flammable liquids) for tightness of container closure, container corrosion, leakage, proper container labeling and expired shelf life. Deficiencies noted shall be immediately corrected.

(10) Inform the HM Coordinator any time a new item of HM is brought aboard beyond the parameters of the SM5 Program.

g. All hands shall:

(1) Ensure that HM removed from stowage for use is returned to appropriate stowage upon completion of use or the end of the work day whichever is sooner.

(2) Follow the instructions provided for the proper use of HM.

(3) Ensure, if transferring HM from its original container to another, that the new container is labeled with forms DD 2521 (NSN 0102-LF-012-0800) or DD 2522 (NSN 0102-LF-012-110), **Hazardous Chemical Warning Label**. These labels and label information are provided in the HMC&M CD-ROM. The labels can be printed on plain paper or use the pre-printed color forms. (Appendix 8-B).

(4) Collect and segregate Used/Excess HM resulting from work using HM.

(5) Immediately clean up any small spills (less than 1 gallon) of HM. Report all spills of HM to the Mate on Watch.

0803 STOWAGE, CONTROL, COLLECTION AND DISPOSAL OF HM

OPNAVINST 5100.19C, Chapters B3 and C23, provide Navy regulations for shipboard HM control and management.

a. Stowage of HM

(1) Flammable and combustible liquids with a flashpoint less than 200°F shall be stowed in flammable liquid storerooms, ready service storerooms or issue rooms. Liquids with higher flashpoints such as coolants, hydraulic fluids, lubricants and aerosols shall also be stowed in one of the above locations. In-use flammable liquid cabinets are required within or in the vicinity of work spaces for storage of limited quantities of HM used routinely on a daily basis, **BUT** not to store more than 30 gallons of flammable liquid per space. Cabinets and lockers shall be marked, **"FLAMMABLE/COMBUSTIBLE LIQUIDS."**

(2) Gasoline storage shall be in remotely jettisonable racks on the weather deck.

(3) Stowage locations for HM shall be posted with a **CAUTION** sign that states:

HAZARDOUS MATERIAL STORAGE AREA

These signs can be obtained through the Navy supply system using National Stock Number (NSN) 9905-01-342-4851 (10" x 7") or 9905-01-342-4859 (3" x 5").

(4) Access to HM stowage locations shall be restricted to authorized personnel. Entry to stowage locations not normally occupied or ventilated shall occur only after obtaining the Gas Free Engineer's approval (see Chapter 14).

b. Control of HM

(1) Requisition of HM. Use the MSC Supply Management Module (SM5) to order HM (see Appendix 8-C, Afloat Requisition Process Flow Diagram). Before any HM is ordered, it shall be determined that a valid requirement exists. The requirement for HM is normally found in the MSC AUL. Material NOT appearing in the AUL shall not be ordered, unless specifically authorized by the Master.

(2) When HM is brought aboard, it shall be immediately placed in an appropriate stowage location based on the hazard identification.

(3) Only limited quantities of HM essential for the immediate need of the user shall be issued from the normal stowage area. No more than 1 week's supply of routinely used HM shall be in or near the user compartment.

(4) Open purchase of products containing HM shall be authorized by the Master. Open purchase is allowed only in those situations for which the stock item is inferior or for which there is an urgent need that cannot be satisfied from supply system stock. An MSDS shall be obtained from the manufacturer or supplier prior to approval of a new product for purchase or use. A GENADMIN message must be sent to the Program Manager for approved purchases listing: NSN or type of material, hazard class, how/ where used aboard ship, Allowance Parts List/Allowance Equipage List (APL/AEL) and justification would be APL/AEL number.

(5) Material onboard in excess of maximum authorized quantities shall be collected and offloaded to a cognizant Navy shore activity as Used/Excess HM. Used/ Excess HM shall be properly labeled and each container must be accompanied by a DD Form 1348-1.

c. Collection and disposal of Used/Excess HM

(1) Guidance on HM collected and retained aboard for disposal ashore is found in COMSCINST 5090.1B.

(2) Used/Excess HM required to be disposed of ashore shall be segregated and placed in the container for the original material or in an impervious container. If there is any question regarding the integrity of the original container (e.g., badly rusted, badly dented or poorly sealed), the contents shall either be transferred to a new container or the damaged container shall be placed into an "overpack" container (a steel drum with removable cover (see reference 8-1, Appendix B3-D)). The overpack container shall be filled with sorbent material to absorb possible leakage and to prevent movement of the original container within the overpack container. If the material is not in its original container, the Work Center shall ensure that the material is labeled with either DD Form 2251 or DD Form 2252. In addition, a label identifying the material as used HM (see Appendix 8-D) shall be completed and attached to the container, labeled to indicate content and stowed in a manner similar to the original HM. The material shall be turned over to a cognizant Navy shore facility (see enclosure (3) to COMSCINST 4110.1B, Re-Usable

HAZMAT and HAZWASTE World-Wide Turn-In Locator Listing). Used/Excess HM shall not be turned over to a non-Navy activity for disposal either within the U.S. or in a foreign port. If no Navy activity is available, the Used/Excess HM shall be retained aboard until a suitable Navy activity or representative of such activity is available to receive the HM.

(3) A DD Form 1348-1 must be completed for each type of Used/Excess HM.

0804 HM SPILL RESPONSE

For onboard spills, ships shall develop a Spill Contingency Plan (SCP) in preparation for possible HM spills or releases to the environment. Guidelines for response to spills of HM are detailed in OPNAVINST 5100.19C, Appendix B3-A. This plan shall include information on spill response team makeup, spill cleanup equipment location, internal and external spill reporting criteria, as well as elaboration on procedures contained in OPNAVINST 5100.19C, Appendix B3-A, and any procedures unique to the ship. For spills going over the side, reporting requirements for an HM spill are found in OPNAVINST 5090.1B, Chapter 19, and COMSCINST 5090.1B.

0805 TRANSFERRING USED/EXCESS HM TO ANOTHER SHIP AT SEA

MSC policies/procedures for transferring Used/Excess HM to another ship at sea are as follows:

a. The Used/Excess HM shall be packaged, secured and properly labeled.

b. Only flammable/combustible (including flammable and corrosive or flammable and toxic) HM and compressed gases shall be transferred to another ship for further transfer ashore. Material which is purely corrosive or reactive will probably be incompatible with flammable/combustible material and may create a safety hazard for the receiving ship. Excess HM (nonflammable/noncombustible) can be transferred at sea, only with the Operational Area Commander approval.

c. Ships shall request and receive permission from their Operational Commander prior to making any at sea transfer of Used/Excess HM. Material will only be authorized for transfer at sea if the receiving ship will be able to transfer the material to a shore activity at its next port of call. There shall be no "frustrated" Used/Excess HM (i.e., Used/ Excess HM which cannot be off loaded due to available space, inability to handle or refusal to receive due to packaging or documentation) in transit.

d. The designated receiving ship shall notify the Operational Commander and the transferring ship of any items which cannot be accepted for transfer due to stowage space restrictions, at least 3 days prior to the scheduled transfer.

e. The Commanding Officer/Master of the transferring ship shall have the Used/ Excess HM containers visually sighted by the Supply Officer who will certify by signature on the DD 1348-1. The Commanding Officer/Master of the receiving ship has the right and responsibility to refuse any Used/Excess HM that is improperly packaged, labeled or documented in order to guarantee safe transit and onward movement of the material. When possible, the Commanding Officer/Master of the receiving ship may have the material inspected prior to transfer.

f. The transferring ship is accountable for any additional expenses incurred for the ultimate disposal/disposition of the Used/Excess HM.

g. Used/Excess HM shall be palletized, banded, capped with a pallet and banded again for stability. Since only flammable material will be transferred at sea, compatibility of material should not be a concern. No Used/Excess HM shall be transferred in Tri-walls.

h. Each container shall have the signed DD 1348-1 attached. An MSDS shall also be attached with each DD 1348-1.

i. The receiving ship, where possible, should stow containers of received Used/ Excess HM topside. Containers should be protected from the elements as much as possible to prevent deterioration of the containers and labels. If below deck stowage is required, Used/Excess HM shall not be stowed in food storage spaces. Used/Excess HM should be stowed below decks in well-ventilated compartments (if the space is not well-ventilated, confined space entry procedures shall be followed prior to entry). Below deck stowage must be provided with suitable fire protection. Refer to the stowage requirements for flammable/combustible materials in OPNAVINST 5100.19C, Chapter C23.

j. In the event Used/Excess HM is transferred to another ship within U.S. territorial waters for eventual shore processing, the receiving ship must off load that material to the shore facility prior to 90 days.

k. Problems experienced with material received from any transferring ship should be reported by message to the ship’s CO, and if flagrant or repeated, to the ship’s immediate superior in command (ISIC) with copies to the cognizant Program Manager.

0806 TRAINING

The required training for the Hazardous Material Control and Management Program is as follows.

a. The HM Coordinator shall attend either the Forces Afloat Hazardous Material Coordinator's Course, (A-8B-0008) taught by NAVOSHENVTRACEN, or the MSC Supply Officer Course at Athens, GA prior to their initial assignment as HM Coordinator.

b. Ship's officers are to be trained annually on proper handling, marking, stowage, usage, spill response and disposal procedures relative to HM and in the use of MSDSs.

c. Personnel assigned to damage control teams are to be trained annually by the First officer on combating spills of HM and combating fires involving HM.

d. Personnel involved in the requisitioning, receipt, transfer and stowage of HM and in the collection and transfer of Used/Excess HM shall be trained prior to their assumption of such responsibilities and annually thereafter on the proper procedures for processing these materials.

e. All hands shall receive job specific training on HM, and Used/Excess HM prior to being assigned HM/Used HM/Excess HM duties aboard ship and annually thereafter. This training shall include:

(1) The specific types of HM in the work area and aboard ship

(2) Definition and disposal of Used/Excess HM

(3) How to read and interpret HM labels

(4) What an MSDS is, what it contains and where a copy is available for review

(5) General information on HM handling, stowage, use and disposal

(6) Protective measures when handling HM

(7) Emergency procedures

(8) How to use the Hazardous Material User's Guide

f. MSDSs should be used for job specific training.

CHAPTER 8 - REFERENCES

8-1 OPNAVINST 5100.19C Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

8-2 OPNAVINST 5090.1B Navy Environmental and Natural Resources Program Manual

8-3 NSTM, Chapter 593, Pollution Control

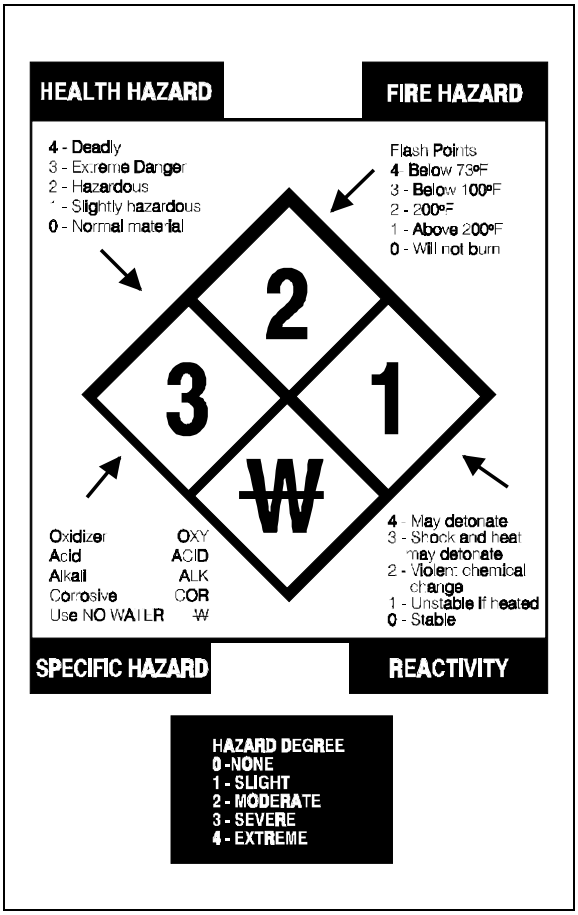
8-4 COMSCINST 4110.1B Afloat Hazardous Material Control and Management (HMC&M) Program

8-5 COMSCINST 5090.1B Environmental Protection Program and Oil/Hazardous Substances (OHS) Spill Reporting Procedures and Contingency Plans

APPENDIX 8-A

NFPA HAZARD IDENTIFICATION

The National Fire Protection Association (NFPA) has created a system that assigns materials with hazard ratings. These hazard ratings can be used for guidance in handling and storing the hazardous materials.



Health Hazard (Blue) - Indicates whether the material may, directly or indirectly, cause permanent or temporary injury due to acute exposure by physical contact, inhalation or ingestion.

Fire Hazard (Red) - Indicates the material's relative susceptibility to fireburst, based on the form or condition of the material and its surrounding environment.

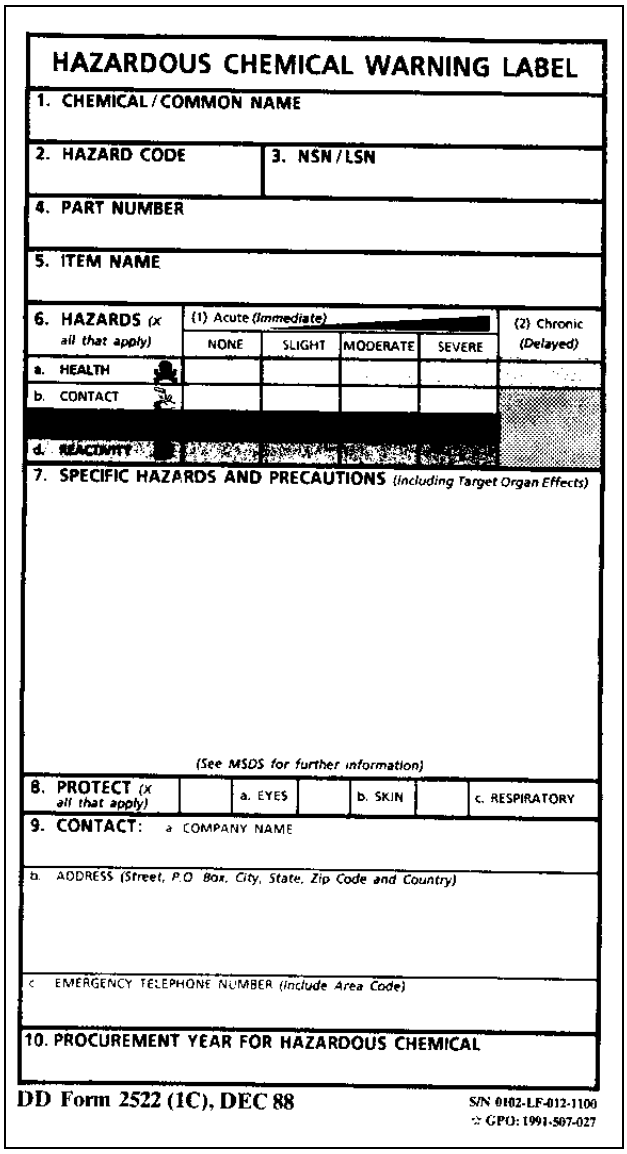
Reactivity (Yellow) - Shows the material's susceptibility to explosion through self-reaction or exposure to certain conditions or substances.

Specific Hazard (White) - Specifies special properties and hazards associated with the material. Often useful during fire fighting or emergency response.

APPENDIX 8-B

DEPARTMENT OF DEFENSE DD FORM 2522

When hazardous material is transferred from the original container, place this label on the container(s) into which it is transferred. Information and the label are included in the HMIS. The label can be printed on plain paper or can be obtained on pre-printed color forms (NSN 012-LF-012-1100).



HAZARDOUS CHEMICAL WARNING LABEL

1. CHEMICAL/COMMON NAME

2. HAZARD CODE

3. NSN/LSN

4. PART NUMBER

5. ITEM NAME

6. HAZARDS (x all that apply)

	(1) Acute (Immediate)				(2) Chronic (Delayed)
	NONE	SLIGHT	MODERATE	SEVERE	
a. HEALTH					
b. CONTACT					
d. REACTIVITY					

7. SPECIFIC HAZARDS AND PRECAUTIONS (Including Target Organ Effects)

(See MSDS for further information)

8. PROTECT (x all that apply) | a. EYES | b. SKIN | c. RESPIRATORY

9. CONTACT: a. COMPANY NAME

b. ADDRESS (Street, P.O. Box, City, State, Zip Code and Country)

c. EMERGENCY TELEPHONE NUMBER (Include Area Code)

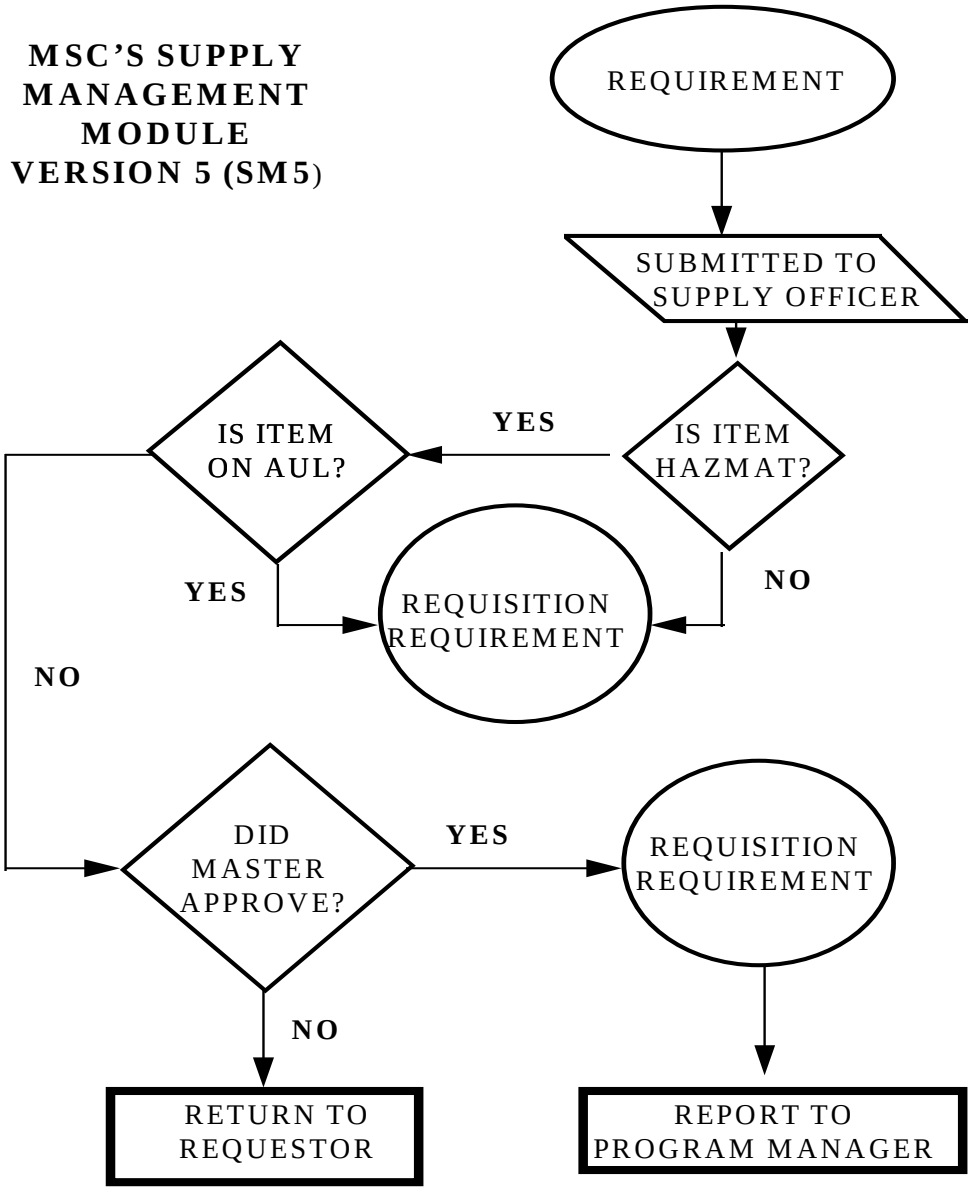
10. PROCUREMENT YEAR FOR HAZARDOUS CHEMICAL

DD Form 2522 (1C), DEC 88

S/N 0102-LF-012-1100
☆ GPO: 1991-507-027

APPENDIX 8-C

AFLOAT REQUISITION PROCESS FLOW DIAGRAM



APPENDIX 8-D

NAVY USED HAZARDOUS MATERIAL IDENTIFICATION LABEL

This label shall contain information on the process in which the material was used (e.g., used spring bearing lube oil, circuit board cleaning solvent, dried out epoxy paint, etc., any known impurities that the material might contain based on routine analysis that may be conducted for PMS (e.g., Naval Oil Analysis Program (NOAP) test results) and any special storage requirements. This information is necessary to assist the shore activity in properly storing the used HM as well as in filling out disposal documentation if the material is processed as waste.

USED

SHIP _____ WORK CENTER _____

NAME OF MATERIAL _____ PROCESS IN WHICH

MATERIAL USED _____

ANY KNOWN IMPURITIES_____

SPECIAL STOWAGE REQUIREMENTS _____

_____

DIVISION OFF. SIGNATURE _____ DATE_____

HAZARDOUS MATERIAL

OPNAV 5100/18 (12-93) S/N 0107-LF-016-9100

CHAPTER 9

HEARING CONSERVATION

0901 DISCUSSION

Hearing loss is recognized as a shipboard hazard, particularly for those personnel who work with machinery. Noise hazard areas aboard ship include, but are not limited to, the engine room spaces, machine shops, after steering room, pump rooms, foredeck during anchoring operations and firearms live fire training. Exposure to high intensity noise occurs either from impulse noise (small arms gunfire) or continuous or intermittent sounds (marine engines, machinery or equipment noise). Hearing loss due to occupational exposure is a significant problem. Accordingly, MSC has a hearing conservation program including audiometric examinations for all hands.

0902 PROCEDURES

a. The Safety Officer shall:

(1) Ensure shipboard noise hazardous areas and equipment are properly posted. The Safety Officer shall retain the latest copies of industrial hygiene audiometric noise surveys. These surveys determine areas and equipment that are noise hazardous.

(2) Request assistance from their Area Safety Office for noise measurement and exposure analyses for non designated areas suspected as being noise hazardous.

b. Department Heads shall:

(1) Ensure spaces or equipment designated as noise hazardous remains properly posted/labeled per paragraph 0902f. Ensure personnel working in these spaces or with this equipment are properly using specified hearing protection.

(2) Ensure assigned personnel are trained on hearing conservation per paragraphs 0903b and 0903d.

(3) Ensure personnel who require hearing retests after an initial audiomteric exam are excluded from hazardous noise areas or from using noise hazardous equipment prior to their retest.

c. The MSO shall:

(1) Conduct training per paragraph 0903c.

(2) With the assistance of appropriate professional personnel, determine the type of hearing protective device, or combination of devices, which should be worn in each noise hazardous area.

(3) Review each DD Form 2215/2216 after an individual has been hearing tested.

d. All supervisors shall remind their subordinates of the need for using hearing protection.

e. All hands shall:

(1) Properly wear assigned hearing protective devices when in noise hazard spaces or working with equipment posted with hazardous noise labels or decals.

(2) **UNDERSTAND THAT IT IS THEIR RESPONSIBILITY TO PROTECT HIS/ HER OWN HEARING**.

f. Equipment and spaces that exceed 84dB(A) continuous or intermittent noise level or 140dB peak sound pressure level for impact or impulse noise shall be appropriately labeled.

(1) Equipment shall be marked with a NAVMED 6260/2A, **Hazardous Noise Label** (1" x 1"), NSN 0105-LF-004-7800.

(2) Hazardous noise spaces shall have a NAVMED 6260/2, **Hazardous Noise Warning Decal** (8" x 10"), NSN 0105-LF-004-7200, posted, normally on the outside of doors/hatches leading into the area.

(3) Weather deck areas of the ship determined to be noise hazardous areas shall be posted with a weather resistant noise hazard placard. In the event that a particular area is a noise hazardous area and has an entrance from a weather deck, the inside of the weather deck door/hatch shall be posted.

(4) Spaces or equipment not posted or labeled, but suspected of being noise hazardous shall be evaluated by a noise level survey. Such a survey should be requested through the local EMPU or Naval Hospital.

g. All mariners shall be provided with hearing protective devices, either fitted or non-fitted, when working in areas or with equipment posted or labeled as noise hazardous. Double hearing protection (a combination of insert and circumaural types) shall be worn when so posted, or when it is determined by medical surveillance that a mariner's return to duty is possible provided double protection reduces noise exposure levels at the wearer's ear to a suitable level. Fitted noise protection equipment shall be provided by the MSO.

h. Personnel entering or working in designated noise hazardous areas shall wear hearing protection at all times. Areas where the sound levels exceed 104dB(A), double hearing protection, a combination of insert type and circumaural (muff) type hearing protection, shall be worn. Personnel exposed to gunfire in a training situation shall wear hearing protective devices.

i. All MSC CIVMAR personnel receive a baseline hearing test upon commencement of employment and shall, thereafter, be reevaluated in accordance with COMSCINST 6000.1C. All MSC CIVMAR personnel shall receive a hearing test upon termination of employment.

j. If an individual complains of difficulty in understanding conversational speech, or a sensation of ringing or fullness in the ear(s), a hearing test shall be scheduled.

0903 TRAINING

The required training for the Hearing Conservation Program is as follows:

a. All CIVMARs on shipboard duty shall receive hearing conservation training as part of the APMC afloat safety and occupational health training course. Hearing conservation training topics include:

(1) The rationale for the program,

(2) Designated noise hazardous areas and equipment,

(3) Proper use and maintenance of hearing protective equipment,

(4) The necessity for periodic hearing testing,

(5) Individual responsibility, including off-duty hearing conservation,

(6) The effects of hearing loss on career longevity, promotion and employment.

b. Department Heads shall ensure the assigned personnel are trained on hearing conservation, the undesirable effects of noise, proper use and care of hearing protection devices and the necessity for hearing testing.

c. The MSO shall conduct training on the effects of hazardous noise, on hearing protective devices and on the requirements for periodic hearing testing.

d. All CIVMAR personnel shall receive annual onboard refresher training on hearing conservation covering the topics of paragraph 0903a and c.

CHAPTER 9 - REFERENCES

9-1 OPNAVINST 5100.19C Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

9-2 COMSCINST 6000.1C MSC Medical Manual

CHAPTER 10

SIGHT CONSERVATION

1001 DISCUSSION

a. Navy policy requires that personnel working in eye hazardous areas or conducting eye hazardous operations be provided with adequate eye protection at government expense. MSC provides all ship crewmembers with safety glasses, equipped with side shields as part of this eye protection effort. Personnel performing operations, such as handling boiler chemicals, working on pressurized oil systems, cutting and welding, drilling, grinding or chipping must wear appropriate eye protection. Any personnel in the immediate vicinity of such operations or entering a posted eye hazard area, including visitors, shall also wear eye protection equipment.

b. Eye protection devices include safety glasses, chipper's goggles, welder's goggles, chemical goggles and face shields. As a minimum, the protective devices used for a job shall be adequate for the hazards specified, be reasonably comfortable, and fit snugly without interfering with movement. Eye protective devices must be durable, easy to clean and capable of being disinfected. Eye protective devices shall be properly fitted by trained personnel at the point of issue.

c. Sight screening for MSC CIVMARs shall be accomplished as a part of the physical. Refractive services, if necessary, shall be scheduled as a result of the sight screening.

1002 PROCEDURES

a. Program Managers shall ensure that funding is available to support the prescriptive safety eye wear reimbursement that is explained in Appendix 10-A.

b. The Master shall place emphasis on leadership by example regarding the wearing of sight protective equipment.

c. The Safety Officer shall:

(1) Evaluate shipboard areas, processes and equipment not previously evaluated or where modifications have been made for sight hazards and determine the requirement for personnel to use protective eyewear.

(2) Request assistance from their Area Safety Office if difficulty in making such a determination is experienced.

d. Department Heads shall:

(1) Ensure that areas identified as sight hazardous are properly posted. The following areas are considered eye hazard areas:

(a) Machine shops

(b) Carpenter shop

(c) Hobby shop

(d) Paint locker and paint mixing room

(e) Battery charging areas

(2) Ensure that proper eye protective devices are available for use by personnel in identified eye hazardous areas, processes, and evolutions. Ensure these devices are in good operational condition and are properly used. Jobs or evolutions requiring eye protection are:

(a) Chipping, sanding and grinding

(b) Using saws, lathes and drills

(c) Welding

(d) Spray painting

(e) Paint mixing

(f) Use of acids

(g) Charging batteries

(h) Insulation removal

(i) Hazardous Material spill cleanup

(j) Collection, holding and transfer system (CHT) spill cleanup

(k) Anchor operations

(l) Helicopter operations

(3) Ensure that personnel are trained on the need for and proper use of eye protective devices and on the use of eye wash facilities.

e. The MSO shall schedule sight screening examinations and refractive services, as required.

f. All hands shall:

(1) Comply with eye hazard signs and labels, wherever they appear.

(2) Properly wear assigned sight protection equipment when in eye hazardous areas or performing eye hazardous operations or evolutions. Report defective or inadequate eye protection equipment to their supervisors.

(3) Clean and maintain assigned eye protective equipment. Equipment used for a specific job shall be cleaned prior to returning to storage.

g. Workplaces shall be inspected as a part of the program described in Chapter 2. Areas, processes and operations that are determined to be eye hazardous shall be evaluated to determine the personnel affected and the type of eye protection required.

h. Eye hazardous areas, such as machine shops, shall be marked by 3-inch deck striping around machinery and a **CAUTION** sign. This tape is available under NSN 9Q/9905-01-342-5934 (checkerboard) or 9Q/9905-01-342-5933 (striped). Mount the **CAUTION** sign conspicuously above the hazard, component, machinery, boundary bulkhead or door. The **CAUTION** sign shall conform to NSN 9Q/9905-01-100-8203, "**CAUTION**, **Eye Protection Required In This Area**." Smaller, self-adhesive eye hazard signs or labels are available open purchase from commercial safety sign companies.

i. If corrective lens safety glasses and/or safety glass inserts for full facepiece respirators are determined to be required and facilities or contractor services for obtaining glasses are not available, the mariner shall purchase such glasses (two pairs) and inserts (one pair) and then request reimbursement from MSC by submitting two copies of MSC 5100/10 with paid receipt per Appendix 10-A. The individual shall retain custody of the glasses and inserts during transfer or termination of employment. If replacement lenses are required for eye protective devices, they shall be provided in a similar manner. If the prescription is older than 2 years, refractive services shall be scheduled.

j. All protective eyewear shall be checked upon receipt to ensure that they are labeled "Z87" to meet the requirements of American National Standards Institute ANSI Z-87.1. Unmarked eyewear shall be rejected.

k. Prevention of eye accidents requires that all personnel who may be in an eye hazardous area wear eye protective devices. This includes crewmembers, visitors, supervisors or any person passing through an eye hazardous area. Ships shall procure a sufficient quantity of heavy duty goggles (for wear over prescription glasses) or plastic eye protectors to accommodate visitors.

l. Ships shall have an adequate number of properly maintained and inspected eyewash facilities that are hard piped, where possible. Where hard piping is not possible, self-contained, portable, 15-minute continuous gravity fed eyewashes (with a minimum flow of 0.4 gallons per minute) shall be used. The Safety Officer shall be notified of all portable eyewash station purchases and their locations aboard ship. Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate, emergency use. All eyewash facilities shall be properly posted with signs to indicate location. Eyewash stations shall be clearly marked with a safety instruction sign in a visible location close to the unit.

m. Mariners shall have their eyes examined in sick bay following the emergency use of an eyewash unit.

1003 TRAINING

The required training for the Sight Conservation Program is as follows:

a. CIVMARs shall be trained on sight protection as part of the MSC 2-day Afloat OSH training course. Such training shall include:

(1) Types of eye hazards

(2) Types of eye protection

(3) Supervisor and crewmember responsibilities

(4) Eyewash locations and proper use

(5) Simple first aid measures, such as:

(a) No attempt should be made to remove a particle lodged in the eyeball;

(b) No attempt should be made to wash an eye that is cut in any way (apply a clean compress lightly over eyes until medical attention is available);

(c) A cold compress should be applied to bruised eyes;

(d) Chemical burns shall be immediately flushed with tepid water.

b. All CIVMAR personnel shall receive annual onboard refresher training on sight conservation covering the topics of paragraph 1003a.

CHAPTER 10 - REFERENCES

10-1 OPNAVINST 5100.19C Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

10-2 American National Standards Institute Standard Z87.1

APPENDIX 10-A

PRESCRIPTION SAFETY EYEWEAR

1. General

a. The design, construction, testing and use of eye protective devices, within MSC, shall be per the requirements of American National Standards Institute (ANSI) Z87.1. The protective devices used shall be adequate for the specific eye hazard, as recommended in Appendix B5-B of OPNAVINST 5100.19C, as comfortable as design permits and have a proper fit. Only industrial strength frames/lenses approved by ANSI standards are authorized. ANSI requires manufacturers to show a Z87 logo on safety spectacle frames, including temples and major components of all eyewear devices.

b. Mariners who require corrective lenses and work in eye hazardous areas shall be provided with two pairs of prescription glasses with side shields which meet the requirements of ANSI Z87.1; then one pair thereafter, unless there is a change in the prescription requiring issuance of two pairs.

c. For MSC CIVMARs requiring prescription eyewear and must wear full facepiece respirators, self-contained breathing apparatus or the MCU-2P mask, one pair of prescription inserts are authorized in addition to prescription safety eyewear.

d. Personnel with one eye missing (monocular vision) shall not be assigned duties that present a hazard to the remaining eye. These persons and those legally blind (best corrected vision of 20/200 or worse) shall be considered as engaged in an eye hazardous operation regardless of occupation and shall require eye protection continually while performing their work assignments.

e. Written approval of the responsible MSC Medical Officer (East/West), for prescriptive tinted lenses, is required for personnel working in the Arctic.

f. Planos (non-prescription lenses) are available through the Federal Supply Catalog. (See NAVSAFECEN Shipboard Safety Equipment Shopping Guide.) A sufficient quantity of heavy duty goggles and plastic eye protectors that afford the maximum amount of protection possible shall be procured by each ship.

g. Contact lenses do not provide eye protection in the industrial sense and shall not be worn in a hazardous environment without appropriate covering safety eyewear.

2. Refraction Services and Protective Corrective Spectacles

a. Refractions and eyewear shall be provided at no cost to mariners.

b. Procurement of refraction services and eyewear shall be at the discretion of the Program Manager and the Medical Officer (East/West).

c. Open purchase procedures may be used by the Program Manager and Medical Officer (East/West) whenever it is not feasible to provide refractive services or eyewear at an activity.

d. Contractors shall supply complete eye care service (refraction and prescription), eyewear, repair and maintenance.

e. Where eye care services are not available at the activity, excused leave for less than one day may be granted to the mariner to cover the time required to obtain the services locally.

f. Mariners shall not be issued corrective lenses based on a prescription over 2 years old.

g. Only standard industrial strength frames/lenses meeting the requirements of the ANSI Z87.1 shall be authorized.

h. Lens replacement shall be handled the same as for new eyewear, including fitting and adjustment.

3. Reimbursement

a. All personnel meeting the requirements for prescription eyewear shall use existing command facilities or contractors for obtaining protective corrective spectacles. When facilities are not available, personnel may purchase the approved eyewear with permission of the Medical Office (East/West) using MSC 5100/10, Attachment 10-A-1, Sight Conservation Program Refractive Services Approval. Two copies of MSC 5100/10 shall be prepared. The original and prescription shall be placed in the member's health record, and the copy of the approved MSC 5100/10 shall be presented to the Disbursing Office with a paid receipt for reimbursement.

b. Safety eyewear (plano and prescription) is considered a function and financial responsibility of the activity where it is furnished. The authorized maximum cost for eye examination (refraction) is $50.00, and $100.00 for prescription safety eyewear (1 or 2 pairs), for a total maximum reimbursement of $150.00. All safety eyewear shall be purchased with flat-fold side shields. In extenuating circumstances, the Medical Officer (East/West) may authorize purchase of protective eyewear in excess of $150.00. The authorized maximum cost for prescription lens for eyewear inserts for full face respirators is $70.00 total.

c. Reimbursement will be effected upon change of prescription or for damaged eyewear as a result of an occupational accident. Reimbursement is not granted for willfully destroyed or damaged eyewear.

ATTACHMENT 10-A-1

MSC 5100/10

SIGHT CONSERVATION PROGRAM REFRACTIVE SERVICES APPROVAL

PRIVACY ACT STATEMENT: TITLE 5 OF U.S. CODE (301) AUTHORIZES COLLECTION OF THIS INFORMATION. YOUR MEDICAL OFFICE WILL USE THIS INFORMATION TO APPROVE PROCUREMENT OF EYE CARE SERVICES. WHERE THE EMPLOYEE'S SOCIAL SECURITY NUMBER (SSN) IS USED, AUTHORIZATION IS BY EXECUTIVE ORDER 9337. FURNISHING THE INFORMATION IN THIS FORM, INCLUDING YOUR SSN, IS VOLUNTARY, BUT FAILURE TO DO SO MAY RESULT IN DISAPPROVAL OF THIS REQUEST.

NAME	SSN	☐ INITIAL ISSUE ☐ REISSUE	CODE

REMARKS:

I certify that the employee listed above is an MSC employee, entitled to prescription safety glasses for work-related exposure to eye hazardous areas/operations and has not procured same at MSC expense within the past 12 months. If there are any exceptions, give details above.

☐ **REFRACTIVE SERVICES**

☐ **PRESCRIPTION SAFETY LENSES**

FORCE MEDICAL OFFICER/ SHIP MEDICAL SERVICES OFFICER:

MSC 5100/10 (Rev 8-97)

CHAPTER 11

PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

1101 DISCUSSION

a. Personal Protective Equipment (PPE) and clothing do not eliminate hazards for the wearer. They merely establish a "last line of defense." Any PPE breakdown, failure or misuse immediately expose the wearer to the hazard. Protective equipment and clothing, through misapplication or improper maintenance, can become ineffective without the wearer's knowledge. For this reason, proper PPE selection and maintenance, personnel training (including equipment limitations) and enforcement of PPE use are key elements in preventing injury.

b. This chapter does not discuss PPE or clothing for asbestos control, hearing conservation, sight conservation, respiratory protection or Polychlorinated Biphenyl (PCB) control. These items are covered in their respective chapters of this manual.

1102 PROCEDURES

a. Program Managers shall:

(1) Ensure that assigned ships have adequate and proper PPE for the work exposures ship's personnel will experience.

(2) Ensure their ships comply with MSC foot protection policy listed in paragraph 1102e(2) and ensure that funding is available to support MSC safety shoe reimbursement program as explained in Appendix 11-A.

b. The Master shall ensure that there is sufficient PPE and clothing aboard to meet the requirements of assigned personnel. Information on PPE may be found in the Shipboard Safety Equipment Shopping Guide issued by the Naval Safety Center which is available on the Hazardous Material Control and Management/Hazardous Material Information System (HMIS) CD-ROM or through the Area Safety Office.

c. Department Heads shall:

(1) Ensure that assigned personnel are adequately trained per paragraph 1103.

(2) Ensure assigned personnel use PPE and protective clothing when required, such clothing and equipment are worn properly and clothing and equipment are properly maintained.

(3) Have the ship's boatswain stow, maintain and distribute hard hats, personal flotation devices and fall protection equipment.

d. All hands shall:

(1) Wear the proper PPE and/or protective clothing in a correct manner.

(2) Properly maintain assigned PPE and protective clothing.

(3) Notify the immediate supervisor if required PPE or protective clothing is not available or in a condition that will not provide proper protection.

e. PPE Use

(1) Head Protection. Crewmembers shall wear approved (ANSI or NIOSH) hard hats when there is any potential for falling or flying objects, such as during UNREP operations. Metal hard hats are not acceptable for shipboard use.

(2) Foot Protection. Shipboard environments expose personnel to foot hazards. All MSC personnel and transients are required to wear foot protection while onboard MSC ships. MSC CIVMARs and MSC shore employees required to work aboard ship shall be provided with safety shoes as per Appendix 11-A.

(a) Standard stock safety shoes, with built-in toe protection and non-slip soles, are intended primarily to prevent or reduce the severity of injury to toes from shipboard hazards. When safety shoes exhibit wear, such that safety protection is no longer afforded, replacements shall be provided by the command as per Appendix 11-A.

(b) Electrical hazard safety-toe footwear is intended to provide protection against open circuits of 600 volts or less under dry conditions. The footwear is intended to provide secondary electrical hazard protection on surfaces that are substantially insulated.

(c) Safety shoes or boots with rubber or synthetic material are used for protection against acids, caustics and other solvents.

(d) Molders' boots, with toe protection, should be provided to all welders to provide easy removal in case hot slag or metal drops in or on the boot.

(e) Purchase of safety shoes shall be handled by the activity through the GSA schedule or directly from a private vendor. If purchased through a private vendor, MSC 5100/3 (Safety Shoe Purchase Record), Attachment 11-A-1, shall be completed, signed by the employee's supervisor and presented along with the sales receipt to the Disbursing Division for reimbursement of up to $100.00 per Appendix 11-A. It is mandatory that safety shoes purchased meet the maximum impact requirements (75 lbs.) of the American National Standards Institute (ANSI) Z41.1 standard. Safety shoes meeting this ANSI standard will be labeled inside the shoe to identify that it meets the standard and the 75 pound rating as shown below:

ANSI Z41.1
I/75C/75

NOTE: I is for impact rating; C is for compression rating

Electrical hazard safety shoes meeting the ANSI standards will be labeled:

ANSI Z41.1
I/75C/75
EH

NOTE: EH is electrical hazard

(3) Hand protection. Hand protection requires the use of the appropriate type of gloves to ensure adequate protection. When handling chemicals and solvents, or when exposed to other hand hazardous operations, refer to an MSDS or other authority which identifies the type of glove to be worn.

(4) Protective clothing. Synthetic clothing shall not be worn in ship's hot work areas, or main machinery spaces. Fire retardant coveralls shall be provided to engineering personnel who stand watch or work in those spaces.

(5) Fall protection. When working aloft or over the side, a parachute-type safety harness with Dyna-Brake® safety lanyard shall be worn at all times. Additionally, wire rope shall be used in place of nylon line when doing hot work. Safety lanyards shall not be used for any other purpose than personal fall protection (i.e., they shall not be used for hoisting heavy equipment). Inspect fall protection equipment prior to each use as follows:

(a) Parachute safety harness's for missing parts, mildew, brittleness in harness webbing or damage caused by heat or chemicals.

(b) Harness attachment buckles and D-rings for cracks or distortion.

(c) Safety lanyards for double locking snap hooks, thimble and Dyna-Brake® shock absorber for worn or missing parts.

(d) Climber safety sleeve for cracks, deformation, excessive wear and proper operation.

NOTE: Periodically apply a light coating of oil to working surfaces of locking pawls, rollers, snaphooks and on the climber safety rail to prevent corrosion. Inspect the climber safety periodically for excessive pitting/corrosion, broken studs, missing nuts, missing safety stopper pins at the top of rails and loose ladder attachment clamps.

(6) Personal flotation equipment. While working on deck during underway replenishment at sea, near or over the water and in small boats or rigid hull inflatable boats (RHIBs), crews other than air crews and flight deck personnel shall wear an inherently buoyant life preserver (USCG Type I or Navy kapok) or a USCG approved work vest Type III/V at all times. During unfavorable conditions, such as bad weather or heavy seas, only inherently buoyant life preservers shall be worn.

(a) The MK-5 Auto-Inflatable Utility Life Preservers (AIULP) do not meet the Safety of Life at Sea (SOLAS) criteria and are prohibited.

(b) The MK-1 Auto-Inflator life preservers shall be used by personnel involved in flight deck operations per NWP 42. Work vests shall not be used during these operations.

(c) Work vests shall be stowed separately from the regular USCG approved abandon ship life preservers.

f. Storage, Maintenance and Inspection of PPE

(1) Storage. PPE shall be stowed in such a manner that the protective feature is not reduced or destroyed by the storage environment.

(a) Hard hats shall be stowed in a manner that cracks will not develop in the hat material. Heavy materials shall not be stowed on top of composite material hard hats.

(b) Safety shoes shall be stowed in a dry atmosphere. Where practical, they shall be stowed upright, allowing the insides to dry out.

(c) Rubber insulating gloves shall be stowed in the box in which they came. Maintenance shall be performed on the gloves prior to stowage. Other rubber electrical safety equipment shall be stowed in a clean, dry, oil-free location. Care shall be taken not to fold such equipment as folding will frequently result in cracks greatly reducing the insulating capability of the material.

(d) Leather protection equipment shall be stowed in a clean, dry atmosphere. Gloves shall be dried prior to stowing, preferably in the boxes in which they were supplied. Welding leathers shall be hung up.

(e) Lanyards and safety harnesses used for personal fall protection shall be hung in a cool, dry atmosphere. Do not pile equipment one upon another. Such action may prevent proper drying and result in rotting and weakening of lanyards.

(f) Life jackets and buoyant work vests shall be thoroughly dried prior to stowage. Following drying, they should be stowed in a designated clean and dry location. Flight deck, MK-1 inflatable life jackets shall be hung in a clean, dry atmosphere.

(2) Maintenance and Inspections

(a) Many items of PPE have specified maintenance and inspection requirements. To ensure proper protection, perform specified maintenance and inspections at designated intervals.

(b) Personally retained, safety shoes shall be periodically examined for worn soles and heels that would reduce the non-skid features of the shoe.

(c) Hard hats shall not be worn if cracked, or if the hat material has a hole other than the ones caused by the manufacturer, or if painted. Such hard hats shall be turned in and replaced. Do not drill any holes in hard hats or modify them in any way. Such action will greatly reduce the protective capability of the hat. Affixing decals is permitted.

1103 TRAINING

The required training for the PPE Program is as follows:

a. CIVMARs shall be trained on PPE as part of the MSC 2-day Afloat OSH course. Such training shall include:

(1) Need for PPE

(2) Types and limitations of PPE

(3) Proper use of PPE for the required task

(4) Maintenance and storage of PPE

b. Department Heads shall ensure that all assigned CIVMAR personnel receive annual onboard refresher training on PPE covering the topics of paragraph 1103a. Department supervisors shall annually review the availability of PPE with assigned personnel.

CHAPTER 11 - REFERENCES

11-1 American National Standards Institute Standard Z41.1

11-2 Naval Warfare Publication 14 - Replenishment at Sea

11-3 Naval Warfare Publication 42 - Helicopter Operating Procedures for Air Capable Ships

11-4 NAVSAFECEN 5100, Shipboard Safety Equipment Shopping Guide

APPENDIX 11-A

SAFETY SHOE REIMBURSEMENT POLICY AND PROCEDURES

1. General

a. The design, construction, testing and use of safety shoes shall meet the requirements of American National Standards Institute (ANSI) Z41.1. The safety shoes chosen shall be adequate for the specific foot hazard, as comfortable as design permits and have a proper fit. Only industrial strength footwear approved by ANSI standards are authorized. ANSI requires manufacturers to show a Z41 logo on safety shoes.

b. Mariners and employees required to make ship visits shall be provided with safety shoes that meet the requirements of the ANSI Standard Z41.1.

c. Ships shall use MSC 5100/3, Safety Shoe Purchase Record, Attachment 11-A-1, signed by the mariner's supervisor, to approve the issuing of safety shoes.

d. The opportunity for abuse is recognized. Therefore, supervisors shall ensure that only authorized personnel participate in this program. Supervisors signing MSC 5100/3 are to ensure that appropriate shoes for the job are selected and that unnecessary replacements are avoided.

2. Procurement

a. One pair of safety shoes per mariner and applicable shore employee is authorized annually if needed, due to damage or wear and tear, unless unique circumstances dictate otherwise. An exception is provided for cases where the work situation requires specialized footwear. However, purchases greater than $100.00 for unique circumstances have to be approved by the Safety Officer.

b. Purchases can be made by the ship through normal contracting channels from the GSA schedule, from the Federal Prison Industries (FPI) or directly from a manufacturer/ vendor. It is mandatory that the safety shoes purchased meet the impact requirements (75 lbs.) of the ANSI Z41 standard.

c. Employees on their own may purchase safety shoes of their choice with the ANSI Z41 logo and present the receipt with MSC 5100/3 to the supervisor for reimbursement.

3. Reimbursement

a. When safety shoes are purchased from an outside vendor, submit the following for reimbursement:

(1) MSC 5100/3 signed by the supervisor

(2) Invoice

(3) Sales receipt or canceled check

(4) Claim for reimbursement (Standard Form 1164)

b. Safety shoes are considered a function and financial responsibility of the activity where they are furnished. The authorized maximum cost for protective footwear is $100.00 per pair per year. In extenuating circumstances, the Safety Officer may authorize a purchase in excess of $100.00.

4. Disposition of Safety Shoes

a. Reissue or replacement of safety shoes, determined by the activity to be unserviceable due to wear or damage, should be on a pair-for-pair turn-in basis. Shoes turned in are to be destroyed. Authorizations for individuals to purchase replacement safety shoes must indicate that shoes previously provided at government expense, or for which prior reimbursement was received, are unserviceable. Unserviceable shoes that are replaced with shoes under reimbursement procedures need not be turned in.

b. Replacement of lost or stolen safety shoes shall be the responsibility of the employee.

c. For personnel retiring, resigning or otherwise separating from Navy employment, their safety shoes shall be assumed to be an expendable item which has served its useful life and may be retained by the individual.

ATTACHMENT 11-A-1

MSC 5100/3

SAFETY SHOE PURCHASE RECORD

PRIVACY ACT STATEMENT: TITLE 5 OF U.S. CODE (301) AUTHORIZES COLLECTION OF THIS INFORMATION. YOUR SAFETY OFFICE WILL USE THIS INFORMATION TO APPROVE PROCUREMENT OF SAFETY SHOES. WHERE THE EMPLOYEE'S SOCIAL SECURITY NUMBER (SSN) IS USED, AUTHORIZATION IS BY EXECUTIVE ORDER 9337. FURNISHING THE INFORMATION IN THIS FORM, INCLUDING YOUR SSN, IS VOLUNTARY, BUT FAILURE TO DO SO MAY RESULT IN DISAPPROVAL OF THIS REQUEST.

NAME	SHIP/COMMAND		SSN	CODE
PURCHASE SOURCE	☐ INITIAL ISSUE ☐ REISSUE	STOCK NUMBER	COST	SHOE SIZE

REMARKS:

I certify that the employee listed above is an MSC employee, entitled to safety shoes for work-related exposure to foot hazardous areas/operations and has not procured safety shoes at MSC expense within the past 12 months. If there are any exceptions, give details above.

NAME OF SUPERVISOR	SIGNATURE OF SUPERVISOR	DATE

MSC 5100/3 (Rev 8-97)

CHAPTER 12

RESPIRATORY PROTECTION

1201 DISCUSSION

a. Many repair and maintenance operations generate air contaminants that may be dangerous if inhaled. Engineering controls (e.g., local exhaust ventilation) are the most effective means for protecting personnel against such contaminants. However, when engineering controls are not practical or feasible, air-purifying and atmosphere-supplying respirators are necessary to ensure the protection of personnel.

(1) Air-purifying respirators removes air contaminants by filtration or absorption through a cartridge. In all cases, adequate oxygen (19.5 per cent by volume) must be present. These include particulate air-purifying respirators; gas and vapor air-purifying respirators and combination particulate/gas/vapor air purifying respirators.

(2) Atmosphere-supplying respirators supplies air. They are used when the contaminant has no warning property (no odor), the contaminant concentration is too high for air-purifying respirators or the environment is immediately dangerous to life or health (IDLH). These respirators include air-line respirators and self-contain breathing apparatus (SCBA).

b. Procedures in this chapter apply to all personnel, workers and visitors who enter an area where respiratory protection is necessary. This chapter does not address damage control or gas free engineering.

c. Wearing of facial hair, including beards, long sideburns, mutton chops, long mustaches, etc., that comes between the sealing periphery of a respirator facepiece and face, or facial hair that could interfere with respirator valve function, **IS PROHIBITED FOR PERSONNEL PERFORMING OPERATIONS** listed in Appendix 12-A. **SUCH FACIAL HAIR IS ALSO PROHIBITED FOR PERSONNEL ASSIGNED BY THE MASTER TO A FIRE PARTY, FOR THE DURATION OF THAT ASSIGNMENT. THE SEAL OF THE RESPIRATOR FACEPIECE MUST TOUCH THE 'SKIN' OF THE WEARER'S FACE.**

d. Respiratory protection for spaces that are IDLH is discussed under Chapter 14, Gas Free Engineering, of this manual.

1202 PROCEDURES

a. The MSO shall be the ship's Respiratory Protection Officer (RPO). Where there is no MSO assigned, the Safety Officer shall be the RPO. As such, the RPO shall:

(1) Ensure sufficient respirators, spare parts and expendable supplies (e.g., cartridges, filters, SCBA cylinders) are aboard to conduct emergency and routine operations.

(2) Establish a central control point for issuing air-purifying and atmosphere-supplying respirators. Issue the proper respirator plus filters and/or cartridges, as appropriate, for the specified work using guidance provided by the Area Safety Office (East/West) after ensuring that the individual has been medically certified. Ensure users are fit tested for the intended air-purifying and/or atmosphere-supplying respirator prior to issuance. Upon return of a respirator, ensure that the individual has properly cleaned and inspected it prior to stowage.

(3) Ensure that all personnel required to wear air-purifying and/or atmosphere-supplying respirators are medically certified to do so. Such certification may be accomplished by the MSO. Schedule necessary preplacement and periodic medical evaluations of personnel required to wear respirators in the performance of their work. Ensure that all exposure records and results of respirator user medical evaluations are entered into the individual's medical record.

(4) Ensure that personnel receive fit testing prior to being permitted to wear an air-purifying and/or atmosphere-supplying respirator and are retested annually thereafter. Fit-testing will be conducted per Chapter B6 of OPNAVINST 5100.19C if the capability exists onboard. MSC Area Safety Office (East/West) personnel will assist the RPO in respirator fit-testing and training when needed.

(5) Ensure that personnel required to wear respirators and their supervisors are trained per paragraph 1203b.

b. Department Heads shall:

(1) Ensure that assigned personnel wear respiratory protection when needed.

(2) Ensure that respiratory protection equipment is properly worn.

c. All hands shall:

(1) Only use a respirator if medically certified, fit tested within the past year and trained on the respirator's use.

(2) Request a respirator from the ship's respirator control point for work requiring respiratory protection.

(3) Inspect the respirator before and after each use.

(4) Properly wear provided respiratory protection equipment.

(5) Perform a facepiece seal check prior to each use.

(6) Report any malfunction of the respirator to the immediate supervisor.

d. Facepiece seal check

(1) Positive pressure check. Place your palm or thumb over the exhalation valve and press lightly. Exhale gently. The respirator is properly sealed if no air leaks around the edges and a slight positive pressure is felt inside the facepiece.

(2) Negative pressure check. Place your palm(s) over the cartridge(s) or canister inlet. Inhale gently. The respirator is properly sealed if no air leaks around the edges are observed and a slight negative pressure is felt inside the facepiece.

e. Warning signs of respirator failure

(1) Particulate air-purifying respirators. When breathing becomes difficult (increased resistance due to partial clogging), the filter(s) must be replaced. If the respirator is single-use, then it must be discarded.

(2) Vapor or gas air-purifying respirator. If the user notices any of the warning properties, i.e., odor, taste, eye irritation (with a full-face respirator) or respiratory irritation, the user shall leave the area immediately and replace the canister/cartridge before returning to the contaminated space.

(3) Service Life of Air-purifying Respirator Filters, Canisters and Cartridges. Change end-of-service-life indicator cartridges and canisters when indicated by the appropriate color change. End-of-service-life indicator cartridges and canisters must be worn belt mounted or chest mounted, so that end-of-service-life indicator can be seen.

(4) Air-line respirator. Leave the area if the compressor failure alarm sounds or an air pressure drop is sensed.

(5) Self-contained Breathing Apparatus(SCBA). If the air pressure alarm sounds, immediately leave the contaminated area.

f. Respirator inspection, cleaning and maintenance guidance are provided in Appendix 12-B.

g. Respiratory protection for spaces that are IDLH is discussed in Chapter B6 of OPNAVINST 5100.19C. The regulator used on the SCBA shall be a positive pressure or pressure demand type.

h. For personnel who wear eyeglasses with full-facepiece respirators, protective eyewear inserts are to be worn. (See Chapter 10.)

i. Personnel using respirators shall receive a medical evaluation every 5 years before age 35, every 2 years from age 35 to 45 and annually over the age of 45. Special evaluations shall be performed after prolonged absences from work for medical reasons or in the event of a functional disability. Ships, where the First Officer is the MSO, shall schedule these evaluations with a BUMED shore activity through the Medical Officer (East/West).

1203 TRAINING

The required training for the Respiratory Protection Program is as follows:

a. The RPO shall attend the 5-day Respiratory Protection Program Management Course A-493-0072 at the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) prior to their assignment.

b. Personnel required to wear respiratory protection and their supervisors shall receive the following training prior to use:

(1) Proper fitting and wearing of the respirator

(2) Respirator capabilities and limitations

(3) Positive and negative pressure checks

(4) Nature and degree of respiratory hazards and the affects of exposure to a hazardous atmosphere

(5) Proper respirator selection according to intended use

(6) Respirator care, inspection, cleaning and stowage

(7) The prohibition against facial hair when wearing respirators

c. All CIVMAR personnel who are required to wear respirators shall receive annual onboard refresher training on respiratory protection covering the topics of paragraph 1203b.

CHAPTER 12 - REFERENCES

12-1	OPNAVINST 5100.19C	Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
12-2	COMSCINST 3540.6	MSC Engineering Operations and Maintenance Manual (EOMM)

APPENDIX 12-A

OPERATIONS REQUIRING RESPIRATORY PROTECTION

Personnel performing operations listed in Appendix B6-E of OPNAVINST 5100.19C, or the following equivalent operations, shall wear respiratory protection:

1. Thermal insulation removal (asbestos or non-asbestos), including asbestos glove bag removal.

2. Tank or void entry after gas freeing and prior to being certified **"Safe for Men, Safe for Fire."**

3. Mercury gauge repair or calibration, or mercury spill cleanup.

4. Spray painting, interior or exterior.

5. Work on any lead or lead coated surface (or surface potentially coated with a lead compound).

6. Hydraulic fluid spills
   a. Mil-H-19457B (more than 5 gallons)
   b. Mil-H-19457B&C (spray or mist)

7. Welding, torch cutting or brazing.

8. Chipping, grinding or sanding metal or any painted surfaces.

9. Operating a vapor degreasing tank.

10. Agitation or spray degreasing.

11. Pesticide application.

12. Entering an environment of hazardous dust, mist, fume or gas or when entering a potentially oxygen deficient environment.

13. When performing fire fighting training and serving on a firefighting team including use of SCBA.

APPENDIX 12-B

INSPECTION, CLEANING, STORAGE AND MAINTENANCE OF RESPIRATORS

To ensure adequate performance and proper sanitation, respirators shall be maintained as follows:

1. Inspections. All respirators shall be inspected routinely before and after each use. Emergency use respirators shall be inspected after each use and at least monthly. SCBAs shall be inspected periodically to ensure proper function during an emergency response and after each use and at least monthly. Inspect the following items for at least the listed defects:

a. **Headstraps or head harness -** Breaks, loss of elasticity, broken or malfunctioning buckles and attachments (full-facepiece only), excessively worn serration on the head harness that might permit slippage.

b. **Facepiece -** Excessive dirt; cracks, tears, holes or distortions from improper storage; inflexibility (stretch and massage to restore flexibility); cracked or badly scratched lenses in full-facepieces; incorrectly mounted full-facepiece lens or broken or missing mounting clips; cracked or broken air-purifying element holder(s), badly worn threads or missing gasket(s) (if required).

c. **Inhalation and exhalation valves -** Foreign material, such as detergent residue, dust particles or human hair under the valve seat; cracks, tears or distortion in the valve material; improper insertion of the valve body in the facepiece; cracks, breaks or chips in the valve body, particularly in the sealing surface; missing or defective exhalation valve cover; improper installation of the valve in the valve body.

d. **Cartridge, canister or filter -** Incorrect cartridge, canister or filter for the hazard; incorrect installation, loose connections, missing or worn gaskets or cross-threading in holder; expired shelf-life date on cartridge or canister; evidence of prior use of sorbent cartridge or canister, indicated by absence of sealing material, tape or foil over the inlet.

e. **Corrugated breathing tubes -** Broken or missing end connectors; missing or loose hose clamps; deterioration, determined by stretching the tube and looking for cracks.

f. **Harness of a front or back-mounted gas mask -** Damage or wear to the canister holder that may prevent its being held securely in place; broken harness straps or fastening.

g. **Hoods, helmets, blouses or full suits -** Examine for rips and tears and seam integrity; examine the protective headgear, if required, for general condition, with emphasis on the suspension inside the headgear; examine the protective faceshield, if any, for cracks or breaks or impaired vision due to rebounding abrasive particles; ensure the protective screen is intact and secured correctly over the faceshield of abrasive blasting hoods and blouses.

h. **Air supply systems -** Examine for integrity and good condition of the air supply lines and hoses, including attachments and end fittings; correct operation and condition of all regulators, valves or other air-flow regulators.

2. Cleaning, Sanitizing and Storage. Respirators shall be cleaned and sanitized as follows:

a. Remove and discard all used cartridges and filters.

b. Disassemble and hand wash the facepiece and parts in warm water and mild dishwashing detergent solution. Strong cleaning agents can damage respirator parts. Temperatures above 50°C (122°F) and vigorous mechanical agitation shall be avoided. Solvents (e.g., paint removers) which can affect rubber and other parts shall not be used. Ultrasonic or other suitable washers may be used per manufacturer's instructions.

c. Sanitize the facepiece using one of the following methods:

(1) Immerse the facepiece for 2 minutes in a water solution of iodine (add 0.8 ml of iodine to l liter of water).

(2) To avoid discoloration of respirator facepieces from iodine based respirator disinfectant solutions, use Georgia Steel and Chemical, Special Cleaner FK-240, and Mine Safety Appliances Company, Cleaners/Sanitizer P/N 34337 disinfectant solutions.

d. Rinse in clean warm water at a temperature of about 110°F. Do not exceed 122°F (50°C).

e. Air dry in a clean uncontaminated area in such a way as to prevent distortion of the facepiece. If drying cabinets are used, the drying temperature shall not exceed 122°F (50°C).

f. Reassemble and reinspect respirator. If replacement parts are necessary, they shall be obtained and installed or the respirator shall be removed from service until the unserviceable parts are replaced. If parts are not available and cannot be replaced, discard the entire facepiece as it cannot be used without all parts in place. Interchange of parts is prohibited.

g. Place the respirator in a clean plastic bag or other container and seal. Zip-lock plastic bags are preferred. Ensure the respirator is completely dry before sealing to prevent mildew.

h. Store flat in a clean, dry, uncontaminated area without crowding which may distort the respirator facepiece.

3. Repair and Maintenance.

a. Personnel shall not service/repair any respirator for which they have not been specifically trained.

b. No work shall be performed on reducing valves, regulators, or alarms of atmosphere-supplying respirators (e.g., air-line respirators and SCBAs). These items shall be returned to the manufacturer for all repairs and adjustments.

CHAPTER 13

ELECTRICAL SAFETY

1301 DISCUSSION

a. Electrical shock is a potential hazard aboard ship. The combination of high humidity, metal structures, ship movement, high voltage electricity and salt water increases the potential for electric shock hazard. To help protect mariners from electric shock, MSC has established an Electrical Safety Program.

b. The following definitions apply to this chapter:

(1) Portable electrical tools/devices are hand held, frequently handled tools which are plugged into an electrical power source. Portable electrical tools and devices include drills, grinders, sanders, ventilation blowers, deck buffers, circular saws, drop lights, vacuum cleaners, coffee pots, soldering guns/irons and extension cords.

(2) Mobile electrical equipment are devices which **ARE NOT HARD WIRED** and can be moved, but are normally stationary. Mobile electrical equipment may include fans, adding machines, typewriters, toasters, welding machines, bench grinders, vending machines, refrigerators and coffee makers.

(3) Personal electrical/electronic equipment are any equipment or device owned by a crewmember which uses or can use ship's electrical power.

(4) Double insulated tools refers to the existence of two separate insulating systems within a tool or device such that failure of one insulation would not result in hazardous voltages on any exposed metal components. Double insulated tools are permanently marked by the words **DOUBLE INSULATION** or **DOUBLE INSULATED** stamped on their enclosure.

(5) Non-conducting cased portable tools refers to portable equipment with casing and handle made of non-conducting material. To be considered non-conducting, the equipment must pass an initial inspection for rugged, safe construction and the tool has a minimum 1 megohm DC resistance from any phase conductor to any exposed metal part or metal chassis.

1302 PROCEDURES

a. Portable Electrical Tools/Devices

(1) New and/or Modified Equipment

(a) Before new and/or modified portable equipment is turned over to a department for the first time, it must be inspected by the Engineering Department and recorded in the ship's electrical equipment log.

(b) The Engineering Department will visually inspect the equipment to determine if it is double insulated, is metal cased or is in a non-conducting case which does not require a safety ground.

(c) Equipment shall be inspected in accordance with procedures in NSTM, Chapter 300, paragraph 300-2.7.5.1.

(2) Prior to use, all portable tools shall be visually inspected as follows:

(a) Examine the equipment's enclosure. **DO NOT USE** equipment with cracked or damaged enclosures.

(b) Examine the equipment's cable and plug (including extension cords) for tears, chafing, exposed insulation, bent prongs or damaged plug.

(c) Check wiring terminals and connections of the plug. Loose connections and frayed wires on the plug must be corrected and all foreign matter caught inside the plug removed before the equipment is inserted into the receptacle.

(d) Check for splices in the cable. **SPLICED PORTABLE CABLES ARE EXTREMELY DANGEROUS AND SHALL NOT BE USED.**

b. Mobile and Personal Electrical/Electronic Equipment may be approved for shipboard use if it is accepted, certified, listed, labeled or otherwise determined to be safe by a nationally recognized testing laboratory or Government Agency.

(1) Mobile equipment shall be inspected by the Engineering Department per NSTM 300, paragraph 2.7.3.5.

(2) Personal electrical/electronic equipment shall be inspected by the Engineering Department when first brought onboard. The equipment's enclosure, cable and plug (including extension cords), shall be examined per paragraph 1302a(2). R)

(3) Routine Inspection of Equipment

(a) Mobile equipment shall be inspected during safety assist visits per NSTM 300-2.7.3.5.

(b) Personal electrical/electronic equipment shall be inspected periodically during routine inspections of work spaces and berthing areas and during safety assist visits.

1303 RESPONSIBILITIES

a. Program Managers shall verify that those members of ship's force who maintain and repair shipboard electrical and electronic equipment and machinery are properly trained per paragraph 1304. This includes Chief Electricians and Electronic Technicians, if embarked.

b. The APMC shall ensure all hands receive the training identified in paragraph 1304c.

c. **The Master shall approve all work to be performed on ENERGIZED electric or electronic equipment**. NSTM 300, section 2.5.2, Energized Circuit Working Procedures, provides precautions to be followed when working on energized circuits. **Working on energized circuits is allowed only when the maintenance or repair is mission essential and the circuit can not be locked out or tagged out per Chapter 17**. This approval shall be recorded in the engineering log.

d. The Chief Engineer administers the shipboard Electrical Safety Program and shall:

(1) Assign a shipboard Electrical Safety Officer.

(2) Verify that each member of ship's force and any manufacturer's representatives are familiar with the Lockout and Tagout procedures of Chapter 17.

e. The Electrical Safety Officer shall:

(1) Test receptacles in accordance with Shipboard Automated Maintenance Management (SAMM).

(2) Ensure that portable electric tool devices are inspected per paragraph 1302a(1) and mobile electrical equipment is inspected per paragraph 1302b.

f. Department Heads shall:

(1) Inspect the condition of portable and mobile electrical equipment cords and plugs during the monthly walk-through inspections. Forward deficiencies to the Electrical Safety Officer for correction.

(2) Inspect personal electrical equipment during routine inspections.

(3) Conduct electrical safety briefings for assigned department personnel annually.

g. The MSO shall:

(1) Ensure that a first aid lecture on cardiopulmonary resuscitation (CPR) training is provided to all crewmembers.

(2) Ensure that all electrical ratings are provided with CPR training from an instructor certified by an authorized agency (i.e., American Red Cross or American Heart Association) annually.

h. All hands shall:

(1) Turn in to the Electrical Safety Officer any portable electrical tool with visible damage. Notify the Electrical Safety Officer of any mobile electrical equipment with visible damage.

(2) Prior to using any portable electrical equipment, check for damage to the casing, cord or plug in accordance with paragraph 1302a(2). Turn in damaged electrical equipment to the Electrical Safety Officer.

(3) Never remove any installed MSC lockout devices and/or MSC Danger Tags without proper authority.

i. Only qualified personnel shall install or remove MSC lockout devices and/or MSC Danger Tags on/from electrical/electronic equipment per Chapter 17. All hands shall comply with the Lockout and Tagout procedures found in Chapter 17.

1304 TRAINING

The required training for the Electrical Safety Program is as follows:

a. All electrical ratings shall receive CPR training from an instructor certified by an authorized agency (i.e., American Red Cross or American Heart Association) annually.

b. All hands shall receive electrical safety training as a part of the MSC 2-day Afloat OSH course. This training shall include:

(1) Basic electrical safety (including personal protective clothing and equipment)

(2) First aid (including CPR, electric shock trauma and emergency electrical shock medical response)

c. All CIVMAR personnel shall receive annual onboard refresher training on electrical safety covering the topics of paragraph 1304b.

CHAPTER 13 - REFERENCES

13-1 NSTM, Chapter 300, Electric Plant General

13-2 OPNAVINST 5100.19C Naval Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

CHAPTER 14

GAS FREE ENGINEERING

1401 DISCUSSION

a. Entry into, work in or work on confined or enclosed spaces may cause injury, illness, fires and explosions or death. Confined spaces include any cargo tank, pumproom, peak tank, cofferdam, void, cargo space or any compartment where personnel may be exposed to:

(1) Lack of sufficient oxygen to support life

(2) Excessive oxygen levels which increase the danger of fire or explosion

(3) Presence of flammable or explosive atmospheres

(4) The presence of toxic atmospheres or materials

b. Since these hazards are not always readily apparent or detectable by odor or sight, personnel shall not enter confined spaces without the Master's authorization and taking the required precautions. If not normally inhabited, such confined and enclosed spaces shall be considered unsafe for entry or work until the required testing is completed.

c. Confined space entry at sea is to be performed by ship personnel only due to operational necessity.

1402 PROCEDURES

a. The Master shall appoint the Cargo Officer, or for ships without a Cargo Officer, the First Officer as the Gas Free Engineer (GFE), to coordinate confined space testing and entry procedures while at sea when a marine chemist is not available.

b. The Safety Officer shall conduct an audit of the Gas Free Engineering Program annually per OPNAVINST 5100.19C, Chapter B8.

c. The Gas Free Engineer and assistants shall obtain the training listed in paragraph 1403 before assuming these duties. The GFE, at sea, shall:

R) (1) Perform confined space atmosphere testing and entry procedures in accordance with NSTM, Chapter 074, Volume 3, Gas Free Engineering, section 20.8. Periodic and continuous testing of confined spaces will be performed per NSTM, 074, Volume 3, section 20.9.

(2) Ensure that the testing equipment for confined space entry is properly maintained and calibrated. Testing, calibration and maintenance requirements are specified in the NSTM, Chapter 074, Volume 3, section 20.21.

(a) Each portable instrument is calibrated using the manufacturer's factory-selected calibration gas to obtain that instrument's reading. The reading shall be compared with the instrument's appropriate conversion charts/curves to obtain actual concentration for a specific contaminant gas.

(b) A sufficient supply of spare parts (e.g., flashback arrestors, filters and filaments) will be kept on hand to avoid excessive downtime for repairs. Perishable parts (e.g., batteries, sensors and operational check kits) shall be stocked, replenished and issued consistent with shelf-life limitation.

(c) Instruments shall be calibrated in accordance with manufacturers' instructions before each use. If instrument fails to respond, or responds incorrectly to known calibration conditions, they shall be removed from service, tagged as defective and either referred to an appropriate repair facility or returned to manufacturer for repair.

(d) For those ships that do not have access to a Navy calibration unit, the semi-annual calibration may be performed by ship personnel in accordance with manufacturer’s specifications.

(3) Conduct confined space testing in the following instances:

(a) Test every closed compartment, tank, cofferdam or void prior to entry and/or hot work. For hot work refer to the NSTM, Chapter 074, Volume 3, section 22.

(b) Test any space that contains or has previously contained toxic materials.

(c) Test any space in which a spill of hazardous or toxic material has occurred to ensure that the environment is safe for personnel or safe for hot work, as appropriate.

(d) If the initial test of a space indicates deviations from normal oxygen levels or the presence of flammables or toxicants, prohibit personnel entry; determine and eliminate outside sources; and flush, drain and ventilate the space to remove flammables and toxicants and restore oxygen levels.

(4) Post at the entrance of each confined space that testing has been performed with a copy to the Deck Watch to ensure that an entry is made into the ship's Deck Log to that effect. Use Appendix 14-A, Navy Gas Free Certification and Test Log (OPNAV 5100/16)(5-91). The Navy Gas Free Certificate duration shall not exceed 8 hours or less as determined by the GFE. Subsequent certificates will require retesting of the space. For hot work while the ship is tied to a pier, post the Navy Gas Free Certificates at the entrance of each confined space tested and at the gangway.

(5) Ensure that equipment required for testing and ventilating of confined spaces and rescuing personnel from confined spaces are onboard and properly maintained.

d. Post Fire Test Assistants (PFTA) shall, in the absence of a GFE and when properly qualified per paragraph 1403b, test for a hazardous atmosphere of spaces which just had a fire per COMSCINST 3541.5D, Part 1, Chapter 13. The following precautions shall be followed:

(1) The space shall be tested after the fire is out.

(2) The spaces must be desmoked prior to testing. A series of tests in sequence for oxygen, combustible gases and toxic gases will be required.

(3) If test results are unsatisfactory, the spaces must be ventilated and re-tested.

(4) Gases to be tested for after fires shall include but not be limited to:

(a) After **Class A** and **C** fires, hydrogen chloride.

(b) After **Class B** fires, toxic hydrocarbons, carbon dioxide, carbon monoxide, hydrogen chloride and hydrogen cyanide.

(c) If halon 1301 was used, hydrogen fluoride

e. All hands shall:

(1) Ensure, prior to entering any confined space, tank, cofferdam or void, that the space is tested and certificate is posted.

(2) Comply with the requirements of the certificate or tag posted at the entrance to a confined space.

(3) Ensure that prior to performing any job requiring hot work, the space/area has been inspected and/or tested and has been posted permitting such work, if appropriate.

(4) Ensure that there is an observer or attendant monitoring the work from outside the space. Maintain communication with personnel outside the space.

(5) Ensure that, if a change to the space ventilation or condition has occurred, the confined space is re-tested and recertified prior to any additional work.

(6) Notify the Master or GFE before any new space is used to store hazardous or toxic material or of any spill of hazardous or toxic material.

f. Prior to entry into a confined space, all crewmembers who will make an entry shall attend a safety meeting with the Master or GFE. This meeting shall cover:

(1) The signals established for communications between the person(s) in the space and those outside

(2) The precautions to take against falls

(3) The proper footwear and protective clothing to be worn within the confined space

(4) The proper use and readiness of rescue and life support apparatus

(5) The hazards that may be encountered within the confined space

g. The attendant stationed outside the confined space shall:

(1) Be trained in confined space entry and rescue procedures.

(2) Maintain a continual means of communication with crewmembers within the space to ensure their safety.

(3) Only attempt a rescue with the lifeline from outside the confined space until a rescue team arrives.

h. A confined space shall be entered only after the Master or GFE authorizes such entry and only after all atmospheric tests and safety checks specified by NSTM, Chapter 074, Volume 3, have been completed.

i. Emergency entries into **UNTESTED** spaces require:

(1) Wearing of pressure demand SCBA.

(2) Wearing of parachute-type safety harness to permit rescue from the space.

(3) Attaching a lifeline securely to the safety harness.

(4) Wearing PPE specified by the Chief Mate or GFE.

(5) Continuous communications between person in space and attendant outside space.

(6) Placing additional rescue equipment at entrance to confined space.

1403 TRAINING

a. The Gas Free Engineer shall complete the following prior to their assignment.

(1) Navy's Gas Free Engineering Course K-495-0051.

(2) A certified course in cardiopulmonary resuscitation (CPR) and shall be recertified annually.

b. Post Fire Test Assistants (PFTA) shall be trained and receive written authorization from the ship's GFE. PFTA shall be trained in the following topics:

(1) Ability to use and interpret the readings of an oxygen indicator and a combustible gas indicator. The ability to use and interpret the readings of a carbon monoxide indicator and carbon dioxide indicator.

(2) Familiarity with the structure and knowledge of the location and designation of ship spaces.

(3) Knowledge of flammable atmospheres, toxic atmospheres and oxygen deficient atmospheres.

c. All hands shall receive GFE awareness training as a part of the MSC 2-day Afloat OSH course and annual onboard refresher training. This training shall cover, at the minimum, the following topics.

(1) How to identify confined areas/spaces.

(2) Hazards encountered when entering confined spaces.

(3) Procedures for requesting gas free testing.

(4) Procedures for helping shipmates in an emergency (training must stress to all hands that if a person is seen unconscious in any space, no one is to enter that space without appropriate respiratory protective equipment and a backup assistant).

d. All CIVMAR personnel shall receive annual onboard refresher training on gas free engineering covering the topics of paragraph 1403c.

CHAPTER 14 - REFERENCES

14-1	NSTM, Chapter 074, Volume 3, Gas Free Engineering	
14-2	COMSCINST 3540.6	MSC Engineering Operations and Maintenance Manual (EOMM)
14-3	COMSCINST 3541.5D	MSC Damage Control Manual
14-4	OPNAVINST 5100.19C	Naval Occupational Safety And Health (NAVOSH) Program Manual for Forces Afloat, Chapter B-8.

SERIAL #_____NAVY GAS FREE CERTIFICATION AND TEST LOG

INITIAL CERTIFICATION

SHIP/UNIT/ACTIVITY: _____
ITEM/COMPARTMENT/SPACE: _____

TYPE OF OPERATION TO BE CONDUCTED: _____

INITIAL DATE OF TEST: HOUR:_____ DATE: _____

INITIAL EXPIRATION: HOUR: _____ DATE: _____

VENTILATION REQUIRED: YES NO

TYPE: _____ _____

_____ _____ _

_____ _____ _____

INERTED GAS: _____(gas)

OR

PRESSED UP WITH: _____(liquid)

REQUIREMENTS/CONCLUSIONS/PRESCRIBED PRECAUTIONS/INSTRUCTIONS

_____ _____ _____
_____ _____ _____
_____ _____ _
_____ _____ _

GAS FREE RELATED HOT WORK

PQS QUALIFIED FIRE WATCHES ASSIGNED

LOCATIONS PRINT NAME/RATE SIGNATURE* (UPON COMPLETION)

_____ _____ _____
_____ _____ _____
_____ _____ _____ _____ ____

TIME SECURED: _____ _____

FINAL CHECKUP: WORK AREA AND ALL ADJACENT AREAS TO WHICH SPARKS AND HEAT MIGHT SPREAD WERE INSPECTED 30 MINUTES AFTER THE WORK WAS COMPLETED AND WERE FOUND TO BE FIRE SAFE. THE EQUIPMENT AND STRUCTURES WORKED ON WERE COOL TO THE TOUCH.

I CERTIFY THAT I AM FAMILIAR WITH AND WILL COMPLY WITH ALL SAFETY PRECAUTIONS PERTINENT TO THIS TYPE OF WORK.

HOT WORK OPERATOR SIGNATURE_____

HOT WORK SUPERVISOR_____ _____

FIRE MARSHAL _____ _____ ____

TEST RESULTS

TESTS CONDUCTED AS REQUIRED	INITIAL TEST	1ST RETEST	2ND RETEST
OXYGEN			
COMBUSTIBLE GAS			
TOXIC TYPE			
TOXIC TYPE			
TOXIC TYPE			
TOXIC TYPE			
EXISTING CONDITIONS	INITIAL TEST	1ST RETEST	2ND RETEST
NOT SAFE FOR PERSONNEL/ NOT SAFE FOR HOT WORK			
NOT SAFE FOR PERSONNEL WITHOUT PROTECTION/ NOT SAFE FOR HOT WORK			
SAFE FOR PERSONNEL/ NOT SAFE FOR HOT WORK			
SAFE FOR PERSONNEL/ SAFE FOR HOT WORK			
NOT SAFE FOR PERSONNEL INSIDE/SAFE FOR HOT WORK OUTSIDE			

NOTE: THIS INSPECTION INDICATES THE CONDITIONS WHICH EXISTED AT THE TIME TEST WAS CONDUCTED.

GFE PERSONNEL SIGNATURE_____

CO SIGNATURE, if required_____

RECERTIFICATION

1ST RETEST/UPDATE

TIME:_____ DATE:_____ ___ EXPIRES:_____

GFE PERSONNEL SIGNATURE_____

2ND RETEST/UPDATE

TIME:_____ DATE:_____ ___ EXPIRES:_____

GFE PERSONNEL SIGNATURE_____

CHAPTER 15

NON-IONIZING RADIATION PROTECTION

1501 DISCUSSION

Potentially hazardous sources of non-ionizing radiation exist aboard MSC ships, such as radar operating during UNREP. Radar and communications equipment (transmitters) may emit hazardous levels of radio frequency/microwave radiation. In addition to causing biological changes, such radiation can induce electrical currents/voltages that may cause shocks and burns, premature activation of Electro-Explosive Devices (EEDs) and arcs which may ignite flammable materials. This chapter provides procedures to minimize the hazards associated with non-ionizing radiation.

1502 PROCEDURES

a. The First Officer shall request technical assistance and/or advice on radiation protection from the Program Manager, when appropriate.

b. Department Heads shall:

(1) Establish and control access to areas under their cognizance in which excessive non-ionizing radiation exposure could occur.

(2) Ensure that radiation warning signs are installed where applicable.

(3) Train personnel to be familiar with any potential workplace radiation exposure hazards and appropriate protective measures.

(4) Investigate radiation incidents.

c. The MSO shall:

(1) Schedule personnel for physical examinations required for medical surveillance.

(2) Prepare a report on any suspected or confirmed radiation overexposure to be sent to BUMED (Code 03).

d. All hands shall:

(1) Comply with radiation warning signs where posted.

(2) When required to work in the vicinity of any radar antenna or communications transmitting antenna, request that the appropriate equipment be locked out and tagged-out.

(3) Report suspected radiation overexposure to the MSO, Department Head and First Officer.

(4) Observe hazards of electromagnetic radiation to ordnance (HERO) restrictions, whenever imposed.

e. Sources of Radio Frequency Radiation (RFR) hazards shall be evaluated by competent occupational safety and health personnel or NAVSEA personnel. Technical assistance and advice may be obtained via the chain of command as follows:

(1) For RFR health hazards, contact the Navy Environmental Health Center, Naval Station, Norfolk VA 23511.

(2) For RFR hazard surveys and technical assistance for shipboard systems, contact Naval Sea Systems Command (SEA 06D44), Naval Sea Systems Command Headquarters, Washington DC 30362.

f. A file of surveys, reports and calculations for each system shall be retained until replaced with new data. Such evaluations are normally performed after equipment installation or at the completion of construction or overhaul. If data for a source of RFR does not exist aboard and there is a question of radiation safety, contact the Program Manager for assistance.

g. RFR warning signs are required at all access points to areas where hazardous RFR levels may be present.

h. Preplacement or baseline, periodic and situation medical surveillance of maintenance personnel who work on RFR equipment capable of creating a hazardous exposure shall be conducted per EHC TM91-5, Medical Surveillance Procedures Manual and Medical Matrix. Identification of equipment capable of generating RFR and personnel potentially exposed to RFR aboard MSC ships will be provided by COMSC.

i. Investigations of incidents involving alleged or actual RFR overexposure shall include as a minimum: measurement of RFR exposure levels (request assistance from the Area Safety Office (East/West) to obtain this data); a medical examination; a detailed

description of the circumstances surrounding the incident; recommendations for a more detailed follow-up (if necessary) and recommendations to prevent recurrence of the incident. Each RFR exposure incident which is five times the Permissible Exposure Limit (PEL) or greater shall be reported to BUMED (Code 03), the Program Manager and COMSC within 48 hours after the incident.

1503 TRAINING

a. When hazardous RFR exists aboard ship, all hands shall receive indoctrination on radiation protection upon reporting aboard. This training shall include:

(1) Identification and location of potentially hazardous radiation sources.

(2) Locations where occupancy is restricted for the purpose of radiation protection.

(3) Administrative or operational controls used to minimize or prevent exposures to RFR (e.g., tag-out of equipment during working aloft and use of warning signs).

(4) Use and maintenance of any required protective equipment.

b. All CIVMAR personnel shall receive annual onboard refresher training on non-ionizing radiation protection covering the topics of paragraph 1503a.

CHAPTER 15 - REFERENCES

15-1	NEHC TM91-5	Medical Surveillance Procedures Manual and Medical matrix
15-2	OPNAVINST 5100.19C	Naval Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
15-3	SPAWARINST 5101.1	Non-Ionizing Electromagnetic Radiation (EMR) Hazard Control

CHAPTER 16

SAFETY COUNCIL

1601 DISCUSSION

The Safety Council serves as a sounding board for multiple viewpoints and interests within the ship relating to the Afloat Safety and Occupational Health Program. The council's purpose is to serve as a functioning body of the Afloat Safety and Occupation Health Program by identifying, defining and assessing safety and health problem areas and recommending corrective measures. Such action will improve the effectiveness of the Afloat Safety and Occupational Health Program and meet the specific needs of individuals or groups represented aboard ship.

1602 PROCEDURES

a. The Safety Council consists of the Master, First Officer (Safety Officer), MSO, all Department Heads, union representative(s), sponsors and the Officer in Charge of the Military Department (on ships with Military Departments assigned). The Master shall be the Chairman of the council, and the Safety Officer or Purser shall be the recorder.

b. The Safety Council shall:

(1) Meet monthly or more frequently if directed by the Master.

(2) Review the ship's mishap record and determine the predominant types of mishaps and their causes. Formulate policies to reduce mishaps.

(3) Review inspection reports and Safety Hazard Reports. Formulate plans of action to correct and/or prevent deficiencies.

(4) Determine the need to develop safety standards or training peculiar to the ship.

(5) Determine the need for assistance and/or attention from the Area Safety Office (East/West). Record such a need in the council meeting minutes.

(6) Discuss and identify needs for crew safety training, and safety literature (i.e., Fathom, Ship Safety Bulletin, safety training videotapes or safety schools).

c. Safety Council meeting minutes shall be forwarded to the Area Safety Offices (East/West).

CHAPTER 16 - REFERENCES

16-1 OPNAVINST 5100.19C Naval Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

CHAPTER 17

LOCKOUT/TAGOUT PROCEDURES

1701 DISCUSSION

a. Lockout and Tagout procedures are necessary because of the complexity of modern ships and the cost, delays and hazards to personnel which could result from the inadvertent operation of equipment. In order to prevent injury to personnel and damage to equipment, the Lockout and Tagout Programs are mandatory for all shipboard equipment, components and systems. Lockout improves crewmember safety and reduces administrative paperwork.

b. Lockout/Tagout procedures are necessary aboard ship to prevent the unexpected start-up of machines or equipment, or release of stored energy that could cause serious injuries or death. **Lockout** is done through the installation of locks and locking devices which physically isolates energy sources so repair work can be done. Lockout procedures are listed in Appendix 17-A. **Tagout** refers to the installation of MSC Danger Tags to prevent operation of equipment or systems. Tagout procedures are listed in Appendix 17-B. The MSC Danger Tag, Appendix 17-C, shall be used for both Lockout and Tagout procedures.

c. When energy isolating devices are not lockable under Lockout procedures where a locking device can not be applied, Tagout procedures shall be used. **LOCKOUT AND TAGOUT PROCEDURES SHALL BE ENFORCED AT ALL TIMES.**

1702 PROCEDURES

a. Program Managers shall:

(1) Verify shipboard compliance with Lockout and Tagout procedures during compliance inspections and other ship visits.

(2) Include Lockout and Tagout requirements in work packages and service orders for industrial assistance contractors and manufacturers' technical representatives for service aboard CIVMAR operated ships.

b. The APMC shall ensure that all hands receive the training identified in paragraph 1704b.

c. The Master shall ensure that Lockout and Tagout procedures are implemented aboard the ship.

d. The Chief Engineer shall:

(1) Establish and administer Lockout and Tagout Programs and monitor their use.

(2) Identify systems, equipment and machinery capable of being locked out by applying a MSC Lockout label **"LOCKOUT BEFORE SERVICING,"** Appendix 17-D, to or near the energy source.

(3) Provide Lockout/Tagout Training per paragraph 1704.

(4) Establish and **MAINTAIN** Lockout stations aboard ship that contain the Lockout devices specified in Attachment 17-A-1.

(5) Maintain a Master Key or copy set for all locks used in the Lockout Program.

(6) Direct each Engineering Watch Officer in writing to act as Authorizing Officer during the course of their watch. For ships operating with unattended engine rooms, the Engineering Duty Officer shall be assigned the duties of Authorizing Officer for the Lockout and Tagout Programs. For MILDEPTs, the OIC may be appointed Authorizing Officer for Lockouts/Tagouts that occur only in MILDEPT spaces. Appendix 17-E is a sample appointment letter as Lockout/Tagout Authorizing Officer that may be used.

(7) Establish a Lockout/Tagout Log that includes:

(a) Lockout/Tagout Record Sheets, Appendix 17-F

(b) The procedures listed in Appendices 17-A and 17-B with amplifying ship directions to administer the programs

(c) Names of Authorizing Officers and those personnel authorized to conduct Lockout and Tagout actions.

(d) A separate log may be maintained for Lockouts/Tagouts in MILDEPT spaces only.

(8) Verify biweekly, compliance with Lockout and Tagout procedures, by checking Lockout devices, MSC Danger Tags and the Lockout/Tagout Log. This check shall be recorded in the Engine Room Log. Completed Lockout/Tagout Record Sheets

shall be maintained in the Lockout/Tagout Log for 30 days. During the bi-weekly audit, completed Lockout/Tagout Record Sheets over 30 days old shall be removed from the Lockout/Tagout Log and retained aboard ship for 1 year, after which, they may be destroyed.

(9) Verify that system label plates and diagrams that depict system energy sources are correct. Experience with transfer ships from the Navy shows that sometimes label plates are in error. Sometimes these errors are transferred to the ship's electrical drawings. Discrepancies shall be noted on ships drawings and forwarded to the appropriate Program Manager to initiate drawing revision.

e. Authorizing Officers shall:

(1) Review the Lockout/Tagout Log before assuming each watch, and inform relieving watchstanders of any equipment, machinery or systems locked and/or tagged out during the course of their watch.

(2) Review the nature of work planned and the proposed Lockout/Tagout with the individual performing the maintenance, repair or alteration to ensure that it does not adversely impact operations.

(3) Verify and sign entries on the Lockout/Tagout Record Sheet for entry into the Lockout/Tagout log.

(4) Direct the individual performing the Lockout/Tagout to notify the appropriate Department Head if the Lockout/Tagout action will affect systems or equipment operations in another department before performing the Lockout/Tagout actions.

(5) Lockout and/or Tagout equipment, machinery or systems which have been rendered inoperable due to casualty or malfunction during your watch and record the action in the Lockout/Tagout Log.

(6) When necessary, verify a system lineup after maintenance, repair or alteration has been performed.

(7) Have actions cleared from the Lockout/Tagout Record Sheet and ensure tags are ready for reuse.

f. Department Heads shall ensure their personnel are familiar with Lockout and Tagout procedures in this chapter.

g. All hands shall comply with Lockout and Tagout procedures.

h. The following precautions shall be observed:

(1) Lockout/Tagout procedures are to be observed for all maintenance performed on either mechanical, electrical or pneumatic systems, including work done by industrial assistance contractors or manufacturers' technical representatives.

(2) **THE PERSON INSTALLING A LOCKOUT DEVICE AND LOCK, AND/OR MSC DANGER TAG SHALL REMOVE IT.** The Chief Engineer or Master are the **ONLY** persons authorized to remove another's Lockout device and lock, and/or tag under the following conditions:

(a) The Chief Engineer or Master personally verifies that no one is working on the equipment or system that is locked and/or tagged out.

(b) In the opinion of the Chief Engineer or Master, the circumstances require the removal of the Lockout device and lock, and/or tag.

(3) An MSC Lockout/Tagout tag shall always accompany a lock and Lockout device.

(4) If more than one person is working on a component or system, they shall each install their own lock and tag. The lock shall be applied to a multiple Lockout hasp. Upon completion of the task, that person shall remove only their own lock and tag.

1703 CAUTION TAGS

a. **CAUTION** tags, Appendix 17-G, are used as a precautionary measure to provide temporary special instruction or to indicate that unusual action must be used to operate machinery, systems or components. These instructions must state the reason the **CAUTION** tag is installed. **CAUTION** tags shall not be used if personnel or equipment can be endangered while operating the equipment or system. In these cases, MSC Lockout or Tagout procedures shall be used.

b. **CAUTION** tag installation and removal procedures shall be the same as MSC Tagout Procedures, Appendix 17-B. The individual making out the tag shall indicate, on the back of the tag, the instructions under which the machinery, system or component may be operated.

1704 TRAINING

The required training for the Lockout and Tagout Program is as follows.

a. The Chief Engineer shall ensure all Department Heads are familiar with MSC Lockout and Tagout procedures and those personnel who will conduct shipboard training are fully trained per this section.

b. All hands shall receive training on Lockout and Tagout procedures as a part of the MSC 2-day OSH course. This training shall include:

(1) Purpose, function and use of Lockout and Tagout procedures.

(2) Prohibition of operating equipment that is locked out and equipment that is tagged out.

c. Personnel who install or remove Lockout devices and Authorizing Officers, shall receive on-the-job training, which shall be documented. This training shall include:

(1) The recognition of hazardous energy sources and identity of systems, equipment and machinery capable of being locked out.

(2) Recognition that tags must be used for those systems, equipment and devices not capable of being locked out. For those systems, equipment and devices not capable of being locked out, the fact that tags are essentially warning devices.

(3) A description of Lockout procedures that states locks are not to be removed without the Authorizing Officer's permission; it shall only be removed by the crewmember who installed it or the Master or Chief Engineer, and shall never be bypassed, ignored or otherwise defeated.

(4) A description of Tagout procedures that states tags are not to be removed without the Authorizing Officer's permission; it shall only be removed by the crewmember who installed it or by the Master or Chief Engineer and shall never be bypassed, ignored or otherwise defeated.

(5) That tags must be legible and understandable by all.

(6) The attachment methods for locking devices.

(7) The attachment methods for tags.

d. All personnel shall receive annual onboard refresher training on Lockout and Tagout procedures covering the topics of paragraph 1704b. Personnel who install or remove Lockout devices and Authorizing Officers, shall receive annual training covering the topics of paragraph 1704c.

CHAPTER 17 – REFERENCES

17-1 OPNAVINST 5100.19C Naval Occupational Safety And Health (NAVOSH) Program Manual for Forces Afloat

APPENDIX 17-A

MSC LOCKOUT PROCEDURES

This procedure establishes the minimum requirements for lockout of energy isolating devices whenever maintenance or servicing is done on systems, equipment and machinery. It shall be used to ensure that shipboard equipment, machine or other device is isolated from all potential hazardous energy sources and locked out before authorized crewmembers perform any servicing or maintenance where the unexpected start-up of ships services, equipment or machinery or release of stored energy could cause injury. All crewmembers are required to comply with restrictions and limitations imposed upon them during the use of lockout. The authorized crewmembers are required to perform the lockout in accordance with this procedure. All crewmembers, upon observing ships service, equipment or machinery which is locked out to perform servicing or maintenance shall not attempt to start, energize or use the service, equipment or machinery.

1. Inform and obtain the approval of the Authorizing Officer (Engineering Watch Officer, Engineering Duty Officer or, if applicable, MILDEPT OIC for MILDEPT spaces) for all maintenance, repair or alteration of equipment, machinery or ship's systems that requires Lockout.

2. Review circuit schematics or systems diagrams as necessary to ensure all energy sources to the system being worked on are locked out.

3. If a Lockout will affect systems or equipment involving ship controls, operations and/or propulsion, notify the Chief Engineer. If a Lockout will affect the operation in other Departments (i.e., galley, ventilation), notify the appropriate Department Head.

4. Properly shut down the equipment per current MSC shipboard practices and instructions.

5. De-activate the energy source so that the system, equipment or machinery is isolated; ensure disconnection from the energy source(s), then verify the isolation of the equipment or system.

6. Lockout the energy source with the appropriate Lockout device and lock. Before securing the lock, install a completed MSC Danger Tag.

7. The locked out system shall be entered on the Lockout/Tagout Record Sheet. The Authorizing Officer shall verify and sign the record sheet before it is entered into the Lockout/ Tagout Log.

8. Stored or residual energy such as capacitors, rotating flywheels, hydraulic systems and air, gas, steam or water pressure, must be dissipated or restrained by methods such as grounding, repositioning, blocking or bleeding down.

9. **Small Task** is a minor electrical repair/maintenance task that does not affect ship's control, operations or propulsion, such as replacing light switches or light fixtures that can be accomplished with the electrician remaining at the equipment being serviced until work is completed. When small task electrical repair/maintenance is to be done, the job need not be entered in the Lockout/Tagout Log nor does the Authorizing Officer need to be notified. All other work requiring de-energizing circuits and/or involving mechanical components shall follow the entire Lockout procedure as described above.

10. When the servicing or maintenance is completed and the system, equipment or machinery is ready to return to normal operating condition, the following steps shall be taken:

a. Notify the Authorizing Officer when you will remove the locks and return the equipment, machinery or system to normal. Only the individual who installed the lock may remove it under this procedure. Under special circumstances, only the Master or Chief Engineer is authorized to remove someone else's lock.

b. Check the system, equipment or machinery and the immediate area, to ensure that nonessential items have been removed and that system, equipment or machinery components are operationally intact.

c. Check the space to ensure all persons have been safely positioned or removed from the area.

d. Verify that the controls are in neutral and that the system, machinery and equipment are properly lined up.

e. Remove the lock, Lockout device and Danger Tag, and re-energize the system, equipment or machinery.

f. Notify affected departments that servicing or maintenance is completed and system, equipment or machinery is ready for use.

g. Clear the Lockout action on the Lockout/Tagout Record Sheet. For multiple Lockout actions, only the lock that is being removed shall be logged as completed. If the Master or Chief Engineer removed and cleared someone else's Lockout, an explanation shall be made on the Lockout/Tagout Record Sheet.

ATTACHMENT 17-A-1

LOCKOUT EQUIPMENT

Item
¾ inch Padlocks
2 inch Padlocks
Labeled Multi Lockout Hasp
Gate Valve Lockouts 1-2.5 in
Gate Valve Lockouts 2.5-5 in
Gate Valve Lockouts 5-6.5 in
Gate Valve Lockouts 6.5-10 in
Gate Valve Lockouts 10-13 in
Small Lockout Ball Valve
Large Lockout Ball Valve
“No Hole” Circuit Breaker Lockout 480/600 Volt Device
“No Hole” Circuit Breaker Lockout 220 Volt Device
Multi Pole Breaker Lockout
Wall Switch Lockout
Small Plug Lockout
1 in. dia. jaw type Multi Lockout Hasp
MSC Lockout/Tagout Tags (MSC 5100/20)
MSC Lockout Labels (MSC 5100/21)

Large adjustable wall mounted cabinets with locking covers to house Lockout devices and locks are also suggested.

APPENDIX 17-B

MSC TAGOUT PROCEDURES

This procedure establishes the minimum requirements for tagging out energy isolating devices whenever maintenance or servicing is done on systems, equipment or machinery. Tagout will be used only when Lockout is not feasible.

1. Inform and obtain the approval of the Authorizing Officer (Engineering Watch Officer, Engineering Duty Officer or, if applicable, MILDEPT OIC for MILDEPT spaces) for all maintenance, repair or alteration of equipment, machinery or ship's systems that require Tagout.

2. Review circuit schematics or systems diagrams as necessary to determine that all energy sources to the system are tagged out.

3. If a Tagout will affect systems or equipment involving ship controls, operations and/or propulsion, notify the Chief Engineer. If a Tagout will affect the operation in other Departments (i.e., galley, ventilation), notify the appropriate Department Head.

4. Properly shut down the equipment per current MSC shipboard practices and instructions.

5. De-activate the energy source so that the system, equipment or machinery is isolated, ensure disconnection from the energy source(s), then verify the isolation of the equipment or system.

6. Attach a completed MSC Danger Tag. Tags shall be attached to all stations that are required to be secured. Tags shall not be attached to circuit breaker covers, valve caps or any other component which can be removed.

7. The tagged out system shall be entered on the Lockout/Tagout Record Sheet. Ensure all information is logged. The Authorizing Officer shall verify and sign the record sheet before it is entered into the Lockout/Tagout Log.

8. Stored or residual energy such as capacitors, rotating flywheels, hydraulic systems and air, gas, steam or water pressure, must be dissipated or restrained by methods such as grounding, repositioning, blocking or bleeding down.

9. There are no special provisions for **Small Tasks.** When using Tagout as a primary means for controlling hazardous energy sources, all persons, regardless of scope of the task, must use Tagout procedures noted above.

10. When the servicing or maintenance is completed and the system, equipment or machinery is ready to return to normal operating condition, the following steps shall be taken:

a. Notify the Authorizing Officer when you will remove the tags and return the equipment, machinery or system to normal. Only the individual who installed the tag may remove it under this procedure. Under special circumstances, only the Master or Chief Engineer is authorized to remove someone else's tag.

b. Check the system, equipment or machinery and the immediate area, to ensure that nonessential items have been removed and that system, equipment or machinery components are operationally intact.

c. Check the space to ensure all persons have been safely positioned or removed from the area.

d. Verify that the controls are in neutral and that the system, machinery and equipment are properly lined up.

e. Remove the tags and re-energize the system, equipment or machinery.

f. Notify affected departments that servicing or maintenance is completed and system, equipment or machinery is ready for use.

g. Clear the Tagout action on the Lockout/Tagout Record Sheet. For multiple Tagout actions, only that individual tag will be removed and noted on the Lockout/Tagout Record Sheet. In contrast to the red Danger Tag NAVOSH Tagout Program, MSC will close out the Tagout by signing the Lockout/Tagout Log and re-use the MSC Danger Tag. If the Master or Chief Engineer removed and cleared someone else's Tagout, an explanation shall be made on the Lockout/Tagout Record Sheet.

APPENDIX 17-C

MSC DANGER TAG

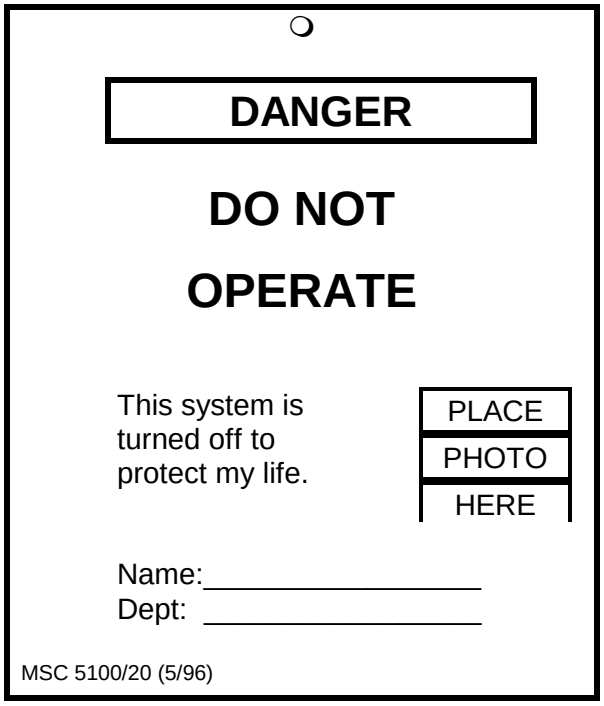
1. The MSC Danger Tag, (MSC 5100/20 (Rev 5-96)) is a reusable self laminating tag that shall be used for all MSC Lockouts and Tagouts. The tag shall be completed as follows.

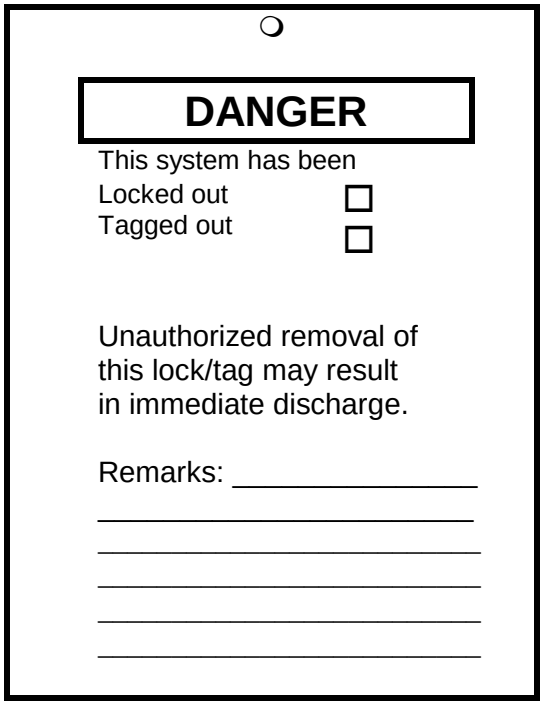
a. At a minimum, the crewmember's name and department shall be entered on the face of the tag and laminated with the tag's plastic covering to permanently protect the face. Crewmembers are encouraged to also place a photo ID picture in the space provided prior to laminating the face of the tag.

b. On the back of the tag, the user shall indicate whether Lockout or Tagout is being used by marking the appropriate box with an erasable grease pencil or other means. Any remarks are to be added in the remarks section, which must be readable and understandable.

c. Upon removal of the MSC Danger Tag when completing Lockout or Tagout, the back of the tag can be erased and reused.

2. MSC Danger Tag:





APPENDIX 17-D

MSC LOCKOUT BEFORE SERVICING LABEL

LOCK OUT
BEFORE SERVICING

MSC 5100/21

APPENDIX 17-E

SAMPLE LETTER OF APPOINTMENT AS LOCKOUT/TAGOUT AUTHORIZING OFFICER

USNS:_____
ENGINE DEPARTMENT

(Date)

From: Chief Engineer
To: Assistant Engineer(Watch)/Duty Engineer _____

Subj: LETTER OF APPOINTMENT AS LOCKOUT/TAGOUT AUTHORIZING OFFICER

Ref: (a) COMSCINST 5100.17C

1. You are appointed a Lockout/Tagout Authorizing Officer for the USNS _____. Your duties include:

a. Review the Lockout/Tagout Log at the beginning of each day and inform the Chief Engineer of any equipment, machinery or spaces locked-out/tagged-out during the course of the day.

b. Sign Lockout/Tagout Record sheets as required.

c. Review the nature of the work being planned and the proposed Lockout/Tagout with the individual performing the maintenance, repair or alternation to ensure that it does not adversely impact operations.

d. Verify and sign entries on the Lockout/Tagout Record Sheet for entry into the Lockout/Tagout Log.

e. Direct the individual performing the Lockout/Tagout to notify the appropriate Department Head if the Lockout/Tagout actions will affect systems or equipment operations in another department before performing the Lockout/Tagout actions.

f. Lockout/Tagout equipment/machinery, or systems that become inoperable due to casualty or malfunction during your watch and record the action in the Lockout/Tagout Log.

g. When necessary, verify a system line-up after maintenance, repair, or alteration has been performed.

h. Have actions cleared from the Lockout/Tagout Record Sheet.

2. This appointment is to remain in effect for the duration of your tour aboard the USNS _____.

_____
(Signature)

Copy to:
Master
Member
File

APPENDIX 17-F

LOCKOUT/TAGOUT RECORD SHEET

1. The Lockout/Tagout Record Sheet shall be used to record all Lockouts and Tagouts.

2. The Lockout/Tagout Record Sheet shall allow space for at least the following:

   a. Indication of whether lockout or tagout was used.

   b. Equipment being worked on that requires the lockout or tagout.

   c. Job supervisor/Authorizing Officer name

   d. Locking device/Danger Tag number

   e. Location where work is being done that requires lockout or tagout

   f. Name of individual who is performing the lockout or tagout

   g. The date the equipment/component/system was locked out or tagged out.

   h. The date the lock and locking device or Danger Tag was removed.

   i. The name, position and signature of the individual who performs the final system line-up following completion of the work and certifying the removal of all locks and/or Danger Tags.

LOCKOUT/TAGOUT RECORD SHEET
USNS _____

Check the primary means for controlling the hazardous energy source for this action ☐ **LOCKOUT** ☐ **TAGOUT**

1. Use this record sheet for recording the placement and removal of lockout devices and tags.
2. Upon completion of the required work, all lockout devices and tags will be removed and the appropriate record updated.

EQUIPMENT BEING WORKED:			**JOB SUPERVISOR/AUTHORIZING OFFICER:**		
LOCKING DEVICE/ DANGER TAG NUMBER:	**LOCATION:**	**APPLIED BY:**	**DATE LOCKED/ TAGGED OUT**	**DATE REMOVED**	**COMMENTS:**

NAME, POSITION AND SIGNATURE OF INDIVIDUAL CONDUCTING SYSTEM LINE UP FOLLOWING COMPLETION OF WORK CERTIFYING REMOVAL OF ALL LOCKING DEVICES AND/OR TAGS.

MSC 5100/19 (4-96)

APPENDIX 17-G

CAUTION TAG (Commercial)

1. Caution Tags may be obtained commercially. They are reusable tags that can be used to provide temporary special instructions or to indicate that unusual action must be used when operating machinery, systems or components. Caution tags **SHALL NOT** be used as a substitute for MSC Danger Tags. The tag shall be completed as follows:

a. The CIVMAR's name, department, date applied and the equipment the tag applies to shall be entered on the face of the tag.

b. On the back of the tag, the user shall indicate special instructions and/or precautions to be followed when operating the tagged equipment. Remarks must be readable and understandable.

c. Upon removal of a Caution Tag, the tag can be erased and reused.

2. Sample Caution Tag

CAUTION

DO NOT OPERATE THIS EQUIPMENT UNTIL SPECIAL INSTRUCTIONS ON REVERSE SIDE ARE THOROUGHLY UNDERSTOOD

EQUIPMENT APPLIED TO:

TAG APPLIED BY: **DATE**
DEPT: **APPLIED**

(Front Face)

CAUTION

DO NOT OPERATE THIS EQUIPMENT UNTIL SPECIAL INSTRUCTIONS BELOW ARE THOROUGHLY UNDERSTOOD

(Back Face)

CHAPTER 18

OCCUPATIONAL HEALTH

1801 DISCUSSION

a. Occupational health is primarily concerned with the health effects which are usually produced by long-term (chronic) exposure to toxic chemicals or harmful physical agents (e.g., noise, heat, radiation), ergonomic hazards (e.g., repetitive and prolonged activities, forceful exertions, awkward posture and excess vibration) and treatment of work related injuries. Since many hazardous agents can produce acute and chronic effects (including death) depending on the nature and degree of exposure, this area requires equal attention with safety in Afloat Safety and Occupational Health Program management.

b. Occupational health involves:

(1) Industrial hygiene that is the art and science of the recognition, evaluation and control of occupational health hazards. Through the MSC Force Medical Officer, an Industrial Hygienist will conduct a baseline industrial hygiene survey on each assigned ship and will resurvey each ship when significant changes occur to shipboard equipment, procedures and/or ship mission upon MSC request. This is further accomplished by surveillance of the workplace through inspections by MSC Safety Specialists each 12 months (see Chapter 2 - Inspections and Hazard Reporting). In addition to inspection, measurements of physical agents such as noise and health stress and of chemical materials may be made to determine the extent of personnel exposures. See Chapters 2, 7, 9, 12, 14 of this manual and OPNAVINST 5100.19C.

(2) Medical surveillance provides identification and documentation of existing conditions and early detection of occupational diseases. The intent is to provide an early warning so that personnel exposures may be limited before significant problems develop. Medical screening also helps verify the physical qualifications required for performance of certain duties.

1802 PROCEDURES

a. Program Managers, per Chapter 2, shall arrange through the Medical Officers (East/West) for an industrial hygiene survey to be conducted every 18 months or when significant changes occur, whichever occurs first.

b. The APMC shall provide all hands training identified in paragraphs 1803a and 1803b.

c. The MSO shall:

(1) Identify personnel who require medical surveillance from the requirements of this manual (see Appendix 18-A for a summary of medical surveillance requirements), from the industrial hygiene survey and from the Medical Surveillance Procedures Manual and Medical Matrix (NEHC-TM91-5). Medical surveillance shall be conducted for job certification and/or recertification of fitness for duty and certain job specific activities such as use of respiratory protection. Medical surveillance shall also be conducted to monitor the effectiveness of hazard specific programs.

(2) Make all arrangements for medical examinations to support medical surveillance requirements. These examinations include baseline, periodic, termination, certification and special examinations. All examinations shall be performed at a BUMED shore activity.

(3) Ensure that the results of medical examinations and personnel exposure records are entered into each individual's medical record. Maintenance, retention and disposition of personnel medical records shall be per existing directives.

(4) Inform personnel as to the significance of findings of examinations (or refer the individual to a doctor if unable to do so). Access to personal medical records shall be provided to the individual, upon request.

d. Back Injury Prevention

(1) Navy studies indicate that a significant amount of at-sea lost workdays are from back injuries and account for 20 percent of MSC injuries. Back problems result in pain, lost work time, inconvenience (to the individual and the Navy) and lifelong disability. The back is the most injury-prone part of the body and as a result, most personnel will suffer back pain at some time in their lives. Preventing back injury is easier than correcting it.

(2) In order to reduce afloat back injuries, the following actions shall be taken by the ship’s force:

(a) Conduct back injury prevention training per paragraph 1803a.

(b) Investigate and determine the cause of back injuries per the guidance in Chapter 5. Develop appropriate corrective action to reduce future injury to personnel from the identified cause(s). Such corrective action could include training on lift methods for heavy loads, reduction of load weight by breaking up loads into smaller packages and modification of processes being used to avoid twisting when lifting or carrying a heavy load.

e. Ergonomics is the study of the relationship between the worker and the working environment and adapting the working environment to reduce cumulative trauma disorders or repeated biomechanical stress, such as repetitive motion injury, occupational overuse syndrome and repetitive strain injury. This would involve damage to tendons, tendon sheaths and related bones, muscles and nerves of the hands, wrists, elbows, shoulders, necks and back and may be diagnosed as carpal tunnel syndrome, tennis elbow or tendinitis. Such disorders have increased in the private sector over the past several years and can be expected to increase within the Navy as well. In order to reduce the occurrence of cumulative trauma disorders, the following actions shall be taken:

(1) Investigate and determine causes of cumulative trauma disorder injuries per Chapter 5.

(2) During Safety Assist visits, screening surveys are recommended to identify workstations or work procedures where ergonomic hazards can be reduced and corrective action developed. Such action could include wrist supports for computer equipment, extra padding for using vibration equipment, rotating workforce exposure, changing the work platform.

(3) Conduct training per paragraph 1803b.

1803 TRAINING

a. Back injury prevention training shall be conducted as a part of the MSC 2-day OSH Course. Such training shall include as a minimum:

(1) Causes of back injury

(2) Exercise programs to prevent back injury

(3) Back injury prevention on and off the job

(4) Lifting techniques

(5) Back injury care

b. Ergonomic awareness training shall be conducted as a part of the MSC 2-day OSH Course. Such training shall include as a minimum:

(1) Ergonomics definition

(2) Cumulative Trauma Disorders

(3) The varieties of cumulative trauma disorders, causes, early symptoms, means of prevention and treatment

(4) Ergonomics of hand tools

(5) Ergonomic hazard identification

c. All CIVMAR personnel shall receive annual onboard refresher training on back injury and ergonomics covering the topics of paragraphs 1803a and 1803b.

d. The following resources are available for use as a part of this training:

(1) MSC Back Injury Prevention (video tape)

(2) Back to Basics (video tape) (PIN 805580-DN)

(3) U.S. Navy Way to a Healthy Back (booklet) (NSN 0506-LP-800-0780)

(4) About Back Problems (booklet) (NSN 0506-LP-800-0070)

CHAPTER 18 - REFERENCES

18-1	OPNAVINST 5100.19C	Navy Occupational Safety and Health Program Manual (NAVOSH) for Forces Afloat
18-2	COMSCINST 6000.1C	MSC Medical Manual
18-3	Naval Environmental Health Center Technical Manual, NEHC-TM91-5 - Medical Surveillance Procedures Manual and Medical Matrix	
18-4	Naval Environmental Health Center Technical Manual, NEHC-TM91-2 - Industrial Hygiene Field Operations	

APPENDIX 18-A

SUMMARY OF MEDICAL SURVEILLANCE REQUIREMENTS

1. **Asbestos** (Chapter 6)

Personnel who work with or must be in the vicinity of operations involving asbestos (e.g., the emergency asbestos repair team) shall be enrolled in an Asbestos Medical Surveillance Program (AMSP). These persons shall receive a preplacement examination, annual physical examinations and a termination evaluation.

2. **Hearing Conservation** (Chapter 9)

Personnel who are required to work in designated noise hazardous areas shall be entered into a hearing testing program. Baseline hearing tests shall be conducted prior to initial exposure, and hearing tests shall be conducted in accordance with COMSCINST 6000.1C thereafter as a part of the mariner's scheduled physical examination while exposed to hazardous noise. A hearing test shall be conducted at termination of employment.

3. **Respiratory Protection** (Chapter 12)

Personnel required to wear a respirator as a part of their work assignments shall be medically evaluated prior to respirator wear and at a frequency dependent upon age thereafter (every 5 years before age 35; every 2 years between 35 and 45 and annually over age 45). Such an evaluation can be conducted by the ship's MSO, if a doctor or nurse.

4. **Radiation Protection** (Chapter 15)

Preplacement or baseline, periodic and situation medical surveillance of personnel who work with RF equipment capable or creating hazardous exposure levels shall be conducted per NAVMEDCOMINST 6260.3. Equipment and personnel aboard MSC ships capable of generating or receiving such exposures should be identified by COMSC.

5. **Lead** (OPNAVINST 5100.19C, Chapter B10)

Preplacement medical evaluation, blood level monitoring and follow-up medical evaluation based on the results of blood lead analysis, worker complaint and physician opinion. Personnel are included 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 Action Level (30 micrograms per cubic meter (ug/m^3) 8-hour time weighted average exposure) 30 days per year. Inclusion in this program is based on measured airborne concentrations without regard to respirator use and therefore does not indicate that an individual is overexposed to lead. Medical surveillance shall be conducted by a BUMED activity.

CHAPTER 19

TRAFFIC SAFETY

1901 DISCUSSION

a. Motor vehicle mishaps have long been the prime cause of accidental deaths to Navy personnel. Many others suffer injuries that prevent them from returning to the work force. Motor vehicle related deaths and injuries are too costly, both in terms of money and human resources. MSC operational readiness depends upon its people, and this readiness degrades with any needless loss of life and limb.

b. The guidance in this chapter applies to mariners at all times while assigned to the ship, whether operating or riding as a passenger in a motor vehicle, government or privately owned.

1902 PROCEDURES

a. Safety Officer shall:

(1) Ensure that all ship's vehicles are equipped with safety belts and that personnel assigned to drive a ship's vehicle wear the safety belt at all times the vehicle is in motion. Leadership by example is an important part of traffic safety program effectiveness.

(2) Provide a safety briefing on in-country traffic patterns before liberty in each new port.

(3) Ensure that all motor vehicle accidents involving a ship's vehicle or ship's personnel while in a duty status or involving ship's personnel (operator, passenger or pedestrian) occurring on a naval activity, are investigated and reported per Chapter 5.

b. Department Heads shall investigate all motor vehicle accidents concerning assigned personnel.

c. All hands shall:

(1) Operate or ride in a Navy or private vehicle only when wearing fully operative safety belts.

(2) Only ride in the cargo area of a Navy or private vehicle if permitted by state or local laws and the vehicle is equipped with safety belts in the cargo area.

(3) If the operator of a Navy or private motor vehicle, ensure that all passengers are wearing safety belts.

(4) Not wear portable headphones while driving a Navy or private vehicle.

d. Operators of vehicles on a naval activity shall not have an open container of an alcoholic beverage in their possession.

e. Individuals shall not be authorized to operate Navy motor vehicles during the following:

(1) Periods of suspension or revocation of operator's license by any state or host nation

(2) Periods while naval activity driving privileges are suspended or revoked for driving under the influence of alcohol or other drugs and/or other traffic violations which constitute a "moving violation" of base, state, Federal or host nation traffic codes.

f. If operating a motorcycle, the following requirements shall be complied with:

(1) Operators shall have successfully completed the Motorcycle Safety Foundation's Motorcycle Rider Course, Riding and Street Skills or other training approved by the Naval Safety Center. The operator shall have a safety course completion card signed by an approved instructor.

(2) Operate the motorcycle with headlights turned on at all times (except where prohibited by state, local or Status of Forces Agreements [SOFAs] laws).

(3) Operate the motorcycle while wearing the following equipment:

(a) A properly fastened protective helmet that meets Department of Transportation standards.

(b) Properly worn eye protective devices that are defined as impact or shatter resistant eyeglasses, goggles or faceshield attached to the helmet. A windshield or fairing is not considered proper eye protection.

(c) Properly worn long sleeved shirt or jacket, long-legged trousers and full-finger leather or equivalent gloves.

(d) Properly worn hard sole shoes with heels.

(e) Properly worn (as outer garment) yellow or orange vest with 1 1/2" to 2" wide vertical or horizontal retro-reflective stripes, front and back.

1903 TRAINING

Mariners shall receive traffic safety training as part of the MSC 2-day OSH Course. Shipboard traffic safety briefs shall be conducted prior to return to the ship's homeport after an extended deployment.

CHAPTER 19 - REFERENCES

19-1	OPNAVINST 5100.19C	Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
19-2	OPNAVINST 5100.12F	Traffic Safety

CHAPTER 20

RECREATION, ATHLETICS AND HOME SAFETY

2001 DISCUSSION

a. Every year, many Navy personnel participating in recreation, athletics and home activities are accidentally injured or killed. Naval Safety Center statistics reveal that for every on-duty mishap, there is another off-the-job injury. Recreational mishaps are second only to motor vehicle mishaps as the leading cause of death for off-duty Navy personnel. More lost time and permanent loss occur due to injury mishaps off-duty than on-duty.

b. Nearly all recreation, athletics and home mishaps are due to human error. There are three commonly observed cause factors of these types of mishaps:

(1) Lack of knowledge

(2) Inattention or distraction

(3) Intentional violation of safe practices

c. Many recreational injuries can be avoided by safe design of shipboard recreational facilities, regulations concerning use of recreational facilities and periodic evaluation of these facilities. Athletic injuries can be prevented by training and the provision of protective equipment. Most athletic injuries result from poor conditioning and little or no warm-up prior to an activity. Mishaps at home can be prevented. A safe attitude on the job needs to be extended to the home and to off-duty hours.

d. The Navy Recreation, Athletics and Home Safety Program, OPNAVINST 5100.25B, applies to all Navy military personnel assigned to MSC ships at all times and to all CIVMARs who participate in command sponsored events or participate in recreational or athletic activities on government property and/or using government equipment.

2002 PROCEDURES

a. The Master shall:

(1) Ensure that any recreational and athletic equipment purchased for use by shipboard personnel conforms, as applicable, with safety guidelines established by

recognized consensus, such as American National Standards Institute (ANSI) for tools and the Consumer Product Safety Commission for other recreational equipment. The Naval Safety Center can be contacted for consensus standard information.

(2) Inspect ship recreational facilities at least annually. Noted deficiencies shall be corrected or added to the Voyage Repair Log per the guidance provided in Chapter 2.

(3) Report off-duty recreation, athletic or home mishaps per Chapter 5 and OPNAVINST 5100.19C, Chapter A6.

b. Safety Officer shall:

(1) As appropriate, address recreation, athletic and home mishap problem areas at the Safety Council.

(2) Ensure that proper personal protective equipment is available and used when MSC personnel are either using government property for recreational purposes or are participating in ship-sponsored events. For example, if the ship has racquetball equipment available for mariner use ashore, the issue facility should also provide protective eyewear to racquetball players.

(3) Obtain appropriate training on recreation, athletic and home safety for presentation to shipboard personnel. Such training may be appropriate prior to returning to homeport following a deployment or prior to ship-sponsored recreational or athletic events. This training shall include hazard awareness training, qualification training and the affect of alcohol on recreation, athletic and home activities. See OPNAVINST 5100.25B for information on training.

c. All hands shall:

(1) Wear appropriate personal protective equipment when using shipboard recreation and athletic gear.

(2) Report all worn, damaged or missing recreational gear.

2003 TRAINING

a. All hands shall take advantage of training available prior to participating in recreational activities or athletic events. The best way to prevent injury is to know the hazards associated with an activity.

b. All hands shall receive recreation, athletics and home safety training as part of the MSC 2-day OSH course. Topics may include, but not be limited to, water sports safety, physical fitness, sport specific (flag football, softball, racquetball, basketball, etc.) home safety and substance abuse.

c. All CIVMAR personnel shall receive annual onboard refresher training on recreational, athletic and home safety covering the topics of paragraph 2003b.

CHAPTER 20 - REFERENCES

20-1	OPNAVINST 5100.19C	Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
20-2	OPNAVINST 5100.25B	Navy Recreation, Athletics and Home Safety Program

CHAPTER 21

SURFACE SHIP SAFETY AWARDS

2101 DISCUSSION

a. The Surface Ship Safety Awards recognize outstanding contributions to MSC Fleet readiness, increased morale and efficient, economical use of resources through safety. In addition to an outstanding safety record, ships selected for the award must have an aggressive safety program which actively contributes to increased mishap prevention for the general benefit of the surface ship community. Of particular importance is comprehensive and professional safety reporting as required by this manual. The safety award will be issued in the following categories:

(1) Naval Fleet Auxiliary Force - Large, which will include ship classes T-AE and T-AFS.

(2) Naval Fleet Auxiliary Force - Oilers, which will include ship class T-AO.

(3) MSC CIVMAR Operated - Small, which will include Special Mission ship classes T-AG, T-AGM and T-ARC; and NFAF ship classes T-ATF and T-AH.

b. Ships will be nominated from both East and West areas in all three categories. An overall winner in each category will be determined by COMSC.

c. The competitive cycle for the award is 18 months, commencing 1 April 1997.

2102 PROCEDURES

a. Area Safety Offices shall nominate one ship in each category by letter and submit within 30 days of the completion of the competitive cycle to COMSC (N00S).

b. The criteria for evaluation of the Surface Ship Safety Program is:

(1) Inspection results from Command Inspections, Ship Material Assessment Readiness Testing (SMART) and safety assists.

(2) Review of the ship’s Federal Employee Compensation Act Loss Time Case rates covering the competitive cycle.

c. COMSC (N00S) shall evaluate all nomination for each category and submit its recommendations to COMSC within 60 days of the end of the competitive cycle. Upon approval, COMSC will announce the winner.

d. Winning ships are allowed to display the green "**S**" (for safety) on their bridge bulwark following the guidelines of NSTM, Chapter 631-9. Authorization will extend through the competitive cycle subsequent to the one for which the award was issued. A Surface Ship Safety Award plaque shall be provided for display and presented at an appropriate ceremony.

e. Winners and runner-ups will be recognized for their accomplishments by COMSC message.

CHAPTER 21 - REFERENCES

21-1 NSTM, Chapter 631, Preservation of Ships in Service

CHAPTER 22

SAFETY STAND-DOWN

2201 DISCUSSION

a. On occasion, safety indicators, such as increasing numbers of identified hazards or deficiencies, increasing numbers of personnel injuries, severe mishaps or near-mishaps or a lack of or decreased training due to operations may warn of significant future safety problems for the command. At these times, or whenever it is necessary to raise the level of awareness of personnel safety, the command should initiate a safety stand-down. During a safety stand-down, normal ship's work is curtailed (except for emergency corrective repairs), and a concerted effort is made to correct safety deficiencies or train personnel on safety, particularly on matters pointed out in mishap/near-mishap investigations. Commands should consider safety stand-downs following a safety evaluation to train on or correct deficiencies identified during that evaluation. Commands shall conduct safety stand-downs at the discretion of the Master or Program Manager.

b. A safety stand-down is designed to improve a ship's safety posture and prevent accidents and/or damage through a dedicated period of special activities. A second objective is to generate all hands involvement in continuing safety awareness.

c. Planning is an essential element to get the maximum benefit from a safety stand-down. The Naval Safety Center publication, *Safety Stand-down*, may be used as an aid in planning and accomplishing the safety stand-down. A safety stand-down may be held in conjuncture with a planned safety assist visit that’s conducted by a MSC Safety Specialist.

2202 PROCEDURES

a. Program Managers shall:

(1) Direct a safety stand-down when shipboard incidents or mishaps focus on a compromise of procedures and practices necessary to ensure safety onboard MSC ships.

(2) Direct safety stand-downs on contract-operated ships within the following guidelines:

(a) Safety stand-downs should not interfere with meeting operational commitments or carrying out required maintenance and should be conducted within normal working hours.

(b) Safety stand-downs should not require any actions outside the requirements of operating contracts and therefore should incur no additional expense to the government.

b. The Master shall report the results of completed safety stand-downs, including lessons learned, in the ship's weekly operations summary report and the monthly Safety Council meeting minutes.

c. The Safety Officer shall:

(1) Assume overall coordination of the stand-down. Publish advanced notice of the stand-down. Publish a schedule of events for the stand-down in sufficient time prior to the commencement of the stand-down to allow for adequate preparation.

(2) Conduct a debriefing session with Department Heads following the stand-down.

(3) Evaluate the effectiveness of the stand-down. Provide a briefing for the Master on activities accomplished and lessons learned as a result of the stand-down. Prepare the written report to the Program Manager.

d. Department Heads shall:

(1) Accomplish training and evolutions per the published schedule.

(2) Provide a status of accomplishment and lessons learned to the Safety Officer upon completion of the stand-down.

e. The MSO shall:

(1) Provide an input to stand-down planning.

(2) Assist Department Heads in occupational health training.

f. Areas that should be addressed during the stand-down include:

(1) Respirator training, including fit testing.

(2) Eyewash facilities.

(3) Climber safety, working aloft procedures and safety harnesses.

(4) Installed and portable firefighting systems (including alarms).

(5) Hazardous material stowage, flammable liquid stowage and paint locker.

(6) Flange shields for fuel and oil systems.

(7) Heat stress and hearing conservation.

(8) Cleanliness and operation of ship ventilation systems.

(9) Shipboard hazardous material/hazardous waste control and management.

(10) A hazardous material sweep of the ship.

(11) Handrail, lifeline and safety chain inspection.

(12) Repair locker inventory; ensure equipment is on-hand and operationally ready for emergency use.

(13) Flight/hangar deck procedures, LSE and LSO procedures and helo bill review.

(14) Signal bridge training and low visibility navigation and piloting training.

(15) Review of ship's bills including search and rescue, fire bill, flooding bill, man overboard, etc.

(16) Electrical safety and battery maintenance.

(17) Damage control and firefighting techniques; cross training of repair parties.

(18) Boat safety, boat crew training and boat inspections.

(19) Lockout/Tagout procedures.

(20) Sewage treatment hazards.

(21) First aid training.

(22) Conveyor, elevator and fork lift truck safety.

(23) Heavy weather procedures and preparations.

g. Follow-on actions which shall be accomplished as a result of the stand-down, include:

(1) Identification of all safety items beyond ship's capability to correct.

(2) Formulation of a safety deficiency correction plan of actions and milestones (POA&M).

CHAPTER 22 - REFERENCES

22-1 OPNAVINST 5100.19C Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat

22-2 Navy Safety Center Publication, *Safety Stand-downs*

CHAPTER 23

SHIPBOARD EGRESS ROUTES

2301 DISCUSSION

During the last 25 years, there have been ship casualties in which ships involved have lost total power and emergency lighting. This resulted in a hazardous condition for crewmembers escaping to safety. Although requirements exist to provide illuminated exit signs on all doors along egress routes in the interior of the ship, in the casualties noted, the loss of electrical power resulted in no illuminated visual escape markings during the crisis. With the development of photoluminescence (PL) marking material, the hazardous conditions created by a sudden blackout and accompanying loss of power, can now be overcome by placement of photoluminescence exit markings along egress routes. PL material contains a chemical (i.e., zinc sulfide) that has the quality of storing energy when illuminated by visible light. The PL material emits light that becomes visible if the light source is turned off. Without the light source to re-energize it, the PL material gives off the stored energy for a period of time with diminishing luminance. The purpose of placing signs on the bulkhead, within 6 to 23 inches of the deck, is to ensure continued visibility even during heavy fire and smoke conditions. Smoke collects in the overhead and obscures signs placed at eye level. (R

2302 PROCEDURES

a. Masters shall mark escape routes and exits with photoluminescence exit decals as described below:

(1) **EXIT** signs shall be posted on doors, hatches which open directly to the safety of the weather deck.

(2) The bottom edge of **EXIT** signs and arrows are to be located on the adjoining bulkhead no lower than 6 inches above the deck or higher than 23 inches. Where more than one sign is required in the same location, the top of the highest sign is to be no higher than 30 inches above the deck. See Appendix 23-A.

(3) **EXIT** signs with arrows are to be located within 5 feet of each access (door, hatch) to a compartment, except where the access opens directly to the weather deck. The arrow direction is to indicate the nearest egress route to the weather deck area (e.g., main deck, helo deck). Subsequent **EXIT** signs and arrows are to be no more than 15 feet (recommend 10 feet) apart within the same compartment and at the foot of each ladder.

(4) All **EXIT** signs/arrows are to be on the same side of the compartment or passageway insofar as practical and are to be located in areas that receive direct lighting for optimum photoluminescence excitation and ease of viewing from the surrounding area.

(5) Double directional arrows **EXIT** signs (←**EXIT**→) are to be used in areas where an athwartship passage will provide access to egress routes to weather deck in either direction.

(6) In compartments having dual egress routes through the space, both routes are to be marked.

(7) Signs reading **"NO EXIT"** are to be placed where easily seen in blind or dead end passageways that, if entered, could prevent egress by personnel unfamiliar with the particular location.

(8) Ordering information for Emergency Egress Markers can be found in the Shipboard Safety Equipment Shopping Guide.

b. Department Heads shall ensure through instruction and drill that all crewmembers of his department are familiar with all escape routes from their work spaces and living areas. Identification should include specific stairways, ladders and exits to be used.

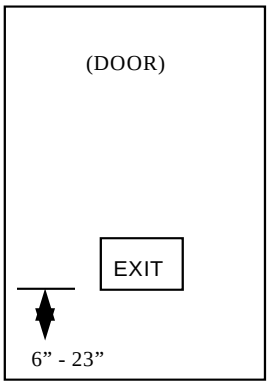
CHAPTER 23 - REFERENCES

23-1 NSTM, Chapter 079, Volume 2

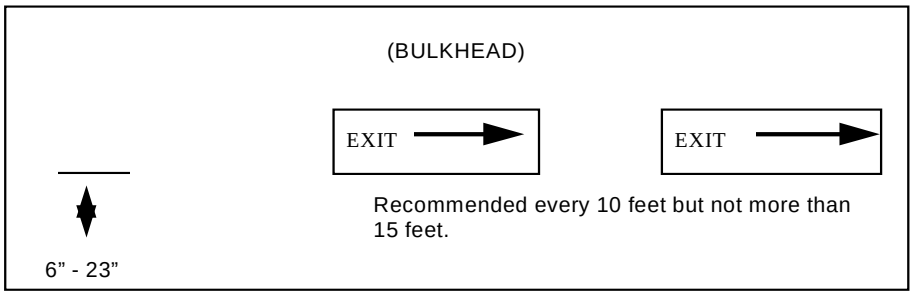
APPENDIX 23-A

EXIT ROUTES DESIGNATION

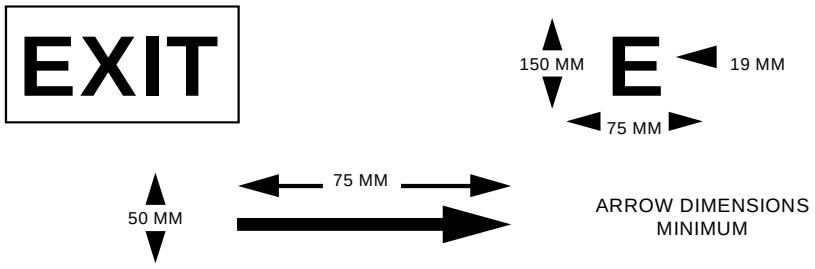
MARKING FOR DOORS, HATCHES LEADING DIRECTLY TO WEATHER DECKS



MARKING INTERIOR PASSAGE WAYS LEADING TO WEATHER DECK EXITS



EXIT SIGN LETTERING



CHAPTER 24

POLYCHLORINATED BIPHENYLS

2401 DISCUSSION

a. Navy policy is to minimize the exposure to polychlorinated biphenyls (PCBs) by substitution with non-PCB containing materials, using engineering and administrative controls and using appropriate personal protective equipment (PPE).

b. Insulating fluids within transformers and capacitors may be a source of PCBs aboard ship. However, PCB - impregnated felt material was extensively used as acoustical damping material and as ventilation duct gaskets, machinery mounts insulation and electrical insulation aboard Navy ships. Ventilation duct gaskets should be assumed to contain PCBs. Also, PCBs may be found as a fire retardant in many materials used in construction of Navy ships where stock of PCB material purchased prior to 1979 when the PCBs were banned. Some examples of shipboard material which may contain PCBs include:

(1) Sound dampening on reduction gears

(2) Electrical cable insulation

(3) Foam hull insulation

(4) Rubber used as banding and sheet rubber for cableways, pipe hanger liners, isolation mounts and vent gaskets

(5) Packing and grommets for electrical cable stuffing boxes

(6) Pipe insulation and lagging

c. Occupational exposures of PCBs may arise from processes involving the material mentioned in paragraph 2401b above, such as removing PCB-impregnated felts or gaskets, working with electrical equipment with fluids containing PCBs and the cleaning of ventilation systems containing PCB felt gaskets (where PCBs may be present in the dust).

2402 PROCEDURES

a. The Master shall establish an effective PCB control program.

b. The Safety Officer shall:

(1) Request the Industrial Hygienist to evaluate the ship during baseline IH surveys and/or IH resurveys for potential hazards from PCBs and determine appropriate controls to be applied.

(2) Verify that the ship has the proper clothing and equipment aboard to protect personnel during work with PCBs or PCB-containing materials.

c. Department Heads shall:

(1) Ensure that any PCB-containing electrical or electronic components are properly marked.

(2) Ensure that personnel who may be required to work with PCB-containing materials are properly trained on handling and disposal procedures per paragraph 2403 and are provided with the appropriate PPE.

(3) Ensure that personnel assigned to duties of cleaning dust from ventilation system interiors are properly trained on handling and disposal procedures per paragraph 2403 and are provided with the appropriate PPE.

d. When working with systems or equipment that are known or suspected to contain PCBs (e.g., cleaning ventilation ducts), all hands shall:

(1) Protect against skin absorption. PPE appropriate for use when handling PCB-contaminated or PCB-impregnated materials is listed in Appendix 24-A.

(2) Properly dispose of PCB-containing materials per the procedures listed in Chapter 8.

e. With the exception of ventilation duct cleaning, work involving known or potential PCB-containing materials shall normally be accomplished in port. Industrial hygienist assistance shall be obtained prior to such action.

f. Do not place PCB-impregnated materials, such as insulating felts, or articles that contain liquid PCB solutions in direct contact with deck or equipment surfaces. If contact or spills occur, immediately clean up contact or spill surfaces to avoid the possibility of secondary surface contamination.

g. Hot work shall not be performed in the immediate area of work performed with PCBs or PCB-containing material. Hot work on ventilation systems components, including welding, torch cutting, brazing, grinding and sawing should not be performed within 12 inches of either side of a flange containing felt gaskets.

h. PCB-containing waste, scrap and debris; dust collected from ventilation systems known or suspected of containing PCB-impregnated felt gaskets; and PCB-contaminated clothing shall be collected and disposed of in sealed impermeable containers and labeled with the label described in Appendix 24-B. Appropriate containers include polyethylene-lined steel cans or plastic-lined steel drums with bung and vent/removable cover.

i. Removal of known PCB-containing material (i.e., PCB-impregnated felt) for operational purposes while at sea requires the use of at least a half-face respirator fitted with a high efficiency particulate air (HEPA) filter.

2403 TRAINING

The required training for PCB awareness is a follows:

a. Personnel who are required to perform work on known or suspected PCB-containing materials (including ventilation cleaning in systems known or suspected of employing PCB-containing gaskets) shall be trained on the following subjects prior to such work:

(1) PPE to be used in performing the work

(2) Personal hygiene practices to follow after completion of work

(3) Disposal procedures for PCB-containing materials

(4) Spill prevention and cleanup procedures

b. If known sources of PCB-containing felt or other materials are present onboard ship, all hands should be made aware of these sources and precautions to be followed prior to any work that would disturb the material.

CHAPTER 24 - REFERENCES

24-1 OPNAVINST 5100.19C Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat

24-2 NAVSEA S9593-A1-MAN-010, Shipboard Management Guide to PCBs

APPENDIX 24-A

PERSONAL PROTECTIVE EQUIPMENT (PPE)

1. Personnel engaged in handling PCB-contaminated or PCB-impregnated materials (such as opening and restoring a felt containing ventilation duct joint or replacing the felt material within the joint, during which skin contact with PCBs is considered probable, shall wear the following:

a. Nitrile or viton^{R} gloves

b. Face shields, vented chemical type goggles or other appropriate eye protective equipment wherever the possibility of eye contact exists.

2. Dust removal operations (either with the NAVSEA Duct Cleaning System or with manual tools) within shipboard ventilation systems, either known or suspected of containing PCB-impregnated gasket material, require the use of the following personal protective clothing.

a. **Gloves**. Latex gloves inside, covered by nitrile or viton^{R} gloves. If coveralls are worn, gloves should be taped to coveralls. If conducting a visual inspection in which joints will be broken, but no cleaning will be accomplished, the nitrile or viton^{R} gloves shall be used.

b. **Safety goggles** or face shield

c. **Disposable coveralls**. Tyvek^{R} with attached booties and hood. Coveralls need only be worn if the duct is physically large enough for bodily entry and will be entered.

3. After ventilation cleaning work in which full personal protective clothing (coveralls) are worn, the following procedures shall be used to remove such clothing:

a. Wipe any dust or debris remaining on the PPE using a wet rag. Place the rag in a plastic bag for disposal.

b. Remove the tape and outer gloves and place in a plastic bag for disposal.

c. Unzip coveralls and step out by turning the coveralls inside out. Place the coveralls in a plastic bag for disposal.

d. Remove goggles and face shield. Clean goggles and faceshield.

e. Remove the latex gloves and place in a plastic bag for disposal.

APPENDIX 24-B

LARGE PCB LABEL

CAUTION

CONTAINS

PCBs

(Polychlorinated Biphenyls)

A toxic environmental contaminant requiring special handling and disposal in accordance with U.S. Environmental Protection Agency Regulations 40 CFR 761-For Disposal Information contact the nearest U.S. E.P.A. Office.

In case of accident or spill, call toll free the U.S. Coast Guard National Response Center: 800:424-8802

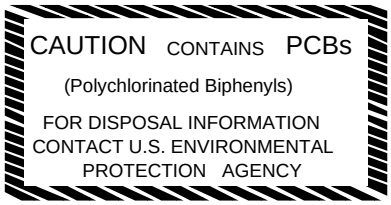
Also Contact: _____

Tel. No.: _____

This label is available in the following sizes:

Size	Stock Number
6" x 6"	**0116-LF-050-9030**
4" x 4"	**0116-LF-050-9020**

Small PCB Label



This label is available in the following size:

Size	Stock Number
1" x 2"	**0116-LF-050-9010**

CHAPTER 25

FORKLIFT SAFETY

2501 DISCUSSION

There is potential for property damage and personnel injury when using forklifts, especially when handling ammunition, explosives or hazardous materials. It is therefore imperative that all safety precautions and regulations pertaining to forklifts be strictly applied and adhered to.

2502 PROCEDURES

a. The APMC shall ensure that CIVMARs designated as forklift operators be provided the training identified in paragraphs 2503a and 2503b.

b. The Cargo Officer shall:

(1) Ensure that all CIVMARs who will operate forklifts have a valid Mechanical Handling Equipment (MHE) Operators permit card.

(2) Ensure that all forklift operators are properly trained per paragraph 2503.

(3) Complete pre- and post- operational inspections with a licensed qualified operator for the forklift.

(4) Ensure PMS is performed on MHE.

(5) Brief forklift operators daily on proper handling procedures and update personnel on any special handling requirements according to load type.

c. Forklift operators shall:

(1) Possess a valid MHE Operators permit card (issued by the ship) and a valid government (SF-46 License) and/or state driver's license to operate self-propelled forklifts.

(2) Accomplish pre- and post- operational inspection and submit a complete NAVSUP Form 1280, found in Appendix 25-A, to the Cargo Officer.

(3) Wear all personal protective equipment specified by the types of materials being handled including head, foot, eye and skin protection. At a minimum, a hard-hat and safety shoes are required during operation of the forklift.

(4) Return forklifts to their proper storage position and tie it down at the end of the workday or upon completion of task. Equipment shall not be turned over to any other personnel.

(5) Obey all safety procedures outlined during forklift training. Operating and safety procedures are found in Appendix 25-B.

d. Overhead guards shall be installed on all forklift trucks. Exceptions are permitted only when the overhead guard increases the overall height of the equipment to an unacceptable degree (i.e., the height of the guard is greater than the overhead clearance in the space being worked). The Master shall provide written authorization with justification for the guard removal. A copy of this authorization shall be kept with the MHE history file.

e. For forklift trucks equipped with back up alarms, the alarm is designed to sound when the forklift truck is in reverse gear with accelerator pedal depressed. The alarm will not sound when coasting or rolling. When backing, operators shall refrain from coasting and maintain positive control of the accelerator and brake.

2503 TRAINING

a. MHE operators must be certified prior to operating forklifts. Certification includes a medical examination per Article 15-71B of NAVMED P-117 and equipment training.

b. Operators must pass the Forklift and Pallet Truck Operator's Explosive Handling course TC-1001.

c. Certification is valid for 2 years. To be recertified,

(1) Operators must satisfy the medical requirements.

(2) Operators must demonstrate to the Cargo Officer their proficiency in handling forklift trucks for which they are licensed.

d. Record of training shall be documented and submitted to effect service record entries and licensed individuals.

CHAPTER 25 - REFERENCES

25-1 NAVSEA SW023-AH-WHM-010 (Formerly OP 4098), Handling Ammunition, Explosives and Hazardous Materials with Industrial Materials Handling Equipment (MHE)

APPENDIX 25-A

NOTICE OF UNSATISFACTORY OPERATION (10490) (MATERIALS-HANDLING EQUIPMENT) (NAVSUP FORM 1280 95-66)	DATE
TO BE CHECKED DAILY BY OPERATOR 1. Fuel, coolant and crankcase oil level; also all battery connections and filler caps, *visually*. 2. Tires; availability of tools and safety equipment; external condition. 3. Operation of lights, brakes, windshield wipers, gages, horn, hour meter and controls. **NOTE: DISCARD FORM WHEN ACTION IS COMPLETE.**	REGISTRATION NO. (USN)

SHIFT HR-METER READINGS	
END	
START	
DIFF.	

Use this form when inspecting equipment before and after operation. *Check (ü) in appropriate box(es) to indicate that servicing by maintenance personnel is required.*		START		FINISH	
		O.K.	BAD	O.K.	BAD
1	Tires				
2	Oil				
3	Water				
4	Battery				
5	Engine/motor				
6	Arcing of visible contactors *(Check visually)*				
7	Lights				
8	Horn				
9	Hoist				
10	Tilt				
11	Transmission/clutch				
12	Controls				
13	Brakes				
14	Steering				
15	Battery-charging unit				
16	Gages/meters				
17	Fire extinguisher				
18					
19					
AREA	OPERATOR'S SIGNATURE				

o SEE REMARKS ON REVERSE SIDE*(Number remark same as time to which it applies)*

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APPENDIX 25-B

SAFE HANDLING AND OPERATING PROCEDURES

1. Wear all personal protective equipment specified by the types of materials being handled including head, foot, eye and skin protection. At a minimum, a hard-hat and safety shoes are required during operation of the forklift.

2. Operators shall occupy the seat of running equipment at all times. Before leaving a forklift unattended, lower the forks to, but not touching, the floor and place the controls in neutral. Turn off the engine, remove the key and set the hand brake. Ensure the equipment is parked in its designated location.

3. Never allow anyone to ride on the forks or any part of the forklift. Be alert to pedestrians. Sound horn and proceed with caution at doorways, blindspots and intersections.

4. Never exceed cargo load limits. Stack and secure cargo properly for safe movement. Drive in reverse if the load blocks your view. If equipped with a backup alarm, maintain positive control by using the accelerator pedal and brake, thus providing a continuous audible warning for nearby crew. Audible alarms do not work when coasting or rolling.

5. Always drive with the load as close to the deck as practical. Normally, the load should be approximately 4 inches above the deck. The mast and load should be fully tilted back. The forklift must be completely stopped when raising or lowering a load.

6. Do not drink, eat or smoke while operating a forklift. Do not operate with wet or greasy hands.

7. Ensure existing deck and weather conditions allow safe movement and operation. Use a spotter when visibility is reduced. Use lights or auxiliary lighting when operating forklifts at night.

8. Never drive a forklift onto an elevator unless authorized by the Safety Officer.

CHAPTER 26

PACKAGE AND PALLET CONVEYOR SAFETY

2601 DISCUSSION

This chapter provides guidance for the safe operation of package and pallet conveyors in accordance with NSTM, Chapter 572, and OPNAVINST 5100.19C.

2602 RESPONSIBILITIES

a. The APMC shall provide formal certified training to designated CIVMARs for conveyor operations and maintenance prior to crewmembers reporting to a ship per paragraph 2604.

b. The Master will approve final qualification for conveyor operators and supervisors and sign the appropriate qualification card.

c. The Chief Engineer shall:

(1) Ensure that all installed safety devices are functioning properly.

(2) Ensure all conveyors are properly maintained.

d. The Cargo Officer/Supply Officer shall ensure that all personnel involved in the use of cargo conveyors are properly trained and qualified to comply with the prescribed safety and operating procedures.

2603 PROCEDURES

a. Operation and Maintenance

(1) Only personnel who have received formal conveyor training will be authorized to operate and maintain the conveyors.

(2) The Equipment Operation Check-off (Appendix 26-A) and the Conveyor Check-off List (Appendix 26-B) will be used by the supervisor to ensure the conveyor is ready for operation.

(3) The Two-Man Rule (Appendix 26-C) will be used when operating pallet or package conveyors.

(4) Operating the conveyor in the continuous mode vice the index mode is inherently more dangerous. Additional caution should be used around continuous operating conveyors since it provides a shorter reaction time.

(5) During underway periods, Deck Department personnel will conduct daily tests of all conveyors in the morning to minimize adverse impact on UNREP operations.

b. Loading. Slide the package on the level loader/unloader all the way into the conveyor. Center it to ensure that the up traveling carrier tray picks it up, that the package will not rub the sides or the rear of the conveyor and will not project too far out of the conveyor. **DO NOT TOSS PACKAGES INTO THE CONVEYOR!**

c. Unloading

(1) Cartons should automatically move off the loader/unloader and onto the gravity conveyor. Some cartons may hang up and require stopping the conveyor. Do not attempt to reach for them while the conveyor is in motion.

(2) When finished, stow the loader/unloader in the vertical position, remove debris from the trays and the base of the conveyor, lock the push button stations, close and lock all access doors and secure the power.

d. Safety Precautions. The guidance included in Appendix 26-D shall be followed and posted in the vicinity at all levels. The Medical Department is responsible for the monitoring of fatigue and stress factors during normal operation of conveyors.

2604 TRAINING

a. The APMC is responsible for providing formal certified training from Carderock Division Naval Surface Warfare Center, Philadelphia or Naval Training Center, Great Lakes to designated CIVMARs for conveyor operations and maintenance prior to crewmembers reporting to a ship.

b. The Master will ensure a proper shipboard training program is established and maintained. The program, at a minimum, should include attendance at regularly scheduled shipboard conveyor training, highlighting safety, operating procedures and back injury prevention. A Conveyor Operator Qualification Record (Appendix 26-E) will be completed for all applicable personnel.

CHAPTER 26 - REFERENCES

26-1 NSTM, Chapter 572, Shipboard Stores and Provision Handling

26-2 OPNAVINST 5100.19C Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat

APPENDIX 26-A

EQUIPMENT OPERATION CHECK-OFF

1. Request authorization to operate the following equipment:_____
Serial Number:_____ on date:_____

2. Personnel are assigned responsibilities as follows:

A. LEVEL:_____ PRIMARY ALTERNATE

(1) Operator/Supervisor _____

(2) Safety Observer _____

(3) Cargo Handler(s) _____

B. LEVEL:_____

(1) Operator/Supervisor _____

(2) Safety Observer _____

(3) Cargo Handler(s) _____

C. OTHER:_____

3. I certify that the above personnel have been properly indoctrinated in the proper use of this equipment. I further certify that I have made visual inspection of items listed on the **Conveyor Check-off List**. All discrepancies discovered have been noted.

_____
Supervisor Date

4. Approval GRANTED/DENIED.

_____
Cargo Officer/Supply Officer Date

5. Despite any discrepancies listed on the **Conveyor Check-off List**, I find the operation of the equipment to be necessary, therefore, approval is granted.

_____
Master Date

APPENDIX 26-B

CONVEYOR CHECK-OFF LIST

1. Does E-Call system work on all levels?	YES	NO
2. Do all emergency stops work on all levels?	YES	NO
3. Do all trip wires shut conveyor off when activated?	YES	NO
4. Do loader/unloader trays work?	YES	NO
5. Can you load more than one tray at a time?	YES	NO
6. Do warning bells sound before conveyor starts?	YES	NO
7. Are warning signs posted on all levels?	YES	NO
8. Are all safety guards in place?	YES	NO
9. Does conveyor have missing trays?	YES	NO
10. Does each loader/unloader have extension handle to raise, lower, on all levels?	YES	NO
11. Does all lighting work?	YES	NO
12. Are brakes in good working condition?	YES	NO
13. Are all limit switches operational?	YES	NO
14. Are all electric eyes working?	YES	NO
15. Are all knobs on switches?	YES	NO
16. Do bell cranks have bent or missing parts?	YES	NO
17. Do all hand held phones work?	YES	NO

NOTE: Refer all safety discrepancies to the Chief Engineer prior to operation!

DISCREPANCIES/COMMENTS:

_____

_____

_____

_____

_____

APPENDIX 26-C

TWO-MAN RULE

1. Supervisor

    a. Responsibilities

        (1) Coordinate safe handling of packages on the level being served.

        (2) Coordinate movement of packages between the levels being served.

        (3) Operate the conveyor.

        (4) Explain safe handling procedures to Safety Observer and Handler(s).

    b. Actions

        (1) Start the conveyor.

        (2) Stop the conveyor under normal and/or unsafe (emergency) conditions.

        (3) Assign specific functions and explain safe handling procedures to each Safety Observer and Handler(s) at the level being served.

        (4) Maintain communication through the existing communications systems with the Supervisor on the level being served to coordinate movement of packages.

        (5) Act as a Handler for a strike-up or strike-down cycle of less than ten packages.

    c. Prohibited Actions

        (1) Act as the Safety Observer or perform the functions of the Safety Observer.

        (2) Perform other functions that detract from his role as Supervisor.

        (3) Act as a Handler for a strike-up or strike-down cycle of ten or more packages.

        (4) Use the conveyor trunk as a communication voice tube.

2. Safety Observer

    a. Responsibilities

        (1) Observe all handling functions at the level being served.

        (2) React to any unsafe operating condition at the level being served by stopping the conveyor.

        (3) Be responsible for the safety of all personnel at the level being served.

        (4) Not allow unsafe operating conditions to exist.

(5) Know the role of all personnel at the level being served.

b. Actions. Stop the conveyor if any unsafe or emergency operating condition occurs or exists at the level being served.

c. Prohibited Actions

(1) Start the conveyor.

(2) Stop the conveyor under normal operating condition.

(3) Act as the Supervisor or perform the functions of a Supervisor.

(4) Act as the Handler or perform the functions of a Handler.

(5) Perform other functions that detract from his role as Safety Observer.

(6) Use the conveyor trunk as a communication voice tube.

3. Handler(s)

a. Responsibilities. Load or unload packages in a safe manner from the conveyor during a strike-up or strike-down cycle.

b. Actions

(1) Load packages onto the conveyor at the level being served.

(2) Unload packages from the conveyor at the level being served.

(3) Use gravity conveyors during strike cycles to the greatest extent possible.

(4) Stop the conveyor if any unsafe or emergency operating condition occurs or exists.

(5) Prevent back injury by using good body mechanics and lifting techniques.

c. Prohibited Actions

(1) Start the conveyor.

(2) Stop the conveyor under normal operating condition.

(3) Act as a Supervisor or perform the functions of a Supervisor.

(4) Act as a Safety Observer.

(5) Perform other functions that detract from the role as a Handler.

(6) Maintain communication between the levels being served.

(7) Use the conveyor trunk as a communication voice tube.

APPENDIX 26-D

SAFETY PRECAUTIONS FOR CONVEYORS

The following safety precautions are promulgated for the protection of all hands and must be understood and practiced by all conveyor operators. Hold captains and supervisors are responsible for ensuring that these safety precautions are observed.

1. Conveyors shall be operated only by duly authorized operators who have been qualified.

2. Do not look up or down in conveyor trunks while conveyors are operating.

3. Keep hands and feet clear of preset tines as these intermesh with tines on tray.

4. Do not attempt to clear an obstruction without first stopping conveyor.

5. Do not start conveyor without informing all crews by communication system.

6. All doors to conveyor trunks will remain closed except those at deck levels being worked.

7. Do not load larger or heavier items than rated capacity.

8. Do not throw or pitch boxes onto the tines. Be sure that the load is properly placed to clear the front guard.

9. Do not by-pass any installed safety devices to permit operation. The photoelectric cells and pressure plates are important safety features.

10. Never run without all guards in place.

11. Whenever there is suspicion of a problem with the conveyor, stop the conveyor and contact the Chief Engineer.

12. Fatigue factors must be monitored by responsible medical personnel.

APPENDIX 26-E

CONVEYOR OPERATOR QUALIFICATION RECORD

NAME:_____ **DEPT:**_____

1. Does operator wear glasses? YES ☐ NO ☐
2. Does operator have hearing difficulty? YES ☐ NO ☐
3. Does operator clearly speak and understand English? YES ☐ NO ☐

The ship's conveyor instructor shall sign and date the following qualifications as they are met.

QUALIFICATIONS	SIGNATURE	DATE
1. Received instruction on preoperative checks.	_____	_____
2. Received instruction on all safety conveyor precautions.	_____	_____
3. Received instruction on load limits.	_____	_____
4. Received operating instruction.	_____	_____
5. Received instruction on how to report malfunctions.	_____	_____
6. Received instruction on emergency stop.	_____	_____
7. Under close supervision, demonstrated ability to operate conveyor proficiently.	_____	_____
8. Passed written test.	_____	_____

_____

Cargo Officer/Supply Officer **Date**

_____

Master **Date**

CHAPTER 27

CONTRACT LIBERTY BOAT SAFETY

2701 DISCUSSION

a. Unsafe contract liberty boats (water taxis) have contributed to the death and injury of MSC personnel. To reduce the hazards associated with these operations, contracts for these services shall specify a minimum level of safety and seaworthiness. In addition, the Master is required to ensure that a knowledgeable officer inspects water taxis prior to their being placed in service and at least daily thereafter.

b. This chapter provides guidance on these safety inspections.

2702 PROCEDURES

a. Program Managers shall:

(1) Ensure that ships comply with the standard specifications and inspection criteria when awarding contracts for water taxi services.

(2) Ensure that contracts for safe reliable water taxi services are available in ports which MSC vessels frequent.

b. Supply Officers shall incorporate the standard specifications and inspection criterion into all contracts for Water Taxi Services in low use ports where there are no existing NRCC/FISC contracts.

c. Prior to a water taxi being placed into service, a knowledgeable officer, acting for the Master, shall inspect and approve contract liberty boats (water taxis) for use, if the following safety criteria are met:

(1) Navigation lights, lighted compass, distress signals and a fog signal device are present and in working condition. Area charts are available and current.

(2) Fire extinguishers are present in sufficient number for the size of the boat and currently inspected.

(3) There is a working radio aboard, with backup battery, capable of bridge-to-bridge communications.

(4) Anchor and anchor chain are adequate given the size of the vessel.

(5) Weather deck drains are free from obstructions and drain overboard; not into the bilge.

(6) Engineering spaces/compartments are free of fire or flooding hazards.

(7) Topside areas are free of conditions which may be hazardous to passengers.

(8) The vessel is equipped with sufficient clean and serviceable life jackets for the maximum capacity of the vessel. Life jackets must be stowed in a readily accessible place marked clearly in English.

(9) Decks, railings, doors and seats are structurally sound and latched or tightened, as appropriate.

(10) No bare or exposed electrical wires or connections are located in the passenger area.

(11) Sufficient unobstructed exits from the passenger area are present and marked in English.

(12) No missile hazards, loose gear or trip hazards exist.

d. It is impractical to establish detailed specifications for each and every inspection item. Inspectors must use their judgment and experience when advising the Master on the overall safety of the contract water taxi.

e. Any item missing that is critical to safety may be provided by the Master for the duration of the contract boat services.

f. In all cases where government furnished property is provided due to contractor's failure to meet the terms of the contract or the contractor's vessel is unsafe for use, the Master shall immediately notify the contracting officer of the circumstances surrounding the deficiency(ies). If the contracting officer is not on site, notification shall be by message.

g. A knowledgeable officer (Boat officer) shall be assigned and qualified by the Master to oversee the loading and discharging of crew when liberty boats (water taxis) are along side a MSC ship. Boat officers have the authority to:

(1) Not allow boarding when the water taxi's crew performance and navigation are unsatisfactory.

(2) Refuse to get underway when weather conditions are determined to be unsafe.

(3) Require persons under the influence of alcohol or drugs, to wear a life preserver and be assisted boarding the ship.

CHAPTER 27 - REFERENCES

27-1	OPNAVINST 5100.19C	Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat

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